ACTA VŠFS

Economic Studies and Analyses
Ekonomické studie a analýzy

Social Europe – Problems and Perspectives
Sociální Evropa – problémy a perspektivy

University of Finance and Administration
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EDITORIAL

AWARD – WINNING ESSAY / OCENĚNÁ PRÁCE

CONFERENCE LECTURES / ODBORNÉ PŘEDNÁŠKY

A Look Back at the Conference Social Europe – Problems and Perspectives

Ohlédnutí za konferencí Sociální Evropa – problémy a perspektivy

BOJKA HAMERNÍKOVÁ

At the beginning the 2009 year, the rector of the University of Finance and Administration, Bohuslava Šenkýřová, announced the 2nd Competition for the Prize of Professor František Vencovský for young researchers up to 35 years old with the topic of **Social Europe – Problems and Perspectives.** This competition, which takes place every two years, reflects the intention of univesity management to strengthen and support over the long-term the school's scientific research activities and especially to support young talented researchers.

The evaluation of the competition and announcement of the winners took place, with an unusually high number of participants, at the scientific conference on November 27, 2009 at the Congress Center of the Czech National Bank. Jan Frait (CNB) analyzed in detail the difficult topic that was selected this year and also explained the reasons that lead the nominating scientific committee to not grant this year's main prize of professor František Vencovský. A special prize (50 000 CZK) was received by Kateřina Pavloková (Ministry of Health of the Czech Republic), attending doctorate level studies at IES FSV UK) for her work, which received the most points.

The conference was organized under the auspices of CNB Governor Zdeněk Tůma, who personally participated in the conference. The conference's VIP guests also included the widow of the late prof. F. Vencovský, Mrs. Věra Vencovská. In addition to domestic experts headed by Minister of Finance E. Janota, J. Rusnok (President of ING PF) and J. Vostatek (Head of Department of the University of Finance and Administration), there was also a presentation by the renowned British economist and expert on public finances, Nicholas Barr from the London School of Economics. Similarly to Jiří Rusnok, he also spoke about the importance and principles of reforms of pension systems with a focus on selected countries of the world. Professor Vostatek presented an interesting lecture about the developing tendencies of social security, where he focused mainly on Europe and the Czech Republic. The experts' lectures are printed in this special issue.

The afternoon schedule promised a no less interesting program, since bringing together our best experts on public finances, demographics, pension systems, social security, insurance and economic analyses in the panel discussion at the same time and in the same place was a truly superhuman act. And we succeeded. Invitations to participate in the panel discussion entitled **Social security, population aging and sustainability of public finances** were accepted by: Jiří Král – Head Director of the Ministry of Labour and Social

Affairs of the Czech Repubic, Drahomíra Vašková – Director of the European Union Department at the Ministry of Finance of the Czech Republic, Vladimír Bezděk – General Manager of AEGON PF, David Marek – Chief Economist at Patria Finance, Jitka Rychtaříková – Head of the Department of Demographics and Geodemographics – Faculty of Natural Sciences, Charles University, Pavel Dvořák – Professor at the University of Economics and researcher at the Centre for Economic Studies and Analyses of the University of Finance and Administration, and Ladislav Průša – Director of the Research Institute of Labor and Social Affairs and researcher at Centre for Economic Studies and Analyses of the University of Finance and Administration. The panel discussion was moderated by Bojka Hamerníková, Vicerector for Research and Development at the University of Finance and Administration. The answer to the final question of what role is played by experts in reform processes and what is the fate of expert recommendations in the hands of politicians sounded more like a sigh over the fact that political decisions, especially those regarding public finances, are in the end consensuses of the ruling political parties that were difficult to reach, miles apart from the expert analyses, forecasts and expert recommendations.

The program also included a special profile dedicated to Professor Vencovský, which was recorded by the Unviersity Multimedia Center team under the guidance of art supervisor P. Čírtek.

A look back at the successful 2nd competition and international scientific conference makes it possible to express great interest by young economists, academic institutions as well as by the professional public. The name of Professor Vencovský – a renowned Czech economist and exceptional university professor by itself assumed a high level of preparedness by the conference organizers. The conference was ruled by a spirit of professional enthusiasm, inspired thinking and supporting ideas. The participation of young experts and students was the best evidence of this.

The second competition for the Prize of Professor F. Vencovský is already behind us and let us believe that the traditional competition for young researchers up to 35 years old for the Prize of Professor F. Vencovský, in its bi-annual form, will continue to find its fans also for future and that high-quality and inspiring papers on a new topic will once again meet at the next competition.

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Začátkem roku 2009 vyhlásila rektorka Vysoké školy a finanční a správní Bohuslava Šenkýřová bienále soutěže o Cenu prof. Františka Vencovského 2009 pro mladé výzkumníky do 35 let s tématem **Sociální Evropa – problémy a perspektivy.** Tato soutěž s dvouletou periodicitou odráží záměr vedení VŠFS posílit a dlouhodobě podporovat vědeckovýzkumnou činnost školy a hlavně podporovat mladé talentované výzkumníky.

Zhodnocení soutěže a vyhlášení výsledků proběhlo za nebývale vysokého počtu účastníků na vědecké konferenci dne 27. listopadu 2009 v Kongresovém centru České národní banky. Jan Frait z ČNB podrobně rozebral náročnost zvoleného tématu a vysvětlil i důvody, které vedly nominační vědecký výbor k tomu, že letošní hlavní cena soutěže nebyla udělena. Zvláštní cenu (50 000 Kč) za práci, která získala nejvíce bodů, obdržela PhDr. Kateřina Pavloková (MZ ČR, studující doktorské studium na IES FSV UK).

Konference byla pořádána pod záštitou guvernéra ČNB Zdeňka Tůmy, který se osobně konference zúčastnil. Mezi významné hosty konference patřila také paní Věra Vencovská, vdova po zesnulém prof. F. Vencovském. Kromě domácích odborníků v čele s ministrem financí E. Janotou, J. Rusnokem (prezident ING PF) a J. Vostatkem (vedoucí KRPMVS VŠFS) vystoupil významný britský ekonom, odborník na veřejné finance, Nicholas Barr z London School of Economics. Podobně jako Jiří Rusnok hovořil o významu a principech reforem důchodových systémů se zaměřením na vybrané země světa. Profesor Vostatek přednesl zajímavou přednášku o vývojových tendencích sociálního zabezpečení, kde se zaměřil především na Evropu a Českou republiku. Přednášky výše uvedených odborníků jsou otištěny v tomto mimořádném čísle.

Odpolední program sliboval neméně zajímavou podívanou, neboť zapojit do panelové diskuse naše nejlepší odborníky na veřejné finance, demografii, důchodové systémy, sociální zabezpečení, pojištění či ekonomické analýzy ve stejném čase a na stejném místě byl počin věru nadlidský. A podařilo se. Na panelovou diskusi s názvem **Sociální zabezpečení, stárnutí obyvatelstva a udržitelnost veřejných financí** pozvání přijali: Jiří Král – vrchní ředitel MPSV ČR, Drahomíra Vašková – ředitelka odboru Evropská unie MF ČR, Vladimír Bezděk – generální ředitel AEGON PF, David Marek – hlavní ekonom Patria Finance, Jitka Rychtaříková – vedoucí katedry demografie a geodemografie – PřF Univerzita Karlova, Pavel Dvořák – profesor VŠE a výzkumný pracovník CESTA VŠFS a Ladislav Průša – ředitel Výzkumného ústavu práce a sociálních věcí a výzkumný pracovník CESTA VŠFS. Panelovou diskusi moderovala Bojka Hamerníková, prorektorka pro výzkum a vývoj VŠFS. Odpověď na závěrečnou otázku, jakou roli zaujímají odborníci v reformních procesech a jaký je osud odborných doporučení v „rukou" politiků, zazněla spíše jako povzdech nad tím, že politická rozhodování, zvláště pak o veřejných financích, jsou ve svých důsledcích těžce dosažené konsenzy vládnoucích politických stran, na míle vzdálené expertním analýzám, prognózám a odborným doporučením.

Zvláštním bodem programu byl medailonek věnovaný profesoru Vencovskému, který natočil tým Multimediálního centra VŠFS pod vedením uměleckého vedoucího P. Čírtka.

Ohlédnutí za proběhlou soutěží a mezinárodní vědeckou konferencí umožňuje konstatovat velký zájem ze strany mladých ekonomů, akademických institucí a též odborné veřejnosti o zvolené téma. Jméno prof. Vencovského – významného českého ekonoma a výjimečného vysokoškolského učitele samo o sobě předpokládalo vysokou úroveň připravenosti organizátorů konference. Konferencí vládl duch odborné zaujatosti, inspirativních myšlenek a nosných nápadů. Účast mladých odborníků a studentů byla tím nejlepším důkazem.

Cena prof. F. Vencovského 2009 je již úspěšně za námi a věřme, že tradice soutěže pro mladé výzkumníky do 35 let o Cenu prof. F. Vencovského formou bienále bude nacházet své zájemce i do budoucna a že se na nově vypsané téma soutěže opět sejdou kvalitní a inspirativní práce.

doc. Ing. Bojka Hamerníková, CSc.
Expert Guarantee of the Conference
University of Finance and Administration

Welcome Speech of the Rector
Úvodní slovo rektorky

BOHUSLAVA ŠENKÝŘOVÁ

Dear colleagues, guests, ladies and gentlemen,

Please allow me to welcome you at today's **Social Europe – Problems and Perspectives** scientific conference organized by the University of Finance and Administration in partnership with the Czech National Bank and under the auspices of the Governor, Mr. Zdeněk Tůma.

When more than two years ago we decided to declare a competition for young talented economists for the Prize of Professor František Vencovský, we had on our minds the support of the development of research in various fields of economic theory and practice. The successful first year of this competition and the response to the first scientific conference in 2007 confirmed the justification of our actions.

Professor František Vencovský was not only an important Czech economist and university professor, but he was also an expert who played in important role in maintaining continuity in Czech economic thinking. Thanks to Professor Vencovský, the legacy and work of his famous teacher, Karel Engliš, became more accessible after 1989 and can thus once again be an inspiration even for the current generation of economists and politicians. As Professor Vencovský noted, it wasn't "…just a matter of historical justice, but it was mainly a matter of the need of a proper economic education so that the ice was broken and so that Engliš's theory of national economics once again became an inspiring source of knowledge for those that want to understand economic events and management from perspectives other than those that had been usual up until now."[1]

Professor František Vencovský was not only a follower and populizer of the work of Karel Engliš, but he was also a renowned expert in the area of monetary economics and a highly knowledgeable and kind teacher, lecturer and colleague.

We perceive this 2nd Competition for the Prize of Professor František Vencovský and today's scientific conference as the next small step in the building of a tradition that will maintain continuity in the area of expert discussion and research.

The selection of the "Social Europe – problems and perspectives" topic is based on the need for the creation of a platform for expert discussion on current issues of social policies of contemporary Europe.

We would like to inspire – or at least contribute to the inspiration of – the development of fact-based expert discussions on the key problems of the execution of social policy. The

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1   See ENGLIŠ, K. Národní hospodářství [National Economy] (selected chapters), p. 18.

European Union is attempting to handle the social dimension of the economic and financial crisis through increased efforts in the promotion of employment and social integration. The instruments of this strategy are: mobilization of European Union subsidies, support of employment, cooperation with social partners and cooperation with foreign partners.

In the conditions of the economic and financial crisis, especially in the context of improving working conditions and development of the labor market, the questions of an aging population, sustainability of pension systems and efficiency of the social care system are becoming more and more pressing and are being discussed more and more. Among the important and frequently discussed topics are, for example, the removal of work mobility barriers, battle against social exclusion and poverty, support of diversity, efforts for a better balance between work and personal life, support of opportunities at all ages, support of education and flexibility and other social phenomena.

The social consequences of the global economic and financial crisis and the possibilities of how to make it an opportunity for the European Union are the current issues of today to which we would like to contribute through our conference. One of the goals of today's meeting is to present not only opinions, but also the results of research in this area and also to contribute to the identification of basic as well as current problems of social policy, whether these concern the viability and rationality of the setting of its goals or the search for the optimum ways of their implementation. If the current financial and global crisis exacerbated some (maybe most) of the traditional problems that are the subject of social policy and increased the degree of their urgency, at the same time it did not solve anything, respectively it accentuated even more the need of handling them through qualified solutions based on serious economic research. This applies mainly to the question of the sustainability or optimization of public budgets (namely both the possible restructuralizations of their expenditure side, but mainly the possibility of the optimization of their "income" side). Questions connected with the reform of the pension system and social care system must also not be forgotten.

The University of Finance and Administration deals with the topic of company social responsibility, not only in the international European "Social Responsibility of Companies – Opportunity or Necessity?" project, which we joined this year in April together with partner schools in the Netherlands, Great Britain, France, Turkey and Slovenia. We are implementing the principle of social responsibility at the economic, social and environmental levels into the everyday life of the school.

At today's conference we will present the opinions of leading domestic and foreign economists regarding the current problems of social policy in contemporary Europe and we will attempt to map possible areas that economic research could tackle. I am firmly convinced that the expert presentations and papers that will be presented during this conference will be a valuable contribution to a purposeful and sensible orientation of research activities focused on the resolution of the mentioned problems.

In conclusion, please allow me to wish you a successful professional discussion.

Thank you for your attention

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Vážené kolegyně, kolegové, vážení hosté, dámy a pánové,

dovolte, abych Vás přivítala na dnešní vědecké konferenci **Sociální Evropa – problémy a perspektivy** pořádané VŠFS ve spolupráci s ČNB, pod záštitou guvernéra pana Zdeňka Tůmy.

Když jsme se před více než dvěma lety rozhodli vyhlásit soutěž pro mladé talentované ekonomy o Cenu prof. Františka Vencovského, měli jsme na mysli podporu rozvoje výzkumu v různých oblastech ekonomické teorie a praxe. Úspěch této soutěže a ohlasy první vědecké konference v roce 2007 potvrdily opodstatněnost našeho konání.

Profesor František Vencovský byl nejen významným českým ekonomem a vysokoškolským pedagogem, ale i odborníkem, který se zasloužil o udržení kontinuity v českém ekonomickém myšlení. Zásluhou prof. Vencovského se odkaz a dílo jeho slavného učitele Karla Engliše stalo po roce 1989 dostupnější, a může tak znovu být inspirací i pro současnou generaci ekonomů a politiků. Jak profesor Vencovský poznamenal, nebylo to „…jen záležitostí historické spravedlnosti, ale především záležitostí potřeby náležitého ekonomického vzdělání, aby se i u nás prolomily ledy a aby se Englišova národohospodářská teorie stala opět inspirujícím poznáním pro ty, kteří chtějí porozumět ekonomickému dění a řízení i z jiných pohledů, než jaké jsou dosud obvyklé." [2]

Profesor František Vencovský byl nejen následovníkem a popularizátorem díla Karla Engliše, ale též významným odborníkem v oblasti monetární ekonomie a nesporně fundovaným a laskavým učitelem, školitelem a kolegou.

Konání již druhé soutěže o Cenu profesora Františka Vencovského a dnešní vědeckou konferenci chápeme jako další krůček při budování tradice udržující kontinuitu v oblasti odborné diskuse a výzkumu.

Volba tématu Sociální Evropa – problémy a perspektivy vychází z potřeby vytvořit platformu pro odbornou diskusi k aktuálním problémům sociální politiky současné Evropy.

Chceme inspirovat či aspoň přispět k inspiraci rozvoje věcných odborných diskusí ke klíčovým problémům realizace sociální politiky. Evropská unie se snaží řešit sociální rozměr ekonomické a finanční krize zvýšeným úsilím při propagaci zaměstnanosti a sociálního začlenění. Nástroji této strategie jsou: mobilizace dotací Evropské unie, podpora zaměstnanosti, spolupráce se sociálními partnery a spolupráce se zahraničními partnery.

V podmínkách ekonomické a finanční krize, zejména pak v kontextu zlepšování pracovních podmínek a rozvoje pracovního trhu, jsou otázky stárnutí populace, udržitelnost důchodových systémů a efektivnosti systému sociální péče stále naléhavější a stále více diskutované. K důležitým a často diskutovaným tématům patří např. také odstraňování bariér pracovní mobility, boj proti sociálnímu vyloučení a chudobě, podpora rozmanitosti,

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2   Viz ENGLIŠ, K. Národní hospodářství (vybrané kapitoly), s. 18.

snaha o lepší rovnováhu mezi prací a osobním životem, podpora příležitostí v každém věku, podpora školení a flexibility a další sociální fenomény.

Sociální důsledky globální ekonomické a finanční krize a možnosti, jak z ní učinit příležitost pro Evropskou unii, jsou aktuální záležitostí současnosti, ke které chceme přispět dnešní konferencí. Jedním z cílů dnešního setkání je prezentovat nejen názory, nýbrž i výsledky bádání v této oblasti a také přispět k identifikaci základních i aktuálních problémů sociální politiky, ať již jde o reálnost a racionalitu stanovení jejich cílů či hledání optimálních cest jejich realizace. Jestliže současná finanční a hospodářská krize některé (možná většinu) z tradičních problémů, které jsou předmětem sociální politiky, svým způsobem vyostřila a zvýšila stupeň jejich aktuálnosti, současně nic nezměnila, respektive ještě více zdůraznila nutnost jejich kvalifikovaného řešení opřeného o seriozní ekonomický výzkum. To se týká především otázky udržitelnosti či optimalizace veřejných rozpočtů (a to jak možných restrukturalizací jejich výdajové stránky, tak především možnosti optimalizace „příjmové" části). Nelze opomenout ani otázky spojené s reformou důchodového systému a systému sociální péče.

Vysoká škola finanční a správní se zabývá tématem společenské odpovědnosti firem, a to nejenom v mezinárodním evropském projektu Společenská odpovědnost firem, příležitost nebo nutnost?, do kterého jsme se zapojili v dubnu 2009 společně s partnerskými školami z Holandska, Velké Británie, Francie, Turecka a Slovinska. Princip společenské odpovědnosti v rovině ekonomické, sociální a environmentální zavádíme do každodenního života školy.

Na dnešní konferenci budeme prezentovat názory předních domácích a zahraničních ekonomů na aktuální problémy sociální politiky současné Evropy a pokusíme se zmapovat možné oblasti, jimiž by se mohl ubírat ekonomický výzkum. Jsem pevně přesvědčena, že vystoupení a referáty odborníků, které v průběhu této konference zazní, budou cenným příspěvkem k účelné a smysluplné orientaci výzkumných aktivit zaměřených na řešení zmíněných problémů.

Závěrem mi dovolte, abych vám popřála úspěšnou odbornou diskusi.

Děkuji za pozornost

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University of Finance and Administration, Rector

Intergenerational Solidarity of the Public Health Care Systems in Europe

Mezigenerační solidarita v systémech veřejného zdravotnictví v Evropě[1]

KATEŘINA PAVLOKOVÁ

Abstract

Ageing of the population has become one of the important topics in developed countries in recent times. Health care and pension systems based on solidarity are especially vulnerable to demographic changes associated with falling fertility rates and increasing life expectancy. The main task of the paper is to answer and quantify the question who bears the costs and who benefits from the public health care systems and reveal possible future imbalances. We introduce a long-term projection technique enhanced by some elements of generational accounting approach with intent to express the ageing problem in the health care sector. We explore both the revenue side of the public health care systems as well as the health care expenditures from the perspective of separate generations. Following countries have been selected as the representatives of the European health care systems: the Czech Republic, Denmark, Estonia, France, Italy, the Netherlands, Switzerland and the United Kingdom. The model points to un-sustainability of the current public health care systems if the effective tax rates did not increase. If the demand for health care had to be satisfied, the health care systems financed through social contributions and income-based taxes would be faced with increasing burden on working population.

Keywords

health care financing, sustainability, generational accounts, population ageing

JEL classification

E62, H51, I18

Abstrakt

Stárnutí obyvatelstva se stalo v poslední době jedním z důležitých témat v mnoha rozvinutých zemích. Důchodové systémy a systémy financování zdravotnictví založené na solidaritě jsou výrazně citlivé na demografické změny související s klesající porodností a rostoucí střední délkou života. Cílem tohoto článku je ukázat a vyčíslit možnou budoucí nerovnováhu v systémech financování veřejného zdravotnictví a prezentovat jej i z pohledu jednotlivých generací. Abychom lépe vyjádřili problém stárnutí obyvatelstva v systémech financování veřejného zdravotnictví, obohacujeme tak standardní přístup k dlouhodobým projekcím o prvky generačního účetnictví. Srovnání systémů napříč Evropou umožňuje výběr reprezentativních systémů financování zdravotnictví, a to České

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1 *Award-winning essay of Prof. F. Vencovský 2009 Prize.*

republiky, Dánska, Estonska, Francie, Itálie, Nizozemí, Švýcarska a Velké Británie. Výsledek modelu ukazuje na neudržitelnost současných systémů financování. Má-li být poptávka po zdravotních službách uspokojena, budou systémy založené na veřejném zdravotním pojištění nebo na daních z příjmu klást rostoucí nároky na pracující populaci, a zvyšovat tak pnutí a požadavky na další redistribuci podmíněnou rostoucí daňovou zátěží, aby nedošlo k omezování zdravotních služeb. Míru ohrožení starší populace omezením poskytované zdravotní péče v jednotlivých letech a zemích vyjadřujeme indexem soběstačnosti, který ukazuje na některá rizika vybraných systémů.

Klíčová slova
financování zdravotnictví, udržitelnost, generační účty, stárnutí obyvatelstva

Introduction

Ageing of the population has become an important topic in developed countries in recent times. European health care and pension systems based on solidarity are especially vulnerable to demographic changes associated with falling fertility rates and increasing life expectancy. Even though new approaches to the modelling of health care sector expenditures predicting lower increases in ageing-related health care expenditure than previously assumed have emerged, health care systems will be affected by population ageing.

Modifying a long-term projection approach with some fragments of the generational accounting methodology, we explore the revenue side of public health care systems as well as the health care expenditure side from the perspective of separate generations. Due to an increasing dependency ratio, health care systems financed through social contributions and income-based taxes will be faced with an increasing burden on the working population if the demand for health care is to be satisfied. In the long term, however, health care expenditure will always tend to equal the revenues of the health care system. In other words, if revenues remain at current levels, some of the demand for health care will not be satisfied.

In order to represent the differences between the various systems of health care financing we have chosen eight representative countries from all over Europe. These countries are: Denmark, Estonia, France, Italy, the Netherlands, Switzerland, the United Kingdom and the Czech Republic.

The plan of this study is as follows. First of all, we briefly discuss economic implications of the phenomena known as ageing, which reflects most of major changes the study count with. Thereafter we continue with a detailed description of the long-term projection technique developed for the study and give the descriptive statistics of the main variables. The third part then summarises results and conclusion discusses the implications for policy-makers.

1   Ageing society and its basic economic implications

Ageing of the population may be characterised as a long-term process where the structure of the population changes due to falling fertility rates or increasing life expectancy or both, on condition that net migration does not contribute too extensively to reverse the

process. In such a population the group of elderly, i.e. people usually older than 64 years or even better those of retired from the economic point of view[2], considerably enlarges and becomes a significant social, economic and political unit.

The "graying" of the population in the developed part of the world is a result of three factors. First, post-war "baby boom" generation, i.e. generation born between 1946 and 1964, comprising now 25% (Eurostat, 2009) of the European population is approaching retirement age (Chamberlain and Prante, 2007), second, rising living standard and female labour force participation supported by higher education cause that families have decided to have fewer children which results in decline of the population growth rate (Day and Dowrick, 2004).[3] And last but not least, higher quality of health care, generous social systems guaranteeing substantial minimum living standard and environment without any serious war conflicts or environmental disasters, jointly contribute to longevity.

Turner et al. (1998) provides a number of main channels the ageing affects the macroeconomics through. First, changes in the labour force are supposed to be most directly involved by ageing as labour force is expected to shrink and change its structure. Second, increasing share of older workers could possibly have adverse effects on productivity since they might be "less dynamic and innovative". On the other hand, the labour shortage might work as an incentive to technological investments[4] and findings of new substitutes to scarce labour. Third, the "life-cycle" hypothesis reflects the influence on private saving behaviour. However, the effect is ambiguous as it may stem from lower fertility or greater life expectancy in the ageing process. "Under the life-cycle hypothesis, a rise in life expectancy would lead individuals to save more during their working years in order to maintain consumption over a longer retirement period, and so generate higher aggregate private savings. By contrast, a decline in population growth due to lower fertility would leave individual savings profiles unchanged, but lead to lower aggregate savings as the proportion of the low-saving elderly in the population increased…" (Turner et al., 1998, p. 12). Momentous changes in national savings might further influence flows of goods, services and capital amongst economies and thus contribute to exchange rate and balance of payments adjustments. The final channel is a frequent topic in nowadays academic and policy research studies – the pressure of ageing on public finance, the aspect we deal with in this study from the public financed and provided health care point of view. Higher pension and both acute health and long-term care[5] expenditures, possibly mitigated by lower educational costs, represent the main expenditure drivers, which, along with uncertain revenues, are challenging task for many researchers and policy-makers at the present time.

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2   In demographic perspective, the end of reproduction period of women is taken into account (usually age of 50).

3   Simultaneous influence of the effects of falling fertility and increasing longevity relates to a "double ageing".

4   Cutler's et al. (1990) evidence suggests that countries experience higher productivity growth if the labour force develops slower.

5   The term health care refers to the acute health and long-term care further in the text.

The gradually taking place ageing is likely to change demand for goods and services provided by both private and public sector (Denton and Spencer, 1998). The product and service structure is probable to be modified, some of them may disappear and others may have to be developed and introduced entirely new. And even if the effect of some of them is to appear in one, two or maybe three decades, it would be quite desirable to start preparing new capacities as soon as possible in order to be ready for different demand (in product market) and supply (in labour market) in every area of our life.

Ageing has far-reaching consequences associated with each of us. Changes in health and long-term care might represent only a small fraction, however a significant one.

2   Methodology

First of all we would like to point out that all calculations in the model are based on demographic and economic projections which more or less predetermine the results. Estimates of the future path of variables such as participation and unemployment rates, labour productivity growth, life expectancy and total fertility rates play an important role in the correctly calibrated model and its output. One should bear in mind that the results of such studies are not an accurate forecast of the future. Rather, they present the possible path stemming from the trend evolution of the projected variables and their mutual relationships. Furthermore, they are based on a so-called "no-policy-change scenario", which means that no future corrections and changes e.g. to tax bases, tax rates, transfer policies or any other policy measures are taken into account.

The basic approach we have used for long-term projections of the economic variables as well as the expenditures side of the public health care systems is the methodology of the Ageing Working Group of the European Commission (2008b). However the model is modified and augmented by the analysis of the revenues side of the healthcare systems as well as by some features of the generational accounting method.

The projection model is further augmented by some elements of generational accounting, a method originally developed by Auerbach et al. (1991) designed to evaluate and compare the burdens of current and future generations stemming from recent government policy. The method provides a very useful tool for public finance sustainability assessment of the present arrangements. The calculations are thus made for every age and gender cohort instead of approach per each year. Nevertheless, our technique allows us to calculate the outcomes retrospectively in the other way as well.

The main idea behind the concept of the generational accounting is the fact that every individual is both a taxpayer and, on the other hand, a transfer beneficiary during his life. In the life cycle hypothesis[6], the various burdens and transfers arising out of the government sector are age and gender specific. For example, personal income taxes are, in a simplified way, paid only when an individual is working. Moreover, the amount of tax collected differs according to the amount of the wage. Young and elderly people are assumed not to pay these taxes. Alternatively, the higher life expectancy of women implies that old-age

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6   *Developed by Ando and Modigliani (1963) – see Dybczak (2006), p. 3.*

pensions will be paid to women for a longer time than to men. Nonetheless, the average old-age pension paid to men is supposed to be higher due to the higher levels of their previously earned wages. In the health care sector the situation is in many aspects similar. The retirees paying only consumption taxes are at major risk to a range of illnesses and health difficulties, whereas people at working age bear the most costs connected with the health care.

Broadly speaking, "…generational accounts indicate, in present value, what the typical member of each generation can expect to pay, now and in the future, in net taxes (taxes paid net of transfers received)" (Auerbach et al., 1994, p. 75). Considering the age dependency, generational accounting takes into account the age profile of an average person, presenting "…whether the tax and transfer-policy of a selected base-year can be maintained into the indefinite future or whether sooner or later adjustments will be necessary in order to meet the government's intertemporal budget constraint" (European Commission, 1999, p. 1).

The following text describes how we have incorporated the generational aspect into the projection technique, whereas six sections (modules) relating to the diverse projection subjects are distinguished. The first one is devoted to the core element of all economic projections – the demography development. The second module explains how to use demographic projection to determine the future labour market development. Labour productivity as well as gross domestic product are subjects of the third and fourth module together with closer ruminating of constant factors of production shares. And last but not least two final sections deal with health care expenditure and revenue estimates and projections.

In this place, it is worth noting that the projection should not be affected by current economic crisis as it is a long term projection. Values of selected variables will probably differ from the observed ones also in a short time horizon but the aim of a long term projection is not to predict future but to point out to possible problems arising from current trends.

2.1 Demography

The overall "exercise" starts with a demographic projection based on Eurostat's EuroPop 2008 migration convergence scenario. The projection assumes that the socio-economic and cultural differences between the EU Member States, Norway and Switzerland will fade out in the very long run. This assumption implies convergence of demographic values (see Table 1 for the Eurostat's assumptions). The migration flows will converge to zero net migration. The methodology consists essentially of setting the values of the demographic indicators for the convergence year 2150, i.e. the year in which the theoretical convergence would be achieved, and of appropriately interpolating from the starting value for each country and each demographic component (fertility, mortality). The national values for the year of interest (target year, 2060) are thus derived (in appendix I "Population pyramids – 'trees and coffins' of life" can be found a graphical description).

Table 1: Assumptions for the Eurostat's EuroPop 2008 demographic projection

Country	Total fertility rate	Life expectancy at birth		Migration assumptions
		Males	**Females**	
Czech Republic	1.52	83.2	87.8	13.0
Denmark	1.85	84.3	88.4	6.5
Estonia	1.66	80.8	87.5	-0.1
France	1.93	85.1	90.1	6.0
Italy	1.55	85.5	90.0	19.9
Netherlands	1.77	84.9	88.9	3.0
United Kingdom	1.84	85.0	88.9	10.1
Switzerland	1.59	85.8	89.9	19.1

Source: Eurostat (2008c).

Additionally in **Table 1,** it is worth noting that the fertility rates are below the natural population replacement rates, which are required to maintain population.

Table 2 gives a simple data description where economic, i.e. young and old-age, dependency ratios are displayed. The economic (or total) dependency ratio reflects the decreasing share and ageing of the working-age population. From the current level, ranging between 40.8% in the Czech Republic to 53.7% in France, the dependency ratio is supposed to change dramatically. High increases in the Czech Republic (by 47.5 p.p. to 88.4%), Estonia (by 35.8 p.p. to 82.8%) and Italy (by 33.0 p.p. to 84.9%) anticipate a rising ageing problem that will have to be faced in the not-too-distant future. All the other countries considered are confronted with a similar problem, even if some of them rather less so than the others.

Table 2: Economic dependency ratios (in %, p.p., 2008 – 2060)

Country	2008	2010	2020	2030	2040	2050	2060	Change 2060 – 2008
Czech Republic	40.8	42.1	53.8	57.0	64.8	79.9	88.4	47.5
Denmark	52.0	53.2	59.3	68.0	74.8	72.4	74.1	22.1
Estonia	47.0	47.3	56.3	60.1	63.9	75.0	82.8	35.8
France	53.7	54.5	63.2	69.9	76.1	77.6	77.6	23.8
Italy	51.9	52.4	56.7	64.0	77.8	84.2	84.9	33.0
Netherlands	48.6	49.2	56.3	67.9	76.5	75.1	76.7	28.2
Switzerland	47.0	47.5	52.7	61.9	67.4	69.6	73.3	26.4
United Kingdom	50.8	51.4	57.9	64.5	69.2	72.5	76.5	25.8

Note: The Economic dependency ratio is calculated as the ratio of the number of people aged 0 – 14 and 65 and older to those of working age (15 – 64). Since the Eurostat's projection is always dated to the 1st January, annual averages are presented in the table.
Source: Eurostat (2008c). Author's calculations.

2.2 Labour market

Demographic projection is then used to calculate the total labour force (EA_t). Due to accessibility, we use the European Commission's age and sex-specific participation rates (defined as the ratio of economically active men/women in a given year to the total number of men/women of this age):

$$EA_t = \sum_{s=1}^{2} \sum_{x=15}^{75} pr_t^{s,x} \cdot POP_t^{s,x}$$
, (1)

where EA_t stands for the total labour force and $pr_t^{s,x}$ for the age (x) and sex (s) specific participation rate in year t and $POP_t^{s,x}$ is analogously the age (x) and sex (s) specific part of the population. For the purposes of further proceedings we had to decompose the labour force into employment and unemployment.

Several assumptions concerning employment and unemployment had to be made. First, we hold constant the share of employees and the self-employed over the projection span. Second, we do not distinguish between part-time and full-time work and all data are taken for or recalculated to the full-time employment equivalent in the process. Next, we presume that hours worked and the full-time and part-time ratio do not change. And finally, the European Commission's (2008a) NAWRU (Non-Accelerating Wage Rate of Unemployment) values were considered as a proxy for structural unemployment rates (Carone, 2005). Current unemployment rates converge to these structural levels in the medium term, with the speed of convergence derived from historical trends of unemployment rates. The past and future estimated NAWRU values (the NAIRU – Non-Accelerating Inflation Rate of Unemployment – was selected for Switzerland, because other data are not available) can be seen in **Table 3**.

Table 3: Non-accelerating wage rate of unemployment (in %, 2000–2060)

Country	2000	2005	2008	2010	2015	2020 – 2060
Czech Republic	6.92	7.18	6.18	4.50	4.50	4.50
Denmark	5.17	4.30	3.77	3.25	3.25	3.25
Estonia	10.66	9.14	5.43	3.46	3.46	3.46
France	9.63	9.06	8.64	7.81	7.00	6.20
Italy	9.13	7.91	7.23	5.75	5.75	5.75
Netherlands	3.35	3.31	3.29	3.01	3.01	3.01
Switzerland*	3.27	3.73	3.69	3.69	3.70	3.70
United Kingdom	5.68	5.00	5.66	5.43	5.43	5.43

*Note: *) Non-Accelerating Inflation Rate of Unemployment (NAIRU).*
Source: For years 2000–2008 European Commission (2008a). For years 2010 – 2060 European Commission (2008b). OECD (2008a) NAIRU values for Switzerland.

In order to preserve the NAWRU and NAIRU values over time, the age and sex-specific unemployment rates were derived as follows (European Commission, 2008b, page 79):

$$un_t^{s,x} = \frac{NAWRU_t \cdot \sum_{x=1}^{2} \sum_{x=15}^{75} EA_t^{s,x}}{\sum_{x=1}^{2} \sum_{x=15}^{75} un_{2007}^{s,x} \cdot EA_t^{s,x}} \cdot un_{2007}^{s,x} \tag{2}$$

where $un_{2007}^{s,x}$ is the fixed unemployment rate for age x and sex s in year 2007 and $un_t^{s,x}$ is the desirable sex and age-specific unemployment rate in year t. Therefore, the structure of unemployment in 2007 is kept constant. The age and sex-specific employment is then easily the product of the sex and age-specific participation, one minus unemployment rate and the number of persons in the age-sex category:

$$L_t^{s,x} = pr_t^{s,x} \cdot \left(1 - un_t^{s,x}\right) \cdot POP_t^{s,x}. \tag{3}$$

Total employment (L_t) is calculated as the sum of all of the specific employments:

$$L_t = \sum_{s=1}^{2} \sum_{x=15}^{75} L_t^{s,x}. \tag{4}$$

2.3 Labour productivity and gross domestic product

By multiplying total employment (L_t) and labour productivity (P_t), we are able to compute gross domestic product (GDP_t) in real terms:

$$GDP_t = L_t \cdot P_t. \tag{5}$$

For simplicity, we adopted the EC's labour productivity growths summarised in **Table 4.** A crucial assumption about labour productivity growth is that in all countries it converges to 1.7% in 2050 (see European Commission, 2008b, p. 94). For short and medium-term development the GDP growth was decomposed using the Cobb-Douglas production function with constant returns to scale. The main drivers of labour productivity growth are thus total factor productivity growth and capital deepening.

Table 4: Labour productivity growth projection (in %, 2008–2060)

Country	2008	2010	2020	2030	2040 – 2060
Czech Republic	4.3	3.8	2.9	1.8	1.7
Denmark	1.9	1.9	1.8	1.7	1.7
Estonia	5.3	4.9	3.3	2.7	1.7
France	1.6	1.6	1.7	1.7	1.7
Italy	0.6	0.6	1.6	1.7	1.7
Netherlands	1.7	1.7	1.8	1.7	1.7
Switzerland	1.9	1.7	1.8	1.7	1.7
United Kingdom	2.6	2.1	1.8	1.7	1.7

Source: European Commission. Switzerland – Author's calculation based on similar assumptions.

In other words, GDP growth (g_t) is determined by the growth of total employment and labour productivity growth, so the model does not assume any changes in the capital-labour ratio:

$$GDP_t = \left(1 + g_t\right) \cdot GDP_{t-1} = \left(1 + \frac{\Delta L_t}{L_{t-1}}\right) \cdot \left(1 + \frac{\Delta P_t}{P_{t-1}}\right) \cdot GDP_{t-1}\ . \tag{6}$$

Moreover, the labour productivity development determines the progression of the average real wage, which is essential for labour supply income afterwards (see below).

Nominal GDP (GDP_t^N) is then a product of real GDP and the GDP deflator (def_t), which converges to the European Central Bank's inflation target, ensuring "…inflation rates close to 2% over the medium term" (ECB, 2003):

$$GDP_t^N = GDP_t \cdot \left(1 + def_t\right). \tag{7}$$

2.4 Rationalising constant shares of factors of production

Arising from previous part of this chapter, the constant ratio of production factors per output is considered in the long-term over the projection span. The stable shares assumption might be verified directly or derived indirectly via theories of growth models. Herein, we would like to warn of possible deceptive information given by all long-term time series of indicators as their contents and definitions could have been changing in time.

As far as direct approach is concerned, Kaldor (1963) gives six basic "stylized facts" about economic growth which also encounter constant shares of labour and physical capital in national income. Barro and Sala-i-Martin (2003) then provide several other studies indicat-

ing the factors long-term stability. Gollin (2001) revised the Kaldor's "fact" and assessed that "…factor shares give estimates that are remarkably consistent with the claim that factor shares are approximately constant across time and space…", moreover he suggests "…to use models that give rise to constant factor shares" (p. 15). As well as Gundlach (2007) asserts that "…the cross-country data on output per worker can be consistently summarized by a specification that allows for international variation in technology conditional on a constant capital output ratio" (p. 17). Analogously Bernanke and Gurkaynak (2001) finds out "…the time series of labour shares by country tend to be quite stable, with no systematic tendency to rise or fall over time" (p. 26).

Besides, some theories of growth models might support the stable shares hypothesis as well – either those based on neoclassical Solow growth model, both basic and encompassing Harrod-neutral technical change, as well as later Ramsey-Cass-Koopmans model or Diamond's overlapping generations model. The convergence to steady state observed in reality is built in these models. The variables develop at constant rates in the steady state and do not change the capital-labour ratio. Later theories coping with endogenous growth of internalised technology could keep the ratio constant in the long-run, however, there are some theories (e.g. pure "AK model") where the convergence to steady state is broken and thus the ratio might vary in time.

Empirical verification of the growth models, which should help with selection of the right model, is quite disputable. Some of them support the claim that the Solow model "…is consistent with the international evidence if one acknowledges the importance of human as well as physical capital…" (Mankiw, Romer, Weil, 1992, p. 433), nevertheless Bernanke and Gurkaynak (2001) nail down that Mankiw's, Romer's and Weil's "…basic estimation framework is broadly consistent with any growth model that admits a balanced growth path" (p. 1). Similarly, Gundlach (2007) concedes his empirical results are "…in line with the Solow model…" (p. 17). Others like Okada (2006) contribute the Solow's mechanism serves as a good explanation of convergence amongst developed countries such as OECD but not when taking into account less developed countries. To the contrary, study of Arnold et al. (2007) suggests that the "…estimated speed of convergence appears to be too high to be consistent with the human-capital-augmented version of the Solow model, but rather support the endogenous growth model…" (p. 21).

Moreover, the verifications of the models with human capital seem to be problematic. Not only they are tremendously data-consuming, they also often quantify qualitative categories to specify human capital like level of knowledge, quality of health care, education, social security environment, etc., substituted by questionable proxies in econometrical estimates.

Thus, analyzing developed countries, considering convergence of the economies and on reflection of standard long-term projection methodology we have decided to develop the model on the neoclassical economic framework with constant factor shares. The non-negligible impact of this choice will be presented in the chapter dedicated to results of the projection model.

Having described the major macroeconomic prerequisites we can continue with government health care expenditures and revenues.

2.5 Expenditure projection

In order to present different hypothesis about the evolution of the health care costs that appear in the literature and to show possible ways of development arising from these hypothesis we have developed four scenarios of health expenditure evolution based on standard methods used in health care expenditure projection models such as the model of the European Commission, the model of the OECD or the model of the WB.

The first scenario, called "pure ageing scenario", represents the basic projection method. The health expenditure projection starts with age-related health care costs profiles for acute and long-term care of the initial year that are applied to the demographic projection for future years. The age-related health care cost profiles of the selected countries expressed in per cent of GDP per capita denote average annual health care expenditure for five-year categories. For the model these were smoothed to one-year categories. The average health care costs for an individual of age x and sex s in the initial year 2007 are multiplied by the number of individuals of age x and sex s in every year of the demographic projection. The spending in a particular year can be described by the following equation:

$$C_t = \sum_{s=1}^{2} \sum_{x=0}^{110} c_{2007}^{s,x} \cdot POP_t^{s,x} \tag{8}$$

where $c_{2007}^{s,x}$ are the costs per capita for each sex and age that are given by the initial year of the projection and $POP_t^{s,x}$ stands for the number of individuals in the defined age and sex categories in year t given by the demographic projection.

Yet the above described method implies the so called "expansion of morbidity" hypothesis that was first proposed already in 1977 by Grunenberg. According to the hypothesis, the number of years of life spent in good health will remain constant and all the additional years gained by increases of life expectancy will be spent in bad health due to chronic illnesses and other causes. However more optimistic scenarios have been proposed in the literature latter on. The so called "compression of morbidity" hypothesis, published only three years later by Fries (1980), states on the contrary that the part of life spent in bad health will remain constant and the health status of the population will thus improve. In long term health expenditure projections, the hypothesis is represented by shifts of the age-related health care costs profiles to the right in line with the growth of the life expectancy. The medium way between the two hypothesis is the so called "dynamic equilibrium" according to which the proportion of life lived in bad health will remain constant. Last but not least, according to the death-related costs hypothesis according to which the health expenditure is concentrated in last years of life the health expenditure will be postponed to higher age in line with the growth of the life expectancy (for more details see Pavlokova, 2009).

In order to represent the above mentioned hypothesis, the second scenario we develop in the model is the so called "constant health scenario" taking into account the possible improvements of the health status of the population or the postponement of health care

costs in line with the death related costs hypothesis. The constant health scenario repre-sents the dynamic equilibrium hypothesis (i.e. the medium way). The age-related health care cost profiles are shifted by the change in life expectancy:

$$c_t^{s,x} = c_{2007}^{s,x-\Delta e_t^{s,x}}$$

(9)

where $\Delta e_t^{s,x}$ is the change in life expectancy of a given gender s and age x between year t and the base year 2007, i.e. $\Delta e_t^{s,x} = e_t^{s,x} - e_{2007}^{s,x}$. The final total costs C_t can be described by the following equation:

$$C_t = \sum_{s=1}^{2} \sum_{x=0}^{110} c_t^{s,x} \cdot POP_t^{s,x} \quad .$$

(10)

The importance of the change in life expectancy is described by **Table 5**:

Table 5: Life expectancy at birth (in years, 2008–2060)

Country	2008		2030		2060		Diff. between 2060 and 2008	
	Males	Females	Males	Females	Males	Females	Males	Females
Czech Republic	73.9	80.2	78.1	83.7	83.2	87.8	9.3	7.6
Denmark	76.4	81.0	80.0	84.5	84.3	88.4	7.9	7.4
Estonia	68.0	78.7	74.0	82.9	80.8	87.5	12.8	8.8
France	77.5	84.3	81.0	87.0	85.1	90.1	7.6	5.8
Italy	78.5	84.2	81.7	86.9	85.5	90.0	7.0	5.8
Netherlands	77.9	82.2	81.1	85.3	84.9	88.9	7.0	6.7
Switzerland	79.3	84.2	82.3	86.9	85.8	89.9	6.5	5.7
United Kingdom	77.4	81.5	80.9	85.0	85.0	88.9	7.6	7.4

Source: Eurostat (2008c).

Countries can be divided into three categories according to the projected change in life expectancy at birth. The group of higher-than-average life expectancies consists of the Czech Republic and Estonia, values around the average are represented by Denmark, France, Italy, the Netherlands and the United Kingdom, and life expectancy at birth is slightly below the average in Switzerland. The numbers fully correspond with the demo-graphic convergence scenario and the lower initial life expectancy values.

Furthermore, next important driver of health care expenditure, the income elasticity of health care, cannot be omitted in a health expenditure projection model. The third and fourth scenario called "pure ageing with elasticity" and "constant health with elasticity" are an enlargement of the first and second scenario that take into account the income

elasticity of health care expenditure converging in a linear manner from 1.1 to 1 in line with the EC reference scenario. The average health and long term care costs for gender s and age x in year t are computed by multiplying the average costs for the age and sex category from the previous year by sum of one and the multiple of the elasticity and the growth of the GDP per capita between the two years:

$$c_t^{s,x} = c_{t-1}^{s,x} \cdot \left(1 + e_t \left(\frac{GDP_t^N / POP_t}{GDP_{t-1}^N / POP_{t-1}} - 1 \right) \right) \tag{11}$$

where e_t represents the income elasticity of 1.1% diminishing linearly to 1.0% in 2060. The final spending C_t is described by equation 10.

Whether the income elasticity of health care is higher than one ore not has been subject to large discussion in the literature with ambiguous results. The differences result broadly from diverse methodological approaches used. We can however observe both in history and in cross-country comparisons that the part of GDP spent on healthcare grows in line with GDP per capita. This development can result also from another driver that can be modelled by the above described methodology – the technological progress. The measurement of the importance of the technological progress for health care expenditure is however one of the very controversial ones. The importance of the technological progress is usually measured as the residual in the regression model of total health care expenditure on GDP per capita and an ageing-related variable. The use of the income elasticity factor in our model with the methodology that is described above can be used as a proxy for both factors.

2.6 Revenue projection

The financing of the public healthcare systems differ by the mix of taxes in the selected countries. Broadly, the general government sector tax-to-GDP ratio[7] T_t / GDP_t^N might serve as a tool in modelling government revenues. It can be disintegrated into three components:

$$\frac{T_t}{GDP_t^N} = t_L \frac{W_t^N \cdot L_t}{GDP_t^N} + t_K \frac{K_t}{GDP_t^N} + t_C \frac{C_t}{GDP_t^N} \tag{12}$$

where T_t represents the total amount of tax revenues in year t, GDP_t^N is gross domestic product in current (t) prices, t_L is the average effective tax rate of personal income tax including social security contributions, W_t^N is the average nominal wage, L_t is total employment, K_t is the total value of capital, t_K is the average effective tax rate on capital, C_t is total consumption and t_C is the average effective tax rate on consumption.

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7 Tax-to-GDP ratio is the approximation of total government sector revenues.

The model requires associating the relevant types of taxes with age and gender. As for government sector revenues affiliated with labour income assigned to every age and sex, we determined: "1100 Taxes on income, profits and capital gains of individuals" and "2000 Social security contributions"[8]. The sum of the variety of indirect taxes – "5111 Value added taxes" and "5121 Excises" – is supposed to be born fully by individuals, which allows restoration of their age profile. **Table 6** then reveals the total amount of age-related taxes included in the model.

Table 6: Age related taxes considered in the model (in % of the total tax revenues, 2006)

Country	Taxes on income of individuals	Social security contributions	Value added tax	Excises	Total age related taxes
	1100	2000	5111	5121	
Czech Republic	11.5	43.9	18.0	10.1	83.5
Denmark	50.0	2.1	20.9	9.8	82.8
Estonia	7.1	40.3	32.9	12.1	92.4
France	20.1	37.0	16.4	5.5	79.0
Italy	25.7	29.9	14.9	5.4	75.9
Netherlands	18.9	36.4	18.7	8.6	82.7
Switzerland	35.0	23.6	13.2	5.5	76.9
United Kingdom	29.1	18.6	18.2	8.2	74.0

Note: Four-digit numbers and the revenue categories refer to the OECD international government revenue classification.
Source: OECD (2008b). Ministry of Finance of Estonia (2008).

Final determination of the sources of financing needs to find out, what revenues are directly linked to health care financing. That is why the following few short paragraphs describe closer the systems of health care financing.

In the Czech Republic, social health insurance is compulsory and the contributions are paid mostly by employees, employers and the self-employed. The State contributes in the system on behalf of special groups of non-wage earners, such as children, pensioners, parents on maternity leave, the unemployed, asylum seekers etc. Except for the State contribution on behalf of non-wage earners, the State finances capital investments in hospitals it manages, in training of medical personal etc. The social security contributions cover thus only 69.6% of public health care spending.

The public health care system in Denmark is financed through general and municipal taxes. Health care in the regions, which accounts for most of the health care spending, is financed by four kinds of subsidies: a block grant from the State (75%), a State activity-related subsidy (5%), a local basic contribution (10%) and a local activity-related contribu-

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8   *See OECD Revenue Statistics (2008) for the tax classification.*

tion (5%). The part coming from the State is financed mainly by health contributions that account for 8% of wage.

In Estonia, the social health insurance contributions are paid by most of the employees and the self-employed, the State contributes only for less than 3% of the non-wage earners (individuals on parental leave, the unemployed, people receiving social benefits and other minor groups). Major groups of non-wage earners (pensioners, children etc.) are covered by the social health insurance without contributing and without the State contributing for them.

In France, every working person and his/her dependants belong to a health insurance scheme according to occupation.[9] The revenues of the health insurance schemes are raised from social health insurance contributions paid by employees, employers and self-employed (46% of revenues of the general scheme), from all income including retirement pensions and invalidity and pre-retirement benefits and other replacement income, investment income and property income (34%), from taxes on car insurance premiums some alcoholic drinks, tobacco, advertising for pharmaceuticals and medical products etc. (9%) and from other sources including government contribution (11%).

The main source of finance of the Italian National Health Service is general taxation but the regions and autonomous provinces are entitled to set the level of regional taxes, which account for 40% of public health care sector resources. The main regional tax dedicated mostly to health care is the tax on productive activities (IRAP) which is a flat-rate tax on the value added generated by all types of business and self-employed activities. The second regional source of income of the Italian National Health Service is a personal income surcharge.

The Dutch public health care system has two components, the first of which is the statutory health insurance system financed by a mixture of social health insurance contributions and nominal premiums paid by insurees and the second of which, covering the long term care, is the AWBZ (defined under the Exceptional Medical Expenses Act) raising funds purely from social health insurance contributions. The State contributes for the premiums of children up to the age of 18 in the first component and a grant to the AWBZ.

In Switzerland, two thirds of public health expenditure is financed through mandatory health insurance purchased on individual basis. The nominal premia differ among funds and purchased policies and are not income-related. Children benefit from lower nominal premia. The remaining one-third of public expenditure is financed by cantons from general taxation and consists mainly of subsidies to institutional providers (hospitals, nursing homes).

The National Health Service of the United Kingdom is funded mainly by general taxation (76%), but also by national insurance contributions (19%) and user charges (5%). National

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9   In 2001, 84% of the population belonged to the general scheme (Régime Général) that covers employees in commerce and in industry and CMU beneficiaries (CMU is a subsidiary system which provides medical coverage for persons who do not benefit from any other existing medical coverage schemes).

insurance contributions are paid by employers and employees and are counted as general government revenue in the National Health Accounts.

The systems based on social health insurance (Czech Republic, Estonia, France, Netherlands, Switzerland) use mostly social security contributions to cover the public health expenditure, however general taxation is often used in these systems to cover the costs of selected groups of non-wage earners (children, pensioners) or capital investments in publicly owned health care facilities. In Switzerland and partly in the Netherlands the nominal premia replace social security contributions based on wages. The systems of National Health Service (Denmark, Italy, United Kingdom) raise funds mostly from general taxation but in some countries special taxes are assigned purely to health care.

Table 7 gives a quick preview of the structure of all considered tax revenues in 2007. The structure of financing of 2007 as the initial year is preserved over time in the projection.

Table 7: Structure of the government sector sources financing acute and long-term care (in %, 2007)

Country	Social security contributions	Nominal premia	Personal income tax	Value added tax and excises	Other tax revenues
Czech Republic	69.6	-	6.2	15.2	8.9
Denmark	0.0	-	51.1	31.4	17.5
Estonia	82.3	-	3.8	6.1	7.8
France	93.6	-	2.1	2.2	2.1
Italy	0.1	-	9.6	72.7	17.6
Netherlands	0.0	31.4	62.0	4.1	2.6
United Kingdom	0.0	-	35.7	32.4	31.9
Switzerland	0.0	71.4	13.0	7.0	8.6

Source: OECD (2008b), OECD (2008c). Author's calculations.

Now, step further to the modelling of every relevant type of taxes. Computing labour income taxes, the effective tax rates of social contributions and personal income taxes are applied to the tax base in every following year. The tax base for every age and sex category is equal to the product of the number of employed persons in every age and sex category and the modelled average wage in the age and sex category. The average effective tax rates (t_{PIT} and t_{SSC}) are at the same time held constant over the projected period.

$$T_{PIT} + T_{SSC} = (t_{PIT} + t_{SSC}) \cdot W_t^{N,s,x} \cdot L_t^{s,x} \qquad (13)$$

The age and sex-specific nominal wage ($W_t^{N,s,x}$) is supposed to grow in line with an average nominal wage (W_t^N) that rises by the percentage change of labour productivity (P_t) and the GDP deflator (def_t), which for the sake of simplicity is taken as the rate of growth of the price level:

$$W_t^{N,s,x} = W_t^N = \left(1 + \Delta P_t / P_{t-1}\right) \cdot \left(1 + def_t\right) \cdot W_{t-1}^N .$$

(14)

Whereas indirect taxes are said to be typically proportional to their tax base (see André and Girouard, 2005; or European Commission, 2005), personal income taxes are usually constructed as progressive[10], i.e. the higher the tax base, the higher the rate of the tax (the so-called marginal tax rate). In such a system of taxation, increasing the average wage would raise the effective tax rate, which might boost the total tax burden and the size of the government sector in the economy indefinitely. That is why we assume all effective tax rates to be constant in the projection, rather than using constant statutory tax rates. A similar problem arises for gradual tax progressivity (tax brackets) and taxflation, the process of shifting of all incomes to the upper tax brackets and taxing them at higher statutory marginal tax rates.

The age distribution of value added tax and excise revenues is calculated from the age distribution of consumption as defined by COICOP[11] per adult equivalent. The effective tax rates for age categories are applied to the demographic projection. The ratio of consumption to GDP is held constant over the projected period.

Other revenues, which are not connected with age or sex, are held constant to GDP over the projected span and are proportionally allocated to the total population. Thus, we consider them to be a lump sum proportionally divided per capita:

$$OR_t^{s,x} = \frac{OR_{2006}}{GDP_{2006}^N} \cdot \frac{POP_t^{s,x}}{POP_t} \cdot \frac{GDP_t^N}{GDP_{2006}^N} \cdot GDP_t^N$$

(15)

where $OR_t^{s,x}$ denotes the age and sex-specific unit of other government sector revenues, OR_{2007} the total value of other revenues in 2006 and GDP_{2006}^N the nominal gross domestic product in 2006.

In summary, tax incidence is another simplifying assumption, especially with regard to taxes that cannot be simply assigned to a specific age and gender. Capital income taxes represent one example. A variety of studies presume that capital income taxes are treated in the same way as personal income tax (Cardarelli et al., 2000, van Ewijk et al., 2002, Gál

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10 *A statutory flat tax rate does not necessarily mean that the tax is proportional to its base. Flat taxes are usually computed as the product of a constant (the statutory tax rate) and the difference between income (or another tax object) and a stable deductible item (alternatively there is a deduction from the calculated tax). Thus, deductible items/tax deductions imply progressivity of the flat tax, since the higher the value of the object of the tax, the higher the relative tax base (see Kim et al., 2006, for details).*

11 *COICOP stands for Classification of Individual Consumption According to Purpose. The decomposition of individual consumption and assignation of taxes was made on the basis of the following sources: Deloitte & Touche (2004), Taxation.ch (2009), European Commission (2007), Eurostat (2008d), OECD (2008b) and European Commission (2009).*

et al., 2005). In other words, they assume these types of taxes might be divided according to the nominal wage, thus fully borne by employees. Nonetheless, there are at least three circumstances which complicate this decision. First, capital taxes may be partly included in the price of current or old assets; second, the tax payments may differ from the income on the assets. And third, the view of both the theoretical and empirical literature regarding tax incidence is not unambiguous.

Now we are prepared to modify the equation No. 12 in order to express age and sex-related government revenues:

$$\frac{T_t}{GDP_t^N} = \sum_{s=1}^{2}\sum_{x=15}^{75}(t_{PIT}+t_{SSC})\frac{W_t^{N,s,x}\cdot L_t^{s,x}}{GDP_t^N} + \sum_{s=1}^{2}\sum_{x=0}^{110}t_{IT}\frac{C_t^{s,x}}{GDP_t^N} + \frac{OR_t}{GDP_t^N} \qquad (16)$$

where t_{PIT} stands for the average effective personal income tax rate, t_{SSC} for the average effective tax rate of social security contributions (paid by employees, employers and the self-employed), $W_t^{N,s,x}$ for the age (x) and sex (s) specific nominal wage, $L_t^{s,x}$ for employment broken down by age (x) and sex (s), t_{IT} for the effective indirect tax rate, $C_t^{s,x}$ for age and gender-specific household consumption and finally OR_t for all other revenues.

With respect to the previously derived kinds of taxes, the average effective tax rates were calculated as the ratio of the tax part used for health care funding and its tax base. In the case of social security and personal income effective tax rates, the product of total employment and the average nominal gross wage was applied as the tax base. Effective consumption tax rates were calculated by dividing the part of value added tax and excise revenues that serves for health care financing by the final consumption expenditure of households.

The next section summarises and discusses the results and main findings from the projection.

3   Results

Recapping expenditure scenarios, we have calculated four different expenditure developments: conventional pure ageing scenario (no shifts of cost-profiles are considered), pure ageing scenario enriched by heightened income elasticity of health care (the elasticity gradually declines to 1.0 in 2060 from 1.1 in the base year), constant health scenario taking into account life expectancy change reflecting improvements in health of the population, and finally constant health scenario with increased health care income elasticity. The results in the terms of deficits of public finance health care financing are depicted in **Table 8.**

The average increase of health care expenditure per GDP equals 36% in the selected countries. Nevertheless, different health expenditure scenarios change the picture quite dramatically. Without adjusting a health cost profile, the pure ageing scenario belongs to the middle pathway of the future health expenditure development in all cases. However

together with the income elasticity, the scenario seems to be the most powerful expenditure driver, where the elasticity contributes 1% GDP on average in the last projection year, which is approximately 2.3 percentage points higher than the lowest scenario. Next, similarly constant health scenario with elasticity assigns itself to the middle of considered expenditure variants. And there is another interesting point we would like to emphasise. Whilst the pure ageing scenario with elasticity and the constant health scenario extend similarly in all selected countries, the pure ageing scenario without elasticity and constant health scenario with elasticity develop differently. In almost all countries, with the exemption of Estonia, the constant health scenario with elasticity exceeds the pure ageing scenario in the beginning, which sooner or later transcends the former scenario, as the non-changed health status starts dominating. On the other side of spectrum, the constant health scenario represents the most modest expenditure development ranging from 0.4 in the Switzerland, across 1.5 in the Czech Republic, Denmark or Italy, to 3.2 in the Netherlands.

Constant shares of factors of production discussed in chapter 2.4 coupled with the assumption of equal growth rate of consumption and the GDP implies, under the assumption of constant effective tax rates, constant share of the revenues of the public health care systems on GDP.

Actually, sources of the public health care systems raised by any kind of personal income tax or social security contributions are proportional to the volume of wages and salaries that evolves in line with GDP. Indeed, the GDP growth in the model is the result of the labour productivity growth (and thus the growth of the real wage) and the total employment that are the two drivers of the volume of wages and salaries. Constant share of revenues coming from consumption taxes and excise duties results from the assumption of constant effective tax rates coupled with constant share of consumption on GDP which is assumed on the balanced growth path in standard growth models. The deficits of the public health care systems the evolution of which is expressed in table 8 thus result purely from higher growth of expenditures than the GDP.

Table 8 reveals the differences in the height of deficits amongst countries. Our projection estimates suggest that the Netherlands is expected to face the largest pressure on public finance: from 3.2 to 6.3% deficits in terms of GDP, i.e. more than double in comparison with other countries. This striking imbalance has its roots in the over-proportional height of long-term care costs, which are more vulnerable to population ageing and increase the sensitivity of the Dutch system to economic dependency ratio. Actually, the AWBZ covers not only pure health care but also part of the social care offered to the elderly that is financed differently in other countries. Slightly above-average public deficit might be envisaged in Denmark, conversely, below average in Estonia, Italy, the United Kingdom and also in France, despite of high expenditure-to-GDP ratios. The quite plausible development in Estonia (a difference amounting to 1.2% less than average in 2060) is mainly due to lower long-term care expenditure per capita. The Czech Republic and Switzerland are the two countries with closed-to-average deficits in the area of public health care, with both revenues and expenditures lower than usual.

Table 8: Deficits of the public finance health financing under different expenditure scenarios (in % GDP, 2008 – 2060)

Country	Expenditure scenario	2008	2010	2020	2030	2040	2050	2060
Czech Rep.	Pure Ageing Scenario	0.05	0.16	0.66	1.30	1.86	2.30	2.69
	Pure Ageing Scenario with Elasticity	0.10	0.30	1.13	2.00	2.76	3.32	3.79
	Constant Health Scenario	0.03	0.08	0.33	0.68	0.99	1.23	1.47
	Constant Health Scenario with Elasticity	0.08	0.22	0.77	1.33	1.79	2.12	2.42
Denmark	Pure Ageing Scenario	0.03	0.10	0.79	1.78	2.44	2.96	3.16
	Pure Ageing Scenario with Elasticity	0.07	0.22	1.18	2.43	3.31	3.99	4.25
	Constant Health Scenario	0.00	0.01	0.33	0.95	1.29	1.52	1.50
	Constant Health Scenario with Elasticity	0.04	0.12	0.70	1.54	2.06	2.41	2.43
Estonia	Pure Ageing Scenario	0.02	0.06	0.24	0.44	0.76	1.03	1.26
	Pure Ageing Scenario with Elasticity	0.09	0.24	0.71	1.10	1.57	1.94	2.22
	Constant Health Scenario	0.00	0.02	0.06	0.11	0.26	0.41	0.55
	Constant Health Scenario with Elasticity	0.07	0.20	0.50	0.73	1.00	1.23	1.39
France	Pure Ageing Scenario	0.06	0.16	0.62	1.15	1.75	2.06	2.21
	Pure Ageing Scenario with Elasticity	0.09	0.26	1.00	1.78	2.59	3.04	3.25
	Constant Health Scenario	0.03	0.09	0.31	0.59	0.96	1.07	1.04
	Constant Health Scenario with Elasticity	0.07	0.18	0.68	1.18	1.74	1.96	1.96
Italy	Pure Ageing Scenario	0.05	0.15	0.59	1.08	1.63	2.10	2.25
	Pure Ageing Scenario with Elasticity	0.08	0.23	0.91	1.61	2.32	2.92	3.12
	Constant Health Scenario	0.03	0.09	0.32	0.59	0.94	1.26	1.30
	Constant Health Scenario with Elasticity	0.06	0.17	0.63	1.09	1.58	2.00	2.07
Netherlands	Pure Ageing Scenario	0.11	0.29	1.19	2.57	3.91	4.93	5.11
	Pure Ageing Scenario with Elasticity	0.15	0.38	1.56	3.21	4.82	6.06	6.30
	Constant Health Scenario	0.08	0.20	0.74	1.69	2.59	3.26	3.22
	Constant Health Scenario with Elasticity	0.12	0.29	1.09	2.27	3.40	4.23	4.22
Switzerland	Pure Ageing Scenario	0.05	0.13	0.60	1.24	2.05	2.57	2.84
	Pure Ageing Scenario with Elasticity	0.09	0.24	0.95	1.79	2.80	3.46	3.78
	Constant Health Scenario	0.02	0.06	0.29	0.66	1.21	1.49	1.55
	Constant Health Scenario with Elasticity	0.06	0.16	0.62	1.17	1.89	2.28	2.37
United Kingdom	Pure Ageing Scenario	0.04	0.10	0.41	0.90	1.45	1.90	2.19
	Pure Ageing Scenario with Elasticity	0.07	0.20	0.76	1.46	2.21	2.79	3.14
	Constant Health Scenario	0.01	0.03	0.08	0.28	0.61	0.84	0.93
	Constant Health Scenario with Elasticity	0.05	0.12	0.42	0.80	1.30	1.63	1.75

Source: Author's calculations.

Generally, the gap between projected health care sector expenditures and revenues implies, ceteris paribus, important fiscal imbalances. The question rising from the results is whether society will choose to satisfy the growing demand for health care from public sources and increase the effective tax rates or whether it will shift the burden onto individuals or whether the demand for health care will be restricted in some way. The second two alternatives seem to be inappropriate for the elderly, who cannot increase their effort to raise their labour income.

The division of expenditures and revenues between different generations in every year of the projection (for details in all the selected countries see Annex II, with a graphical illustration of the development of generational revenues and expenditures covering acute and long-term health care) shows important differences between who bears the costs and who benefits from health care sector expenditures. Unlike in pensions, the entitlement in health care is never precise. The easiest way to cut expenditures in health care might thus be simply not to provide care. The most sobering finding of the study is the vulnerability of the large elderly populations to cuts in health care expenditures arising from the possible unwillingness of young generations to cover the ever increasing health care sector expenditures.

As for the illustration of the intergenerational burden carried by population, we have calculated "self-sufficiency index", comparing revenues (in the view of public finance) and public expenditures covering health care for those older than 65 year old.

In **Table 9** one can distinguish four groups of countries. On the one hand Italy and Switzerland show lowest intergenerational solidarity and thus highest self-sufficiency of the elderly (approximately 33 and 30%). The fact stems from the use of the nominal premia for financing healthcare in the Switzerland and from high proportion of consumption taxes used to finance healthcare in Italy. On the other hand we find France, where the self-sufficiency belongs to smallest in Europe (just above 5%) even if our calculations estimate a tendency to increase up to 1.8 percentage points. High intergenerational solidarity in France results from prevailing financing based on social security contributions and personal income tax and it may induce future intergenerational imbalances and tensions. Then, the "self-sufficiency index" in the Czech Republic, Denmark, Estonia and the Netherlands moves predominantly inside of the 10 to 16% interval. And finally the United Kingdom, a special case, whose index culminates around 21% and lies between the others as the National Health Service is financed more or less uniformly by all the main tax aggregates (see **Table 7**).

From the point of view of the different systems of financing healthcare we can state, based on the index, that systems of National Health Service show generally higher self-sufficiency of the elderly. Actually, these systems use more consumption taxes that are paid by all the population. The public health insurance systems raise revenues mostly from social security contributions (i.e. contributions based on wages) and they thus reveal higher intergenerational solidarity. However, as we mentioned above, the division of the systems is not so simple as the systems of public health insurance may use nominal premia or partly general taxation as well and on the other hand the systems of National Health Service are in some countries financed by personal income taxes assigned to healthcare such as in Denmark.

The indexes seem to fluctuate nearly around a subtly decreasing trend in time, or possibly around a growing trend in the Czech Republic and France (in Italy and United Kingdom the constant health scenario indicates increasing direction as well) and there are no important changes in the indexes such as in the economic dependency ratio. Thus, any considerable improvement of the old-age sufficiency and decreasing vulnerability of the elderly to the policy decisions about redistribution might not be expected under the current unchanged

conditions. The important question that arises now is whether the working population will be able to cover the healthcare costs of the dependent population if, based on the index, we do not expect the dependent population to cover more of their costs. The proportion of the costs of the dependent population that can be covered by the working population without changes in the effective tax rates is summarised in **Table 10.**

Table 9: Self-sufficiency index of the elderly people (65+) in financing health care (in % expenditure, 2008-2060)

Country	Expenditure scenario	2008	2010	2020	2030	2040	2050	2060
Czech Rep.	Pure Ageing Scenario	10.4	10.5	12.8	11.7	11.9	12.7	12.2
	Pure Ageing Scenario with Elasticity	10.3	10.3	12.0	10.7	10.7	11.4	10.9
	Constant Health Scenario	10.4	10.6	13.3	12.3	12.8	14.1	13.6
	Constant Health Scenario with Elasticity	10.3	10.4	12.5	11.3	11.6	12.6	12.1
Denmark	Pure Ageing Scenario	16.2	16.4	16.4	15.8	15.8	14.5	14.6
	Pure Ageing Scenario with Elasticity	16.1	16.1	15.7	14.8	14.5	13.2	13.3
	Constant Health Scenario	16.3	16.6	17.4	17.4	17.8	16.8	17.3
	Constant Health Scenario with Elasticity	16.2	16.3	16.6	16.3	16.4	15.3	15.7
Estonia	Pure Ageing Scenario	12.8	12.8	9.8	10.1	9.6	9.8	9.5
	Pure Ageing Scenario with Elasticity	12.6	12.3	9.1	9.0	8.4	8.5	8.2
	Constant Health Scenario	12.8	12.8	10.1	10.6	10.3	10.7	10.6
	Constant Health Scenario with Elasticity	12.6	12.4	9.3	9.5	9.1	9.4	9.2
France	Pure Ageing Scenario	2.9	3.4	5.1	4.8	4.8	4.4	4.3
	Pure Ageing Scenario with Elasticity	2.9	3.4	4.9	4.5	4.4	4.0	3.9
	Constant Health Scenario	2.9	3.5	5.3	5.1	5.2	4.8	4.7
	Constant Health Scenario with Elasticity	2.9	3.4	5.1	4.8	4.8	4.4	4.3
Italy	Pure Ageing Scenario	34.4	34.1	33.5	33.4	34.0	33.1	32.4
	Pure Ageing Scenario with Elasticity	34.3	33.8	32.1	31.3	31.5	30.3	29.6
	Constant Health Scenario	34.5	34.4	34.6	35.4	36.8	36.3	35.8
	Constant Health Scenario with Elasticity	34.4	34.0	33.2	33.2	34.1	33.2	32.7
Netherlands	Pure Ageing Scenario	14.4	14.5	15.6	14.3	13.1	11.3	10.7
	Pure Ageing Scenario with Elasticity	14.4	14.3	14.9	13.5	12.2	10.3	10.4
	Constant Health Scenario	14.5	14.7	16.6	16.0	15.2	13.3	13.7
	Constant Health Scenario with Elasticity	14.4	14.6	15.9	15.0	14.0	12.2	12.5
Switzerland	Pure Ageing Scenario	31.1	31.1	31.4	31.1	29.2	27.4	27.1
	Pure Ageing Scenario with Elasticity	30.9	30.6	30.0	29.1	26.9	25.1	24.7
	Constant Health Scenario	31.2	31.4	32.8	33.5	32.1	30.9	31.1
	Constant Health Scenario with Elasticity	31.0	30.9	31.3	31.3	29.6	28.2	28.3
United Kingdom	Pure Ageing Scenario	21.4	21.3	21.8	21.3	20.7	19.6	20.1
	Pure Ageing Scenario with Elasticity	21.3	21.1	20.8	19.9	19.1	17.9	18.2
	Constant Health Scenario	21.5	21.6	23.1	23.5	23.6	22.9	24.0
	Constant Health Scenario with Elasticity	21.4	21.3	22.1	21.9	21.7	20.8	21.8

Source: Author's calculations.

Table 10: Proportion of the healthcare costs of the dependent population that the working population can cover without changes in effective tax rates (in %, 2010-2060)

Country	Scenario	2010	2020	2030	2040	2050	2060
Czech Rep.	Pure Ageing Scenario	76.9	62.3	51.9	42.7	41.3	40.6
	Pure Ageing Scenario with Elasticity	72.5	52.9	40.8	31.6	31.2	31.2
	Constant Health Scenario	77.4	64.1	54.6	45.8	45.2	44.9
	Constant Health Scenario with Elasticity	74.9	60.8	53.0	46.1	45.7	46.0
Denmark	Pure Ageing Scenario	71.5	61.3	49.4	44.7	42.0	39.8
	Pure Ageing Scenario with Elasticity	69.3	55.9	43.2	38.0	34.8	32.7
	Constant Health Scenario	69.3	55.9	43.2	38.0	34.8	32.7
	Constant Health Scenario with Elasticity	71.2	62.7	52.2	48.4	46.8	46.0
Estonia	Pure Ageing Scenario	80.8	74.6	68.9	60.9	55.7	55.5
	Pure Ageing Scenario with Elasticity	73.8	60.0	51.3	42.8	39.1	40.4
	Constant Health Scenario	81.2	76.3	71.9	64.7	60.4	61.2
	Constant Health Scenario with Elasticity	75.6	66.7	61.7	56.5	53.2	54.3
France	Pure Ageing Scenario	88.6	78.1	71.1	65.2	62.4	61.1
	Pure Ageing Scenario with Elasticity	86.6	71.6	62.5	55.8	52.3	50.8
	Constant Health Scenario	89.2	80.4	74.9	69.8	67.7	67.2
	Constant Health Scenario with Elasticity	88.2	77.1	70.8	65.5	63.8	64.2
Italy	Pure Ageing Scenario	56.1	46.5	37.4	31.6	29.1	28.2
	Pure Ageing Scenario with Elasticity	54.6	41.6	31.0	25.4	23.0	22.0
	Constant Health Scenario	56.5	47.9	39.4	34.0	31.7	30.9
	Constant Health Scenario with Elasticity	55.8	46.2	37.9	32.9	31.0	31.0
Netherlands	Pure Ageing Scenario	75.4	59.3	46.3	39.4	35.2	34.9
	Pure Ageing Scenario with Elasticity	75.3	55.8	41.9	34.8	30.4	29.3
	Constant Health Scenario	78.1	64.4	52.4	46.1	42.1	41.6
	Constant Health Scenario with Elasticity	77.0	61.6	49.5	43.0	39.2	39.1
Switzerland	Pure Ageing Scenario	57.1	47.1	37.8	31.6	28.4	27.1
	Pure Ageing Scenario with Elasticity	55.0	41.7	31.7	25.4	22.2	21.1
	Constant Health Scenario	57.6	49.0	40.5	34.6	31.7	30.8
	Constant Health Scenario with Elasticity	56.4	46.9	38.7	33.3	31.1	30.9
United Kingdom	Pure Ageing Scenario	65.7	59.8	52.2	47.1	42.6	40.2
	Pure Ageing Scenario with Elasticity	63.9	54.3	45.2	39.4	34.7	32.7
	Constant Health Scenario	66.5	62.7	56.8	52.7	48.9	47.2
	Constant Health Scenario with Elasticity	65.4	59.7	53.3	48.4	44.8	43.5

Note: The values are calculated as the ratio of the difference of the revenues from the 15-64 years old and their expenditures and the sum of the expenditures of the 0-14 years old and the 65+.
Source: Author's calculations.

According to the **Table 10**, the proportion of healthcare expenditure of the dependent population that can be covered by the working population without changes in the effective tax rates will drop dramatically in all of the analysed countries. The phenomenon is in line with the increasing economic dependency ratio as the demographic projections expect the drop of the proportion of the economically active population on total population.

Based on the self-sufficiency index and the values from table 10, we can expect that if the effective tax rates are not increased the large elderly population will be menaced by important rationing of the healthcare. Countries with high intergenerational solidarity such as France or Estonia are especially vulnerable to such a development.

Conclusion

Population ageing as a long-term process seems to be inevitable in the European economies during next 50 years, at least according to all available demographic projections. Ageing will have significant impact on the life of current and future generations affecting the market of goods, services, inputs and financial products. The effects of ageing on long-term and acute health care with a special focus on intergenerational solidarity have been the main concern of this paper.

Having built a macroeconomic long-term projection model, we have outlined and computed four expenditure scenarios, which might characterise future health care development in the selected eight countries denoting different systems of the health care financing. Population ageing coupled with increasing expectations of society concerning access to and quality of health care represent an important driver of health care costs. In order to satisfy the needs of the population, public health expenditure as a percentage of GDP would have to grow by 36% on average in the selected countries. The results show that the expenditures will be mostly boosted (up to 53%) by considering no shifts in cost-profiles and pondering initially higher elasticity to diminish to unit one, i.e. pure ageing scenario with elasticity. On the contrary, the restrained expenditure development could be expected if the constant health scenario projecting the life expectancy change into the health care costs is the right future expenditure driving force. The expenditure driven by this scenario may increase by 20%.

Bearing in mind constant tax-to-GDP development in the future, expenditure scenarios imply noticeable fiscal imbalances. The average deficit necessary to cover health care expenditure in 2060 varies from 1.4 to 3.7% GDP, depending on the selected scenario. However, in some countries like the Netherlands, the deficit will most likely range from 3.2 to 6.3% GDP, which might be substantial burden for the public finance.

Yet the flip side of the health expenditure is who is going to cover the increasing costs. Current revenue collection systems differ considerably across the European countries. Some systems are dominated by intergenerational solidarity (the healthcare expenditure is financed mostly by the working population) others raise revenues of the public healthcare more equally either from nominal premia or from consumption taxes. In order to express the intergenerational solidarity of the systems we have developed the so called "self-sufficiency index". We have found that France is a leading country in solidarity of financing health care. As well former communist countries like the Czech Republic and Estonia show lower self-sufficiency index of the elderly. Denmark and the Netherlands with indices between 14 to 16% also belong to the more "generous" countries. Then the United Kingdom and in particular Switzerland and Italy have the least vulnerable elderly people from the studied point of view. The current state of the self-sufficiency is not to be changed markedly during next 50 years. The question we tried to answer to was thus

whether the working population will be able to cover the remaining healthcare costs of the dependent population. The answer to the question, under the assumption of constant effective tax rates, is however one of the very unfavourable ones in all of the analysed countries. The proportion of healthcare costs of the dependent population that the working population could cover after covering their own healthcare will drop on average by 45% by 2060 (from current 74% to 41%).

The imbalance between who bears the costs and who benefits from the health care systems reveals a possible future risk of health care being denied to the large elderly generations. Situation may require special attention especially if the elderly people have objectively some difficulties connected with earning additional income to ensure the level of the health care they need. Decisions regarding this problem are not trivial and request deep knowledge of the whole social system since the problematic is interconnected with pension system and system of social network specific for every country.

The obligation of policy-makers is thus to design measures that will ensure accessible health care for all. Possible measures include policies aiming at higher flexibility of the labour markets allowing the elderly populations to remain in the labour force and thus decreasing the negative impact of ageing, adequate settings of the pension systems motivating to remain in the labour force if possible, support of the savings of households aimed at financing the long term care when needed and last but not least standardizing of the provision of healthcare in order to limit the rationing of healthcare for the elderly.

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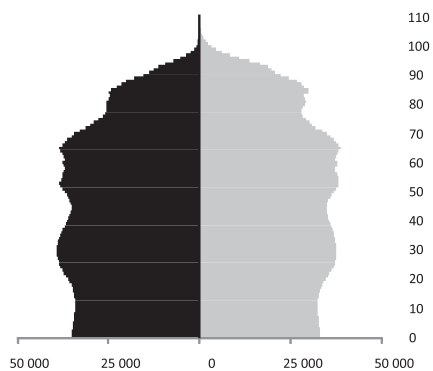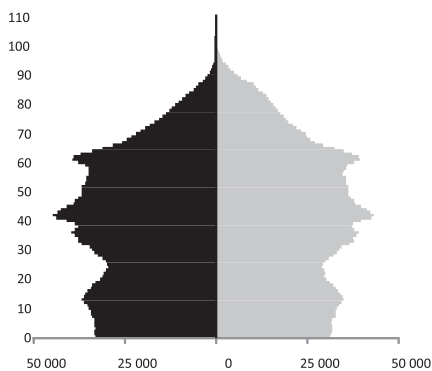# ANNEX1: Population pyramids – "trees and coffins" of life

2008
Czech Republic
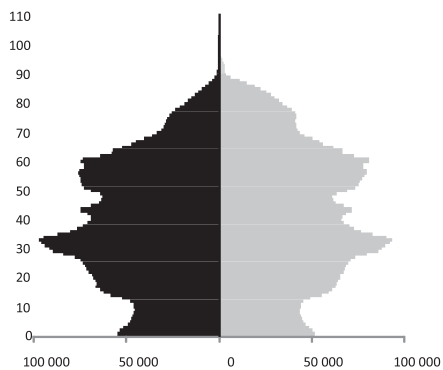
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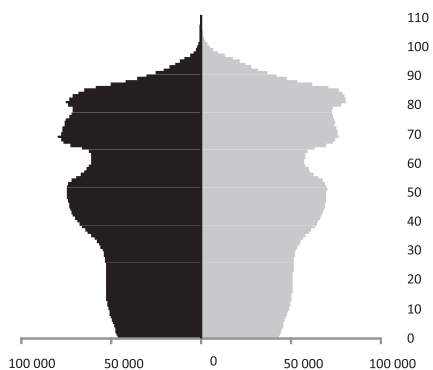
Denmark

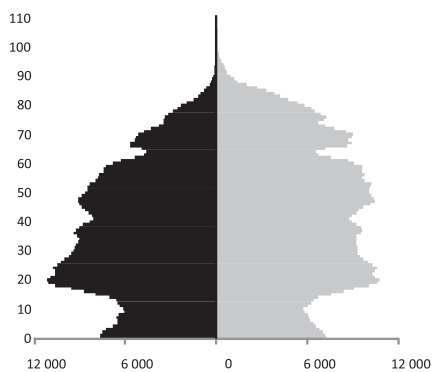**Estonia**
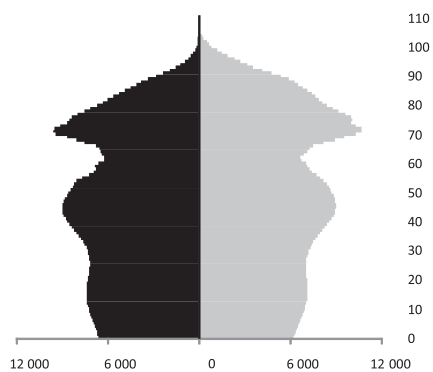
2008   **2060**

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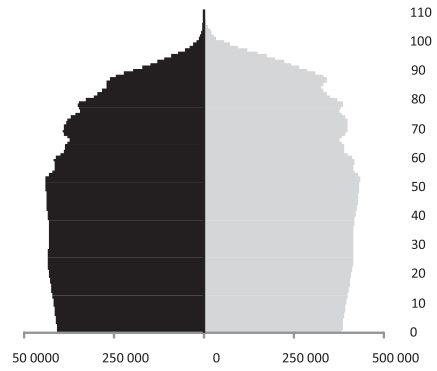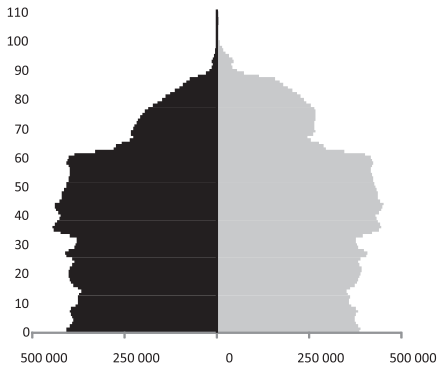
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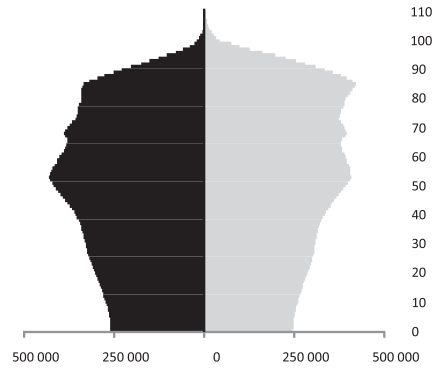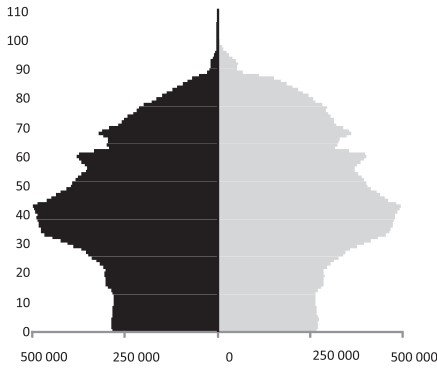
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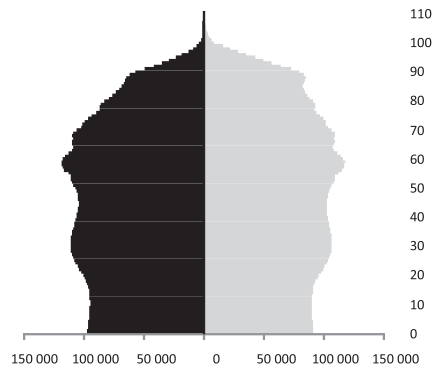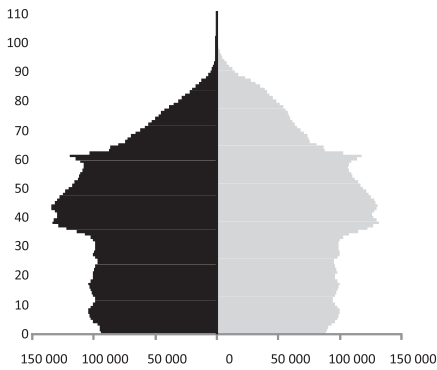
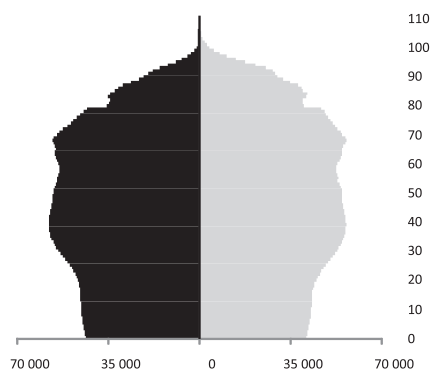**2008**   **2060**

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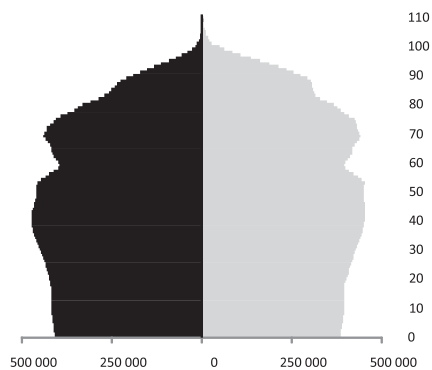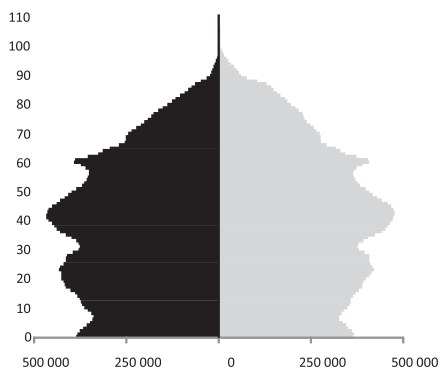
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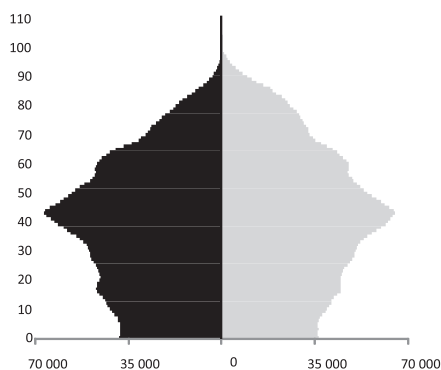
Source: Eurostat (2008c).

2007

2025

2050

Czech Republic

Denmark

■ men acute and long term care ■ women acute and long term care ■ men revenues ■ women revenues
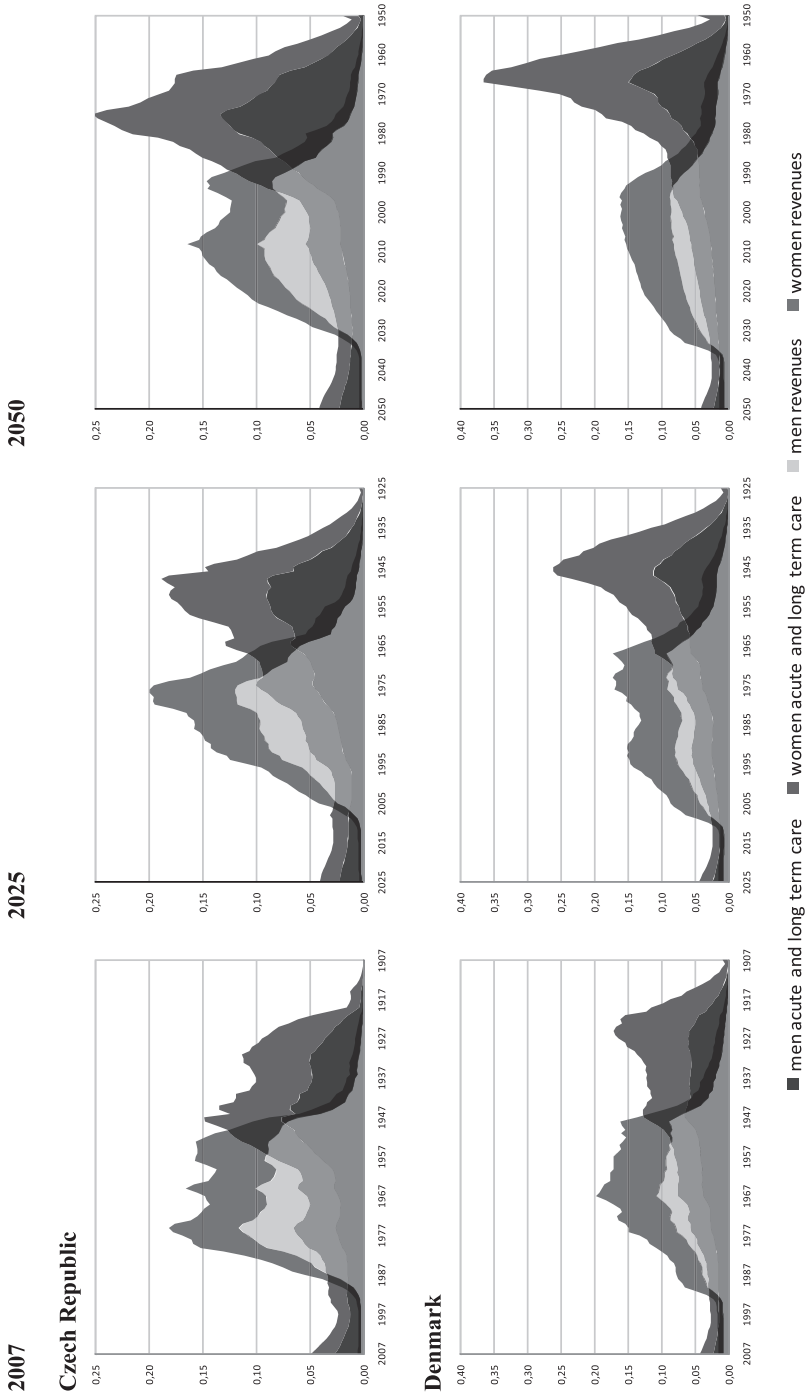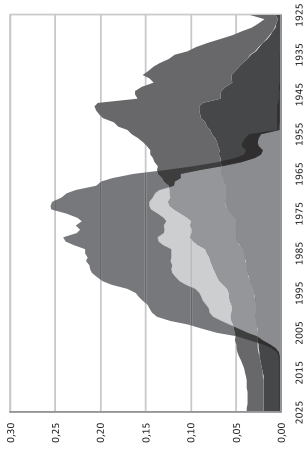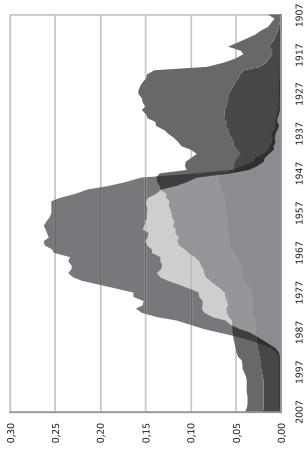
2007   **2025**   **2050**

Estonia
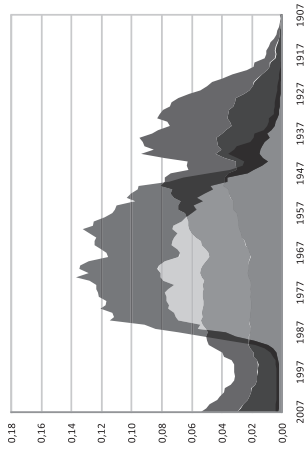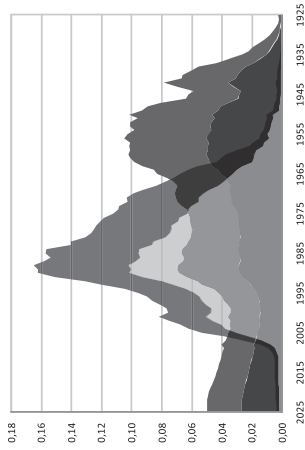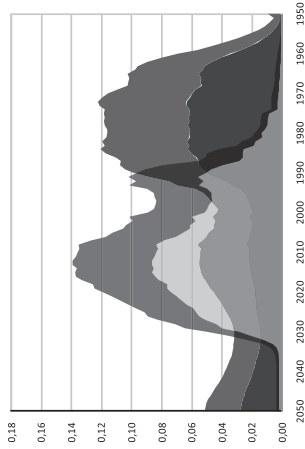
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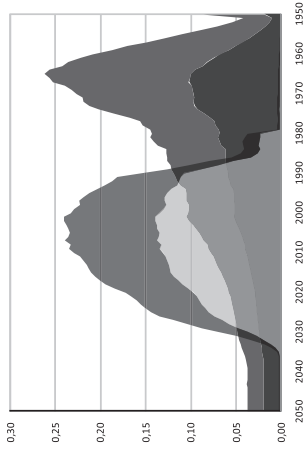
■ men acute and long term care   ■ women acute and long term care   ■ women revenues

■ men revenues

2050

2025

2007

Italy
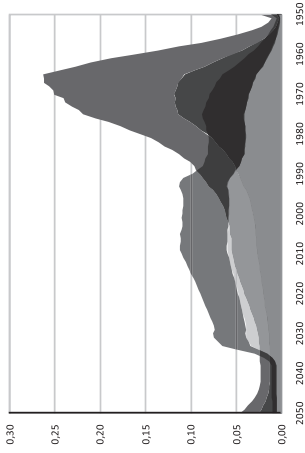
Netherlands
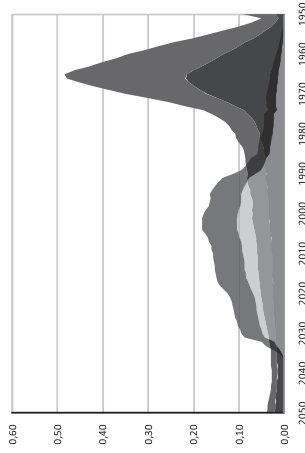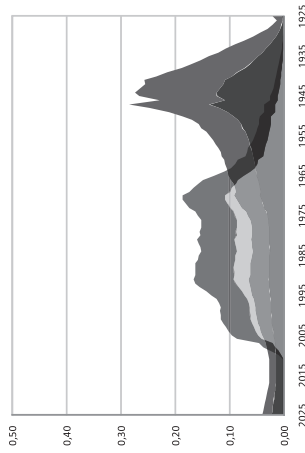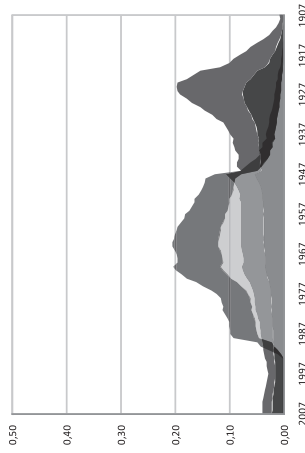
- ■ men acute and long term care
- ■ women acute and long term care
- ■ men revenues
- ■ women revenues

2050
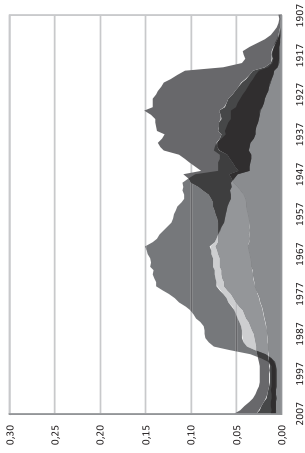
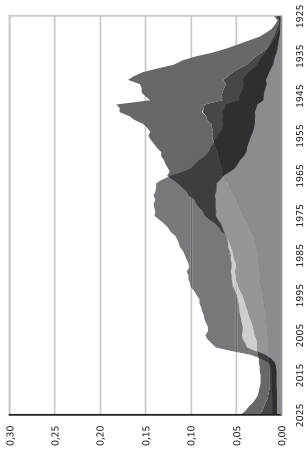**2025**

2007

The United Kingdom
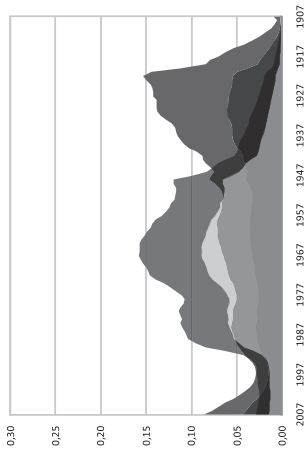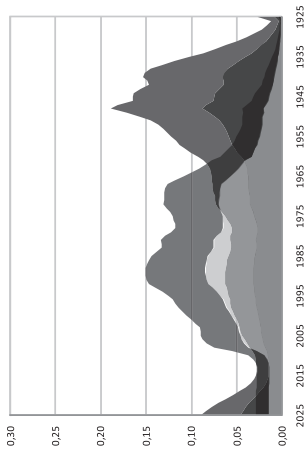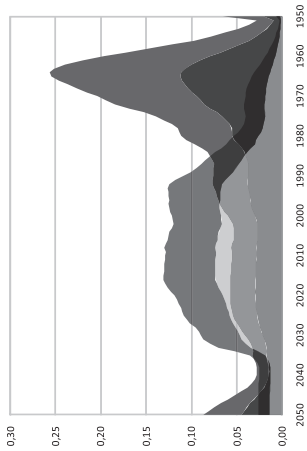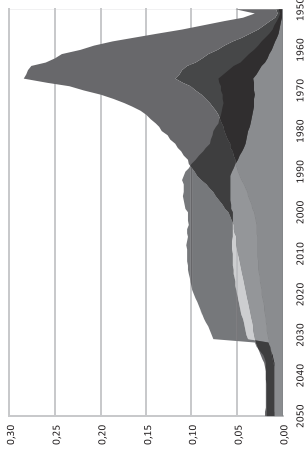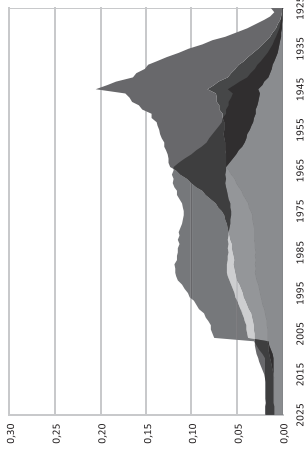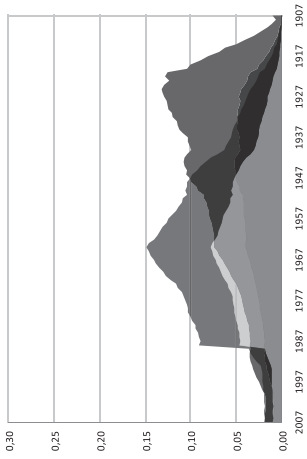
Switzerland

■ men acute and long term care   ■ women acute and long term care   ■ men revenues   ■ women revenues

ANNEX 3: Public finance deficits scenarios (in % GDP)

Czech Republic
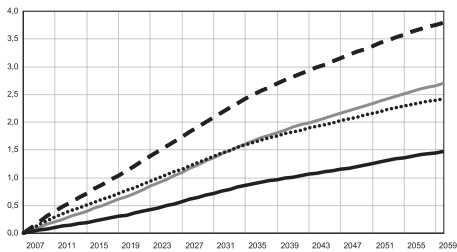
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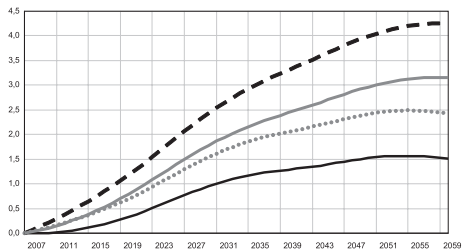
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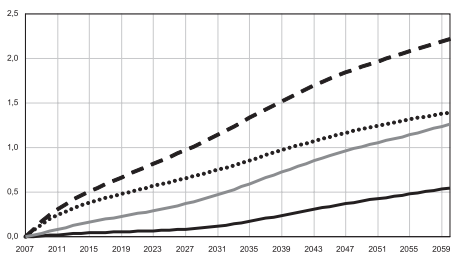
France
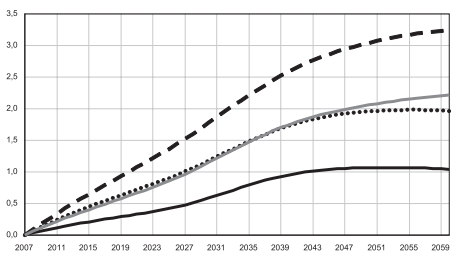
Italy
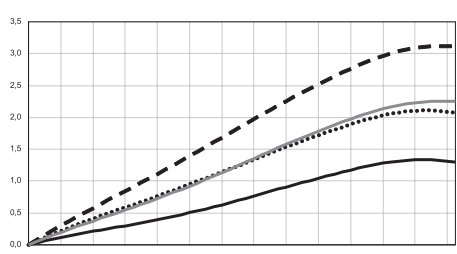
Netherlands
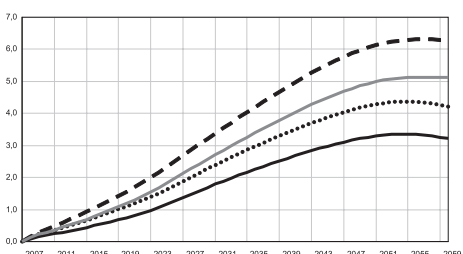
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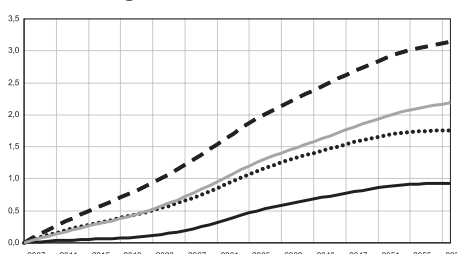
Switzerland
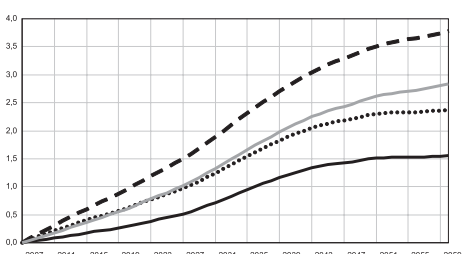
- - - Pure Ageing Scenario with Elasticity   **••••••** Constant Health Scenario with Elasticity   **——** Constant Health Scenario   —— Pure Ageing Scenario

Source: Author's calculations.

Reforming Pensions: Principles and Policy Choices[1]

Reforma důchodového systému – zásady a politická rozhodnutí

NICHOLAS BARR[2]

Good morning everybody

It is good, as always, to be back in Prague, and a great pleasure to take part in the award of the Professor Vencovský prize. On a personal note, it was twenty years today that I first flew to this part of the world as a member of a World Bank mission to help to reform social safety nets, so I share with many of you the twentieth anniversary feeling of this month.

1   The backdrop

Social Europe – problems and perspectives. There is much that we can talk about. I shall concentrate on an area with which I have been involved for many years – pension reform. I will start with some background matters, then set out the problems facing Europe and other countries, then look at different types of pension arrangement that offer potential solutions to those problems and then, if I have time, offer a few brief concluding thoughts.

My discussion draws heavily on collaboration with Peter Diamond from MIT (Barr and Diamond, 2008, 2009, 2010), which grew out of work we did five years ago, advising the government of China on pension reform, Much of what we wrote then was not used in our report, so we thought we would turn it into a quick, short book – and failed on both counts, since it took four years till a rather long book (2008) was published – so long that Oxford University Press have just published a shorter version (2010). Though, the books were written before the economic crisis, what they say remains relevant, perhaps even more relevant in the face of economic problems.

Four objectives of pension systems stand out. For the individual, pensions exist, first, to provide consumption smoothing, that is, to re-distribute from ones productive middle years to ones retired self. A second objective is insurance against risk, in the case of pensions, mainly the risk of outliving ones pension savings; thus annuities are part of the insurance objective. Public policy has additional objectives, including poverty relief, and in many countries also re-distribution.

With that by way of background, let me talk about five major messages from the book.

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1   This is a lightly edited text of a lecture delivered at the Czech National Bank on 27 November 2009.

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IT AIN'T THE BABY BOOM. The first message is that the problems we face in paying for pensions are not caused by the baby boom. The real causes are very long run and very well know trends. People are living longer, having fewer children, and tending to retire earlier. Those three factors are much more important than shorter run trends like the baby boom.

Figure 1 shows projected age pyramids in 2050 for three countries. The bottom one is the United States, which had a baby boom, the top one is China, which had, and still largely has, a one child policy, and the middle one is India, which has neither. Figure 1 illustrates that there are aging problems in three very different types of society, showing that the main drivers are greater life expectancy and declining fertility.

Figure 1: Age pyramids 2050, China, India, USA
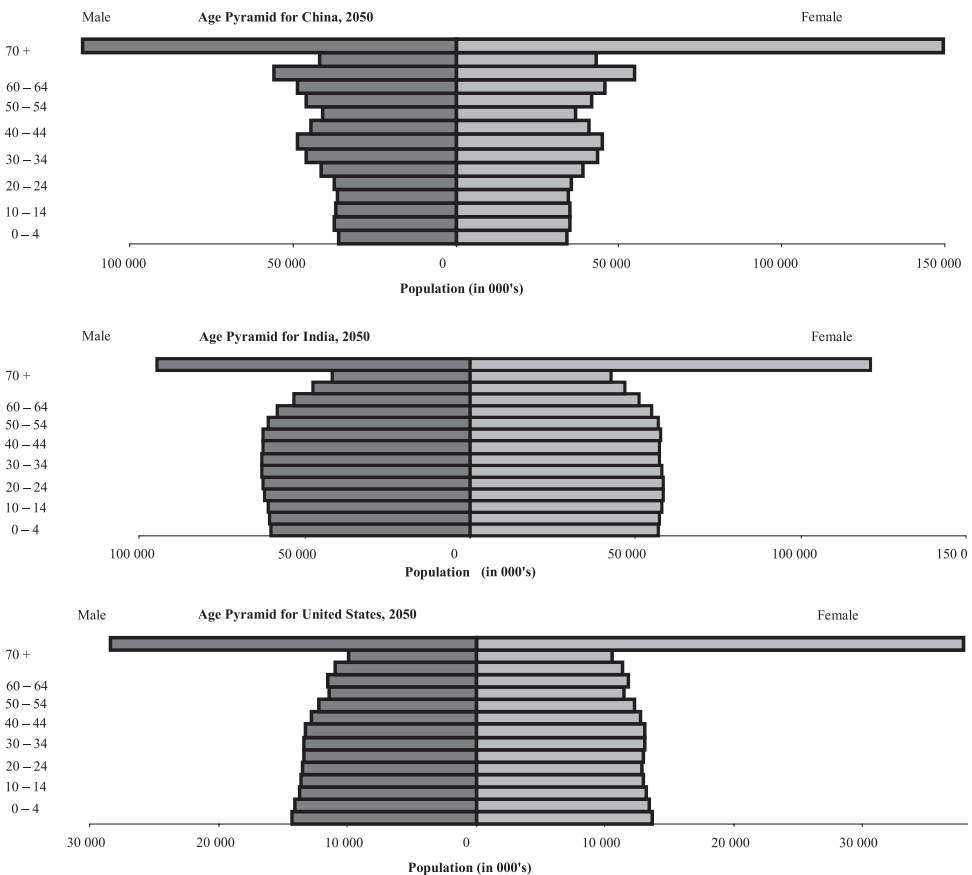
Source: Barr and Diamond, 2008, Figure 1.5.

IT IS NOT A CRISIS. I tell my students that they have as much freedom to express their personal opinions as I do. But I tell them that there is one exception: if they use the term, "ageing problem", they fail. There is not an ageing problem. The great triumph of the twentieth century is that people are living longer healthy lives. This is good news. The problem

is not that people are living too long, but that they are retiring too soon. Figure 2 shows data for the United Kingdom. The top bar shows the story of a man who retired in 1950. He left school at the age of fourteen, worked until the then average retirement age of 67, thus contributing for 53 years, and then retired with eleven years of remaining life. A man who retired a few years ago left school at sixteen, contributed for 48 years and retired at the then average retirement age of 63, at which point he had 20 years of retirement. Thus the man who retired in 1950 contributed for five years for each year of retirement, the man who retired in 2004, for only two and a half years. This makes the point that we are living longer, which is good news, but has the important implication that we need to work longer.

FUNDED PENSIONS ARE NOT A PANACEA. Funded pensions are paid from an accumulated fund built up over a period of years out of the contributions of its members, whereas pay as you go pensions are paid, usually by the state, out of current tax revenues. The World Bank has advocated funded private pensions, arguing that they promote economic growth, increase coverage, and improve old age security. Barr and Diamond (2008) explain that there are significant errors in the World Bank's analysis. That is not an argument against private pensions. If there are journalists here who say, "Barr attacks private pensions" they are mistaken. I am not attacking private pensions. I am attacking claims for private, funded pensions that do not stand up. The argument in the book is that funded pensions may be a useful part of a pension system, but that will depend on the economic circumstances of a country; there are sound economic analytical principles that explain when private pensions will be helpful and when not. Funded pensions may be part of a good policy but not always or everywhere.

Figure 2: Working life and retirement

Life course, men retiring in 1950 and 2004

Education, work and retirement
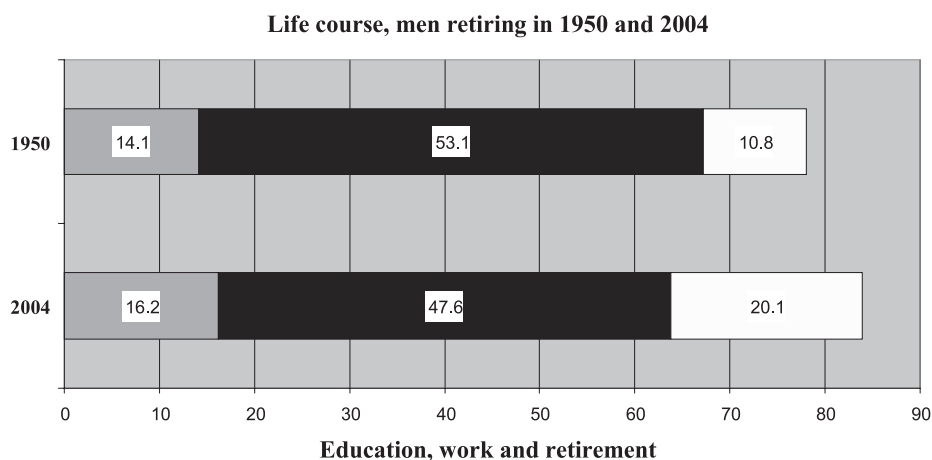
POLICY SHOULD TAKE ACCOUNT OF THE MULTIPLE OBJECTIVES OF PENSIONS. As discussed, pensions have multiple objectives: poverty relief, consumption smoothing, insurance and re-distribution. It is mistaken to be obsessed with one part of the pension system; sound analysis considers the system as a whole.

There is no single best pension system. The reason is straightforward. There are different objectives, and countries face different constraints, including fiscal constraints and institutional capacity constraints. The empirical value of behavioural parameters will also vary, for example the sensitivity of work effort to any increase in taxes, or the sensitivity of saving to changes in the interest rate. And the shape of the income distribution will be different in different countries. Thus there is no single best pension system, because the objectives will differ from country to country and the constraints will differ; and if the objectives differ and the constraints differ then the optimum will differ.

The point is illustrated in a political context by the following quote.

"Designing a White House staff, like designing an aircraft, involves trade-offs. If you want speed of decision, you must narrow the number of those involved in the decision – thus sacrificing breadth of information and depth of debate. If you demand single-minded devotion to yourself, you will probably choose people who lack other career options – which is to say, people who are less than supremely able. If you want to recruit the best and the brightest, you will have little choice but to end up with people of strong wills, big egos and intense principles, who may put their beliefs before your interests. The problem of designing an effective political organisation cannot be solved, it can only be finessed." David Frum, "They stood by their man," *Prospect Magazine,* Issue 148, July 2008, pp. 12 – 13.

2   Social Europe: What are the problems?

I will talk about two problems. One, which I have already mentioned, is how to pay for pensions; the other is how to make pensions portable internationally as citizens of the EU work in different countries.

2.1 Paying for pensions

Table 1 gives figures on public pension spending in a range of countries in 2000, and projected spending in 2030 and 2050. Greece is currently spending around 12.6 % of GDP on pensions and, if nothing is done, by 2050 will be spending 25% of GDP on pensions, which is totally unsustainable. Earlier this morning we listened to the Governor of the National Bank and the Finance Minister, and I recognize that there is a problem paying for pensions in the Czech Republic; but the good news for the Finance Minister is that the situation in other countries is even in worse, Greece being a particular case in point. So paying for pensions is not just a Czech problem but a problem almost across Europe. One of the few countries that do not have this problem is the United Kingdom, and our solution is a shameful one, we have solved our pension problems by reducing pensions so that they no longer adequately fulfil their poverty relief function.

In facing these problems, there are only four ways ahead.

- Reduce pension spending by paying a lower monthly pension;
- Later retirement on the same pension: this option reduces pension spending not by reducing living standards in retirement but by reducing the duration of retirement;
- Higher contributions;

- Increased national output: if national output is higher, there are more resources to pay for pensions.

Table 1: Current and projected public pension spending, various countries, % of GDP

	2000	2030	2050
Denmark	10.5	14.5	13.3
France	12.1	16.0	n. a.
Germany	11.8	15.5	16.9
Greece	12.6	19.6	24.8
Netherlands	7.9	13.1	13.6
Sweden	9.0	11.4	10.7
UK	5.5	5.2	4.4

Source: UK Pensions Commission (2004, Table D2).

When witnesses appeared before the excellent UK Pensions Commission (2004, 2005), saying "here is the solution", Adair Turner, the Commission's Chairman, would say, "Through which one or more of those four channels does your solution work? If your solution does not work through at least one, it is not a solution." These are the only options, and of those in many ways the most attractive is the last – policies to increase output.

So, what are the policies to increase output? The World Bank argues that funded pensions will increase savings and hence output. That may or may not be true. It may be true in some countries, but is not necessarily true. And even if it is true, that is only one of a range of ways of increasing output.

In principle there are two ways to raise output: increasing the productivity of each individual worker, or increasing the number of workers from each age cohort.

- The way to increase the productivity of each worker is through higher saving, which leads to more and better capital equipment; another way to raise productivity is through higher investment in human capital. Thus growth can derive not only from investment in physical capital but also in human capital, including the human capital of older workers.
- It is possible to increase the number of workers from each age cohort through higher labour force participation at all ages, including higher participation by older workers; through a higher age of retirement; and by importing labour, either directly through immigration or indirectly by exporting capital to countries with younger populations.
- Thus there is a range of ways of paying for pensions and a range of ways of increasing output. My message to government is that all these policies are important for increasing output and all should be pursued. In many ways the one that is closest to my heart is investment in human capital. Skills are enormously important to addressing the problems of Social Europe.

2.2 Making pensions portable

Alongside paying for pensions is a parallel problem of making pensions portable. Over the course of your careers, particularly the younger people in the audience are likely to work in several EU countries. But national pension systems differ. Some are contributory, like the United Kingdom, France or Germany, others have non-contributory elements like the Netherlands. Pensions differ in the number of years of contributions necessary to qualify for a full pension. The pension formula is different in each country. The role of private pensions is very different in different countries. The problem that causes is that workers who move across countries may end up with very little pension. I have a colleague at the London School of Economics who is a good European: he talks about six European languages and his written English is better then that of most of my English colleagues. He has had an academic career in several European countries and I am exaggerating only slightly, when I say that he has a pension in none, because he never worked long enough for his pension rights to become vested. The problem that non-portability of this type causes is the resulting impediment to labour mobility.

Labour mobility matters because it is necessary for efficiency in a modern economy; it is possible also to argue that labour mobility is an important element in human rights. If citizens of the Czech Republic are constrained from working in France or Germany because of pension arrangements, that is a serious problem, and not one with an obvious solution . It is a question I set for my graduate seminar each year in the hope that one of the students will have a brilliant idea – so far with no success. But the problem is one to which politicians and policy makers should be paying more attention than they do.

3   What pension arrangements?

Though I have argued that there is no single best pension system, I turn now to four policy directions that are not perfect for every country but are interesting. Some are new, so that it is important that policy makers in the Czech Republic and other European countries are aware of them.

3.1 Avoiding elderly poverty

I want to talk first about the idea of a non-contributory basic pension, that is, a tax-financed pension paid at a flat rate on the basis of age and residence rather than on the basis of contributions. The contributory principle assumed that workers would have a long, stable history of employment, so that coverage would grow. But that has not happened; and the reason is easy to explain. Social policy in 1950, at the time when contributory systems were being reinforced after the Second World War, was based on a series of assumptions: independent nation states; full-time employment for the whole of a person's career; limited international mobility; a stable nuclear family, where people got married, stayed married, the husband earned the money, and the wife looked after the children; and skills that would last for a lifetime. None of those assumptions were strictly accurate even in 1950, but they were accurate enough for good social policy.

None of those assumptions are true any longer. Two in particular stand out. First is the changing nature of work. People's relationship with the labour market today is much more

fluid than in 1950. People are not necessarily in full time employment for the whole of their career; people have full time employment, spells of self employment, spells of part-time work, and spells outside the labour force. Thus people will have a less complete record of contributions than in the past; the contributory principle no longer provides the coverage it once did.

The second major change is that family structures have become more fluid: the association between marriage and children is weaker and divorce more common than used to be the case. Thus basing a woman's entitlement to pension on a husband's contributions is no longer feasible. That approach may or may not have been a good idea in 1950 but at least it worked; today it no longer works.

Thus the argument for non-contributory pensions is that they strengthen poverty relief. They can cover everybody; and they can pay a pension high enough to provide genuine poverty alleviation. They also have advantages in terms of gender balance, since it is typically women who have the most fragmented contributions records. There are other advantages: the incentives to work effort from a non-contributory pension are better than those of income tested poverty relief; the benefit is fairly well targeted, because age is a useful indicator of poverty; and non-contributory pensions can be made internationally portable more easily than other formulae.

The idea of a non-contributory pension makes Ministers of Labour and Social Policy happy but cause fear and trembling among Ministers of Finance, who worry about the fiscal sustainability of such an arrangement. The question is how to have a non-contributory pension that is affordable. There is a range of instruments for doing so, notably (a) the size of the monthly pension and (b) the age at which the pension is first paid. If policy makers wish to pay a non-contributory pension at a rate that makes a genuine contribution to poverty relief without causing fiscal problems one option is to pay the benefit only from the age of seventy, lowering the age of eligibility as fiscal capacity increases.

The UK, where workers need over forty years of contributions to get a full basic state pension, illustrates the problems of coverage. Only 80% of men have a full contributions record and only 35% of women. This problem is not because of difficulties in collecting contributions, which the UK does well, but results from the inherent nature of the contributory principle in the context of today's labour markets and family structures. Thus it is not surprising that several OECD countries have non-contributory pensions, including the Netherlands, New Zealand, Australia, Canada and, since 2008, Chile.

3.2 Redefining retirement

A second strategic policy direction is to re-define retirement, in particular, later and more flexible retirement. Part of the reason is that longer healthy life combined with a constant or declining retirement age creates obvious problems paying for pensions. The solution is equally obvious. Pensionable age should rise in a rational way as life expectancy increases. The original design of pensions in the nineteenth century set a fixed retirement age. If, instead, they had related retirement age to life expectancy, we would not have a pensions "crisis" today. The problem of paying for pensions is largely the result of rising life expect-

ancy with a fixed retirement age. The argument for later retirement is all the stronger because many people enjoy their work and may not want to retire, not least because jobs today are generally less physically demanding than in the past.

As well as being later, retirement should be more flexible. When retirement was invented someone aged 65 was old and infirm, and hindered the productivity of younger workers. So the purpose was to get rid off unproductive older workers, so it made sense for retirement to be mandatory and complete. Since then, however, people are living longer, and countries have got richer, so that we can afford to give people a period of leisure at the end of their working lives. That, however, means that the purpose of retirement has changed, so that it is right to allow people choice and flexibility over how they move from full time work to full retirement. Flexible retirement would be good policy even if there were no problem in paying for pensions.

The United States is in the process of increasing its retirement age from 65 to 67. Norway already has a retirement age of 67. In the UK, the Pensions Commission handled the politics superbly, and it has been announced that retirement age will rise from 65 to 66 in 2024, and by another year in 2034. The UK illustrates that it is an error, both in economic and political terms, to make sudden changes. Because the Pensions Commission avoided that mistake, its chairman could go on television on the day the report was published and say: "If you are over fifty, this does not affect you. If you are over forty, you will have to work an extra year." So any increase in retirement age should be announced as soon as possible but should take effect only some significant time in the future. Because the politics of change were handled well in Britain, it is now politically possible to have a sensible discussion about retirement age.

3.3 Consumption smoothing: Learning from the USA

A third policy direction is a lesson from the Thrift Savings Plan, a pension plan for federal civil servants in the United States (www.tsp.gov). The design of the pension draws on lessons from the economics of information and from behavioural economics.

LESSONS FROM INFORMATION ECONOMICS. Choice and competition are beneficial when consumers are well informed. A large part of the transition from communism was to bring in private markets to create competition and to give consumers choice. That was the right policy in most areas. But where consumers are badly informed, choice and competition may not maximize consumer welfare. In the case of pensions, there is considerable evidence that consumers are extraordinarily badly informed. A survey found that 50 per cent of Americans did not know the difference between a stock and a bond. That is a very basic distinction. How can a person choose a private pension provider if he or she does not know that basic point?[3]

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3   Bonds are financial securities that represent a loan from the buyer of the bond (the bondholder) to the seller. Bonds normally specify a date on which the bondholder will be repaid (the redemption or maturity date) and an interest payment stated as a cash payment (dollars, Euros, etc.) per year. Stocks (also called equities or shares) are financial securities that represent ownership of a fraction of a corporation. A corporation sells stock as a way of financing its investment and may pay dividends to stockholders. If the corporation

Secondly, most people do not understand the need to shift from equities to bonds as they age, if they hold an individual account. In a sad news item on the BBC about a year ago, an elderly car worker in Detroit said that he had lost 37 per cent of his pension savings in the previous two weeks. My reaction was -- what crazy pension system would allow a worker close to retirement still to be in the stock market, rather than having over the years come out of equities into government bonds.

A third area of imperfect information is that very few people realise the significance of administrative charges. The only piece of advice I ever give people on pensions is to look at the administrative charges. If a pension fund has an annual management charge of one per cent, then over a full working life, a person's accumulation will be 20 per cent lower because of that charge than otherwise, and hence the pension 20 per cent smaller.

LESSONS FROM BEHAVIOURAL ECONOMICS. Simple economic theory predicts that people act rationally, so they will voluntarily save for their old age and, when they retire, will voluntarily buy an annuity. What actually happens, first, is procrastination. People delay saving, or do not save, or do not save enough. A second problem is inertia – people stay where they are. In theory, it should make no difference whether a person has a choice between opting into a pension system or whether he or she is put in to the system automatically and can choose to opt out. But there is powerful evidence that with automatic enrolment many more people stay in the pension system. A third problem is immobilisation. If a person has to make a choice, particularly in an area which he or she does not understand, the likely result is to do nothing. Thus, for example, a Swedish worker has to choose a private pension provider from 785 private pension funds; most of them do not make a choice. Thus there are large conflicts, between what simple economic theory predicts and what actually happens. And behavioural economics helps to explain why.

Experimental evidence shows that people take a short run view when faced with an immediate decision. The experiment they designed worked as follows: as you came into the conference this morning, you signed up for your snack for next week's conference, choosing between fruit salad, which you know is healthy, or a bar of chocolate. In the experiment, two thirds of the participants signed up for the fruit salad next week and one third for chocolate. But as they came in to the hall, there was fruit salad and chocolate, and two thirds of the participants chose the chocolate. Thus people are rational for the future but not for the present; but of course when the future arrives, it becomes the present so participants carry on eating chocolate. We know this from our own lives: the time to start dieting to lose weight is not today, given work pressures and deadlines. The time to stop smoking is not now – this is a tense time of year, the weather is bad, you are underslept etc. So, the time to start dieting or give up smoking is tomorrow, but when tomorrow comes, there is always some reason to postpone.

Again, we know why we react this way. There have been studies of the brain, asking people experimental questions while they are under a CAT scanner. We know that there are

flourishes, the value of its stock rises, resulting in a capital gain to stockholders. If it goes bankrupt, the value of its stock is based on whatever value remains in the corporation after its creditors have been paid. In short, stocks represent a title to ownership, in contrast with bonds which are a form of loan.

different parts of the brain: the mesolimbic is the oldest part, the animal bit, the survival instinct, this may be the last meal I'll ever eat; the pre-frontal cortex is a much newer part of the brain; that is the part that is patient and rational; this is rational economic man and woman. And we know just by looking at ourselves that life is a constant battle between the two parts. The clinical evidence shows that the mesolimbic system makes short-term decisions and the pre-frontal cortex longer-term decisions, so it is hard wired into us that we tend to make short-run decisions that are not compatible with long-run rationality. These results call into question the simple economic model that predicts that we will be long-run rational maximisers and save voluntarily for old age.

IMPLICATIONS. What does this tell us about pension design?

- It is useful to make membership mandatory or to use automatic enrolment.
- In sharp contrast with conventional theory, keep choice simple: in the context of pensions, it is desirable to offer highly constrained choice as a deliberate and welfare enhancing design feature.
- Design a good default option for people who make no choice; that default option should include life-cycle profiling, whereby young people's savings are mainly in the stock market and, as a person moves towards retirement, his/her assets come out of the stock market into government bonds.
- As regards administration, it is desirable to decouple account management, the back office tasks, from the investment decision, and to centralize all record keeping to keep administrative costs down.

The US Thrift Savings Plan does exactly those things. It was initially voluntary for federal civil servants but now has automatic enrolment. Workers choose from about five funds: an equities fund, a government bonds fund, a corporate bonds fund, a global equities fund, etc. There is centralized account administration to keep costs low, and wholesale management of funds in the private sector. This arrangement simplifies the choice for workers, respecting information constraints, and it keeps administrative costs low. The UK is about to introduce a system of personal accounts that is very similar.

Thus if policy makers in a country think that having funded individual accounts is a good idea, the message from the Thrift Savings Plan is that it is possible to have such accounts, but they do not necessarily have to give individuals a wide range of choice. Given behavioural problems and information problems, choice and competition in this part of the economy may not be a good idea.

3.4 Consumption smoothing: Learning from Sweden

The Thrift Savings Plan approach is one way of organizing consumption smoothing. Another is that adopted in Sweden. The essence of the Swedish system is the idea of notional defined contributions. In such an arrangement you, as Czech citizens, pay social security contributions to the government. The government uses those contributions this year mostly to pay for this year's pensions, so what we are discussing is a pay-as-you-go system. The government keeps a record of your contributions and it attributes to your notional record each year a notional interest rate, so that when you retire you have a notional accumulation which is converted into an annuity.

Thus the pension a person gets bears an exact relationship to his contributions over his working life. The arrangement has – much in common with individual funded accounts, but is not fully funded. Such schemes can have a range of advantages. They are simple from the point of view of the worker, they are centrally administered and so have low administrative costs. They avoid much of the risk of funded individual accounts, because they avoid the volatility of capital markets. Indeed, Peter Diamond and I have argued that in the context of China, individual accounts make a lot of sense, but do not have to be funded individual accounts; instead, we argued for notional accounts. Countries with notional defined contribution pensions include Sweden, Poland and Latvia.

Conclusion

Let me repeat: there is no single best pension system. What is optimal will differ across countries and over time. Pensions systems look different in different countries; this is as it should be. The system in the Netherlands is different from the system in Canada, which is different from the system in Chile, which is different from the system in France, and that is not a problem. But, that said, the four policy directions discussed above are potentially widely useful.

The range of variation in different countries is wide. Some countries focus mainly on consumption smoothing. Singapore has a state administered provident fund, which is really a savings scheme, so Singapore gives low weight to poverty relief. Other countries focus heavily on poverty relief through a non-contributory pension. New Zealand has a generous non-contributory pension and, till very recently, the consumption smoothing element was voluntary. Countries like the Netherlands pursue both objectives. The Netherlands has non-contributory pensions plus funded occupational pensions. Chile had a system of individually funded accounts with rather limited poverty relief. Policy makers there recognised the problem, and in 2008 introduced a non-contributory pension alongside their system of individual funded accounts.

Finally, the "so what" question – why does this matter? Pensions matter for obvious reasons and for less obvious ones. Pensions affect the quality of life of hundreds of millions of older citizens and, as they look to their future, hundreds of millions of workers. Thus pensions matter enormously to the quality of people's lives.
Pensions also matter for national economic performance. Earlier today we heard the Governor of the Central Bank and the Minister of Finance worrying about the size of contributions necessary to finance pensions in the Czech Republic. If taxes and contributions are too high, they can harm growth rates. So pensions need to be designed so that they do not harm growth.

My final point is slightly fanciful, but only slightly. China does not yet have a robust pension system that covers most of the population. If you are a Chinese worker and there is very little pension and little medical insurance, what are you going to do? You are going to save like crazy. Economists call this precautionary saving. China is currently saving a staggering 52 per cent of GDP. And what happened to those savings? Answer: they financed the US trade deficit. So, credit in the United States was cheap. US banks had money to lend, and lent it; and therein lies one of the roots of the financial crisis that led to the cur-

rent economic crisis. I am not saying the financial crisis was all the fault of the Chinese for not having a good pension system. But I am saying that pensions are an important part of economies, and economies are interconnected within a country and across countries, so that one of the contributory elements of the current economic crisis is that China does not have a robust pension system.

So, the bottom line is that pensions matter. They matter for social policy reasons; they matter for economic reasons; they matter for European integration and labour mobility. So I am delighted, you have chosen this as the topic of today's conference and I wish you well, both for the rest of the conference and for pension reform in the Czech Republic on what is, as I say, the twentieth anniversary of my first trip to the region.

Thank you very much.

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End to Age of Naivety: Pension Reforms in Post-Transition Countries

Konec období naivity: penzijní reformy v post-tranzitivních zemích

JIŘÍ RUSNOK, JURAJ DLHOPOLČEK

Introduction

This article includes primarily our understanding of how to reform pension systems have evolved significantly over the past 30 years. "Concepts" that initially evolved in Latin America traversed the Atlantic Ocean and found their way to new Europe. Here they were used as a generally prescribed "remedy" for ailments of the newly emerged transition economies. However, present economic and political situation (partially exacerbated by the financial and economic crisis 2008 – 2009) shows that these "concepts" might have been implemented too early on in the transition process. Initial enthusiasm for dramatic changes and reforms is cooling and we are entering a period of post-transitional disillusionment – "end to age of naivety". The following article aims at highlighting some of the new challenges to reformed pension systems and proposes topics for further research and discussion. The article is based on the presentation that was presented on the Conference "Social Europe – Problems and Perspectives", organized by University of Finance and Administration, Prague at November 27th, 2009.

Basic principles behind pension reforms

Demographic development is generally a key driving factor behind pension reforms around the world. Following two graphs[1] show a contrasting demographic structure of Czech population in 1945 and projection for 2060. This kind of expected demographic evolution is quite typical for countries in northern hemisphere (but not limited to).

As the number of pensioners relative to the number of workers (system dependency ratio) increases throughout the world, it is becoming more difficult to keep the prevailing Pay-As-You-Go (PAYGO) systems alive.

In the PAYGO system workers contribute to a pension fund that is drawn on by current retirees, with the expectation that their pensions will be paid in turn by tomorrow's workforce.

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1   Source: Czech Statistic Office, http://www.czso.cz/csu/redakce.nsf/i/stromy_zivota_do_roku_2066

Graph 1: Demographic Tree, Czech Republic 1945

Age structure of population: 1945
Czech Republic

Total (millions): 8095

82	41		41	82
thousands			thousands	

Graph 2: Demographic Tree, Czech Republic 2060

Age structure of population: 2060
Czech Republic

Total: 10776513

82308	41154		41154	82308
Number of men			Number of women	
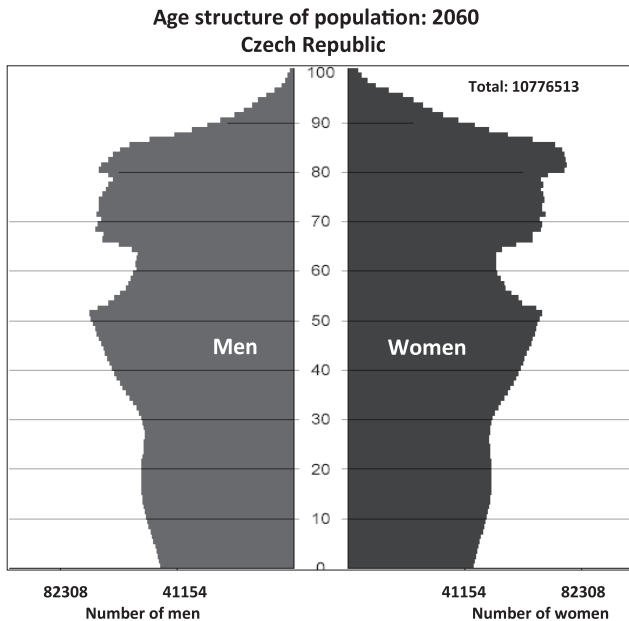
Basically we can state that:

p/w = (L/R)*cr,

where: p ……………………… average pension benefit
w……………………… average wage in economy
L ……………………… number of workers paying pension contributions
R ……………………… number of pension benefit recipients (retirees)
cr……………………… contribution rate of pay-a-roll paid by workers.

because it applies that:

L/R = (p/w)/cr

There are basically only two choices and their combinations of how to solve the problem of increasing dependency ratio (1/(L/R)) or (R/L):
Pensions must be cut or
Already high payroll taxes must be increased

The first is probably politically unacceptable; the second would cause further misallocation in the labor market, increase tax avoidance, and create a disincentive to work and hire. Hence, other systemic options of reforming existing PAYGO must be considered.

Chile: Pioneer in paradigmatic pension reform

In 1980 Chile was the first country with maturing PAYGO system in place that decided to switch from PAYGO to fully funded (FF) model of financing its compulsory general social security scheme. The government-financed PAYGO pension system was replaced with a new structure: a privately administered, national system of mandatory retirement savings that guaranteed a minimum pension to all eligible individuals (determined by means testing).

Instead of paying a social security tax, employees deposit 10 % of their monthly wages in an individual investment account under their name, at any one of licensed private pension funds. The money that accrues in the account during the employee's active career, along with the returns on the investments made by the pension funds, will be used to cover the employee's retirement benefits. As of June 2009 the 5 administrators had approx. 8,5 million affiliates and 4,4 million active contributors and were managing assets worth approx. $100 billion, or more than 70 % of Chile's GDP. Example of Chile shows that it is possible to reform a maturing PAYGO system without bankrupting the state and over long-term significantly increase ratio of private pension savings over GDP.

World Bank endorsement of Chilean-style reform in 1994

A turning point in the development of pension reforms movement came in 1994 with the publication of World Bank study: ***Averting the Old Age Crisis: Policies to Protect the Old and Promote Growth.***[2] This report was the first comprehensive and global examination of old age security. It identified three main functions of old age financial security:

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2   http://wwwwds.worldbank.org/external/default/WDSContentServer/WDSP/IB/1994/09/01/000009265_39
    70311123336/Rendered/PDF/multi_page.pdf

- Redistribution
- Saving
- Insurance

In addition, the report assessed policy options to be evaluated based on (i) impact on the ageing population and (ii) impact on the economy as a whole. Key conclusion based on these criteria suggested that financial security for the old, and economic growth would be best served if governments relied on a system consisting of three separate parts:

- Publicly managed system with mandatory participation and a limited goal of reducing poverty among the old
- Privately managed mandatory savings system
- Voluntary savings system

This report made the global policy approach toward ageing more appealing to a broader array of countries without forfeiting the key element of privately managed funded accounts. It offered a more flexible advice, rather than a simple advocacy of the Chilean approach and created room for continuation of the state social security system.

During next two decades more than 20 countries in Latin America and Central and Easter Europe (mostly since 1998) decided to follow in the tracks of Chile and reformed their general pension system. Most of these countries simply followed the three pillar architecture combining original PAYGO principle in first pillar with newly established mandatory fully funded second pillar and various structures in voluntary funded third pillar. The following tables and chart describe the situation in Latin America and CEE.

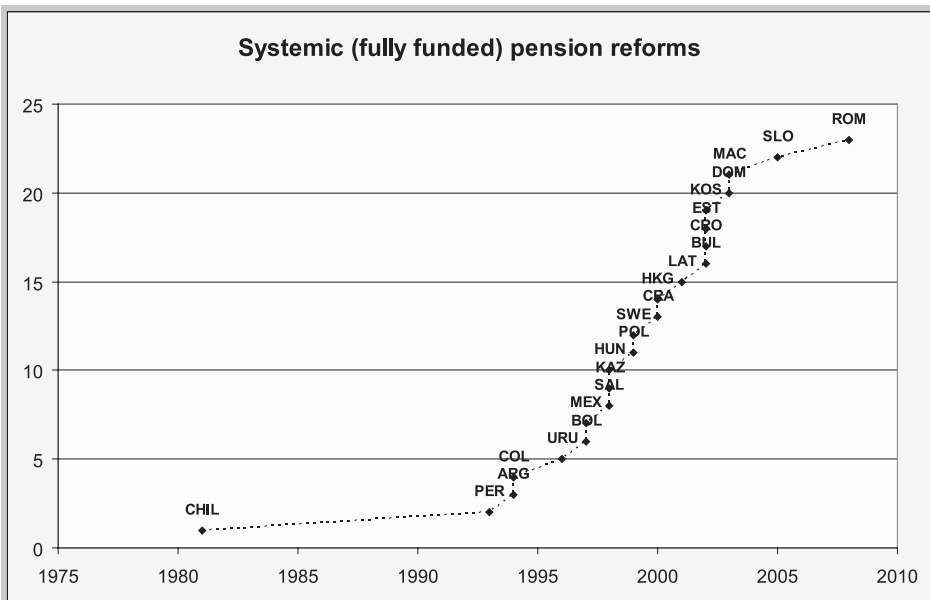**Graph 3:** Number of pension reforms across the world

Table 1: Pension reforms in Latin America

Characteristics	Chile	Peru	Argentina	Colombia	Uruguay	Bolivia	Mexico	El Salvador	Costa Rica
Public mandatory tier	Phased out	Traditional PAYG, alternative to private tier	Traditional PAYG, complementary to private tier	Traditional PAYG, alternative to private tier	Traditional PAYG, complementary to private tier	Close down	Close down	Phased out	Traditional PAYG, complementary to private tier
Private mandatory tier	Individually fully funded	Individually fully funded	Individually fully funded	Individually fully funded	Individually fully funded	Individually fully funded	Individually fully funded	Individually fully funded	Individually fully funded
	Mandatory for new entrants to labour market. Other workers may opt to switch from the public tier	Mandatory membership for all workers either in the public tier or in the private one	All workers may redirect their contribution to the private tier	Mandatory membership for all workers either in the public tier or in the private one	Mandatory for workers earning over ceiling (800 USD), optional for lower earning groups and workers above age 39 years	Mandatory for all workers	Mandatory for all workers	Mandatory for new entrants to labour market and affiliates up to age 35. Older workers may opt to switch from the public tier	Mandatory for all workers
	Individual CR: 10%	Individual CR: 8%	Individual CR: 7,5%	Individual CR: 10%	Individual CR: 7,5%	Individual CR: 10%	Individual CR: 6,5%+state subsidy	Individual CR: 10%	Individual CR: 1%+employers' contr. rate 6,5%
	from 1981	from 1993	from 1994	from 1994	from 1996	from 1997	from 1997	from 1998	from 2001
Reform type	Substitutive	Parallel	Mixed	Parallel	Mixed	Substitutive	Substitutive	Substitutive	Mixed

Note: In this table, individual contribution rates to the private tier exclude commissions and disability and survivors insurance.

Source: Katherine Mueller: Public-Private Interaction in the Structural Pension Reform in Eastern Europe and Latin America. In Insurance and Private Pensions Compendium for Emerging Economies, Book 2, Part 2:2)c, OECD, 2001 and own update.

Table 2: Pension reforms in Central and Eastern Europe

Characteristics	Kazakhstan	Hungary	Poland	Latvia	Bulgaria	Croatia	Estonia	Macedonia	Slovakia	Romania
Reform type	Sustitutive	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed
Target retirement age	58/63	62/62	60/65	62/62	60/63	60/65	63/63	62/64	62/62	60/65
Public mandatory tier										
Design	Closed down	Traditional PAYG scheme, private tier complementary	NDC scheme, private tier complementary	NDC scheme, private tier complementary	PAYG scheme with pension points; private tier complementary	PAYG scheme with pension points; private tier complementary	Traditional PAYG scheme, private tier complementary	Traditional PAYG scheme, private tier complementary	PAYG scheme with pension points; private tier complementary	Traditional PAYG scheme, private tier complementary
Modifications of pension rights		Reduced accrual rates	Individual contribution adjustment	Individual contribution adjustment	Reduced accrual rates	Reduced accrual rates	Reduced accrual rates	Reduced accrual rates	Shift to the points' system	Reduced accrual rates
Benefit indexation	Only minimum pension is indexed. Remaining part is kept at nominal value	50% prices 50% wages	80% prices 20% wages	mixed price/wage indexation	mixed price/wage indexation	50% prices 50% wages	50% prices 50% wages	80% prices 20% wages	50% prices 50% wages	mixed price/wage indexation
Private mandatory tier										
Design	Individually fully funded	Individually fully funded	Individually fully funded	Individually fully funded	Individually fully funded	Individually fully funded	Individually fully funded	Individually fully funded	Individually fully funded	Individually fully funded
Participation options	Mandatory for all workers.	Mandatory for new entrants to labour market and optional for other workers to redirect part of their contribution to the private tier.	Mandatory for workers below 30 years of age and optional between ages 30 and 49 to redirect part of their contribution to the private tier.	Mandatory for workers below 30 years of age and optional between ages 30 and 49 to redirect part of their contribution to the private tier.	Mandatory for all workers up to 42 years of age to redirect part of their contribution to the private tier.	Mandatory for workers below 40 years of age and optional between ages 40 and 49 to redirect their contribution to the private tier.	Mandatory for persons born after 1983, voluntary membership possible for those born before.	Mandatory for new entrants to labour market and optional for other workers to redirect part of their contribution to the private tier.	Mandatory for new entrants to labour market and optional for other workers to redirect part of their contribution to the private tier.	Mandatory for new entrants to labour market and optional for other workers to redirect part of their contribution to the private tier.
Contribution rates	Individual CR: 10%	Individual CR: 8%	Individual CR: 7,3%	Individual CR: to be gradually increased to 9%	Individual CR: 2% rising to 5% by 2007	Individual CR: 5%	Individual CR: 6%	Individual CR: 7%	Individual CR: 9%	Individual CR: to be gradually (in 8 years) increased to 6%
Implementation	1998	1998	1999	2001	2002	2002	2002	2003	2005	2008

Need for pension reform viewed through public finance sustainability

Due to social, economic and most often political reasons, parameterization of pension systems in most transition economies share similar "ailments". Cangiano, Cotarelli, Cubeddu (1998)[3] have summarized these parametric inconsistencies into six main areas of concern:

a) High system dependency ratios – Number of pensioners over number of employed contributors. This ratio was higher for transition countries when compared to other more advanced economies. High unemployment rates are likely the key driving factor behind this imbalance.

b) Low retirement age – Formally highly "pro-social" policies of pre-transition countries enabled retirement of worker at ages significantly lower to those in more industrialized countries. On top of this, many countries encouraged early retirement.

c) High replacement ratios in some countries – Replacement ratio shows proportion (in percentage) of received pension benefit to income earned prior to pension. In comparison to average replacement ratio in industrialized countries, many transition countries pay over-generous pensions that cannot be financially justified.

d) Exposure to the expected demographic shocks and as a consequence a growing financial imbalance – Sharp decline in birth rates and subsequent adverse development of demographics tree placed significant strain on financing of existing PAYGO.

e) High contribution rates and weak link between contributions paid and pension benefits, and resulting limited incentive to compliance – Without significant reform, mixture of above mentioned problems required transition countries to maintain high contribution rates (form of a social tax) for employed workers. As there was a limited link (sometimes none) between contributions paid and subsequent entitlement to pension benefits, a "Catch 22" effect was created. Here workers and employers found ways of avoiding or minimizing pension contributions, when in turn led to increase problems for financing of the pension system.

f) Significant inter-generational and intra-generational inequalities – These relate to imbalance between paid contributions and pension benefits received for women (who typically retired earlier) and men, self-employed (incentivized to make a minimal contribution) and regular employees who paid contributions based on this wage. Furthermore, as overall imbalance in financing of the pension system developed, new entrants onto the job market could expect to pay higher contribution rates and receive lower pension benefits than current pensioners.

However, this mixture of above mentioned complex factors can be summarized into a single problem facing most transition economies – sustainability of public finance with (desired) welfare and social parameters implicitly included. Sustainability of public finance related to PAYGO pension system here refers to increasing burden of gap between cur-

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3   CANGIANO, M.; COTARELLI, C.; CUBEDDU, L. (1998). *Pension Developments and Reform in Transition Economies*, IMF Working Paper, WP/98/151 (Washington: IMF), pp. 18-22.

rent/future contributions and current/future liabilities that will need to be financed or even subsidized from state budget – so called "implicit gap"

Reform of transitional pension system and transition costs

Ailments of existing PAYGO systems have led governments to re-think their pension frameworks. In general, there are three main paths in reforming a pension system:

a) Reform of existing PAYGO system
b) Shift to mandatory fully funded system
c) Adopt a combination of the two (a multi-pillar system)

Opting for (b) and (c) in essence eliminates (i.e. reform in Kazakhstan) or reduces scale of the implicit gap, but shifts value of future costs into current expenditure. In essence implicit gap transforms into an explicit gap.

"Starting from an unsustainable PAYGO scheme, a pension reform will usually aim at curbing the growth in total government liabilities over time. Thus a pension privatization can involve a trade-off between reducing total public (implicit plus financial) debt in the long run, but increasing the riskiness of the composition of liabilities in the short and medium term as financial debt replaces IDP (implicit pension debt), at least during the transition period of the reform." (Cuevas, Gonzales, Lombardo, Marmolejo, 2008)[4]

Hence, introduction of a funded component as part of the reform creates a fiscal hole in the PAYGO system. This fiscal hole (a set of transition costs) has to be financed from the available sources. In general there are five ways in which these transition costs can be covered:

a) Additional income from sources such as privatization can be realized
b) Taxes can be raised for the current generation, either directly on payroll by adding on' the individual account contributions without reducing contributions to the PAYGO component, or by increasing other unrelated taxes
c) Current expenditures on pensions or on other expenditure programs can be reduced
d) Debt can be issued, to be paid back in the future either by tax increased or expenditure cuts
e) Efficiency gains of some kind can be sought, for instance through reductions in payroll tax rates that remove labor-market distortions, or growth in output (GDP growth)

Each method has its pluses and minuses. Tax increases or expenditure cuts can most directly lead to positive future gains from pension reform but are likely to be politically unpopular. Issuing debt can postpone the costs of pension reform, but will also postpone many of its benefits. Issuing debt can also create unintended problems – explicit debt generally carries a much higher interest rate than the implicit rate of debt carried by PAYGO promises (market interest rates vs. the rate of growth of the wage fund). Merely swapping implicit debt for explicit debt therefore often worsens the fiscal stance of government by increasing interest rates it must pay on its debt. Efficiency gains always are desirable

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4   Source: CUEVAS, A.; GONZALEZ, M.; LOMBARDO, D.; LOPEZ-MARMOLEJO, A. (2008). *Pension Privatization and Country Risk, IMF Working Paper, 08/195 (Washington: International Monetary Fund), pp. 4.*

since they give benefit without being at the expense of anyone – however, these can be hard to achieve.

Sizes of these explicit gaps and forms of their financing occurred in different size in different countries. However, main factors related to this variability were mostly similar:

(i) undertaken reform path or scope of reform (single fully funded pillar vs. multi-pillar), **(ii)** robustness and accuracy of actuarial models used as basis for scope of the reform, **(iii)** willingness to follow-through by subsequent governments (i.e. 13th pension, early retirement, selective non-standard high pensions, policies that promote evasion from paying taxes and social contributions), and **(iv)** reliability of assumed financing sources. Political and economic approaches toward financing of the explicit gap are closely intertwined with sustainability of the overall reform – improper mixture coupled with political choices can lead to introduction of new uncertainties and materialization of risks which can destabilize one or more elements (or even stakeholders) essential to proper functioning of the reformed pension system.

Private pension administrators as new stakeholders

Process of implementing a fully funded pension pillar (single or multi-pillar) breaks down stakeholders into three main categories: (i) citizens – those impacted by pension system reform (parameters of PAYGO) and future savers, (ii) government – guarantor and "privatizer" of public finance, and (iii) private pension administrators – new profit oriented stakeholders. It is imperative to realize that investing into creation of pension administrator has to make business sense. This is a private-ownership element that has been embedded into public framework and opportunity cost of required capital has to be lower or at least equal to that attained elsewhere within financial service industry. Failure to understand this fact by other stakeholder (mainly governments) can seriously hamper long-term sustainability of such reform.

Private pension administrators and risk vs. uncertainty

Impact of political and economic choices on pension administrators and hence sustainability of pension reform can be described through concept of "risk and uncertainty".

"It is important to distinguish risk and uncertainty. With risk, the probability distribution of potential outcomes is known or estimable, with uncertainty it is not. The distinction is critical, among other reasons, because actuarial insurance can generally cope with risk but not with uncertainty. Pension schemes face both uncertainty and risk – the future is an uncertain business, and no pension scheme can give certainty". (Barr, 2000)[5]

Being one of the key elements for a successful reform, pension administrators too face risks and uncertainties. Risks are quantified and projected into business cases and determine final required rate of return on the business. Uncertainties do not find their way into quantitative parts of business cases. Incorrectly priced business cases can force a pension administrator out of the market; however, irresponsible or short-sighted policy choices

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5   BARR, N. (2000). *Reforming Pensions: Myths, Truths, and Policy Choices, IMF Working Paper, 00/139 (Washington: International Monetary Fund), p. 5.*

by a government can convert too many uncertainties into risk and force all private players out.

Case study of Slovakia: Some uncertainties "materialized" into risks

Recent amendments to second pillar legislation in Slovakia and already publicly stated future intentions of Slovak government in this respect offer a relevant example of how some uncertainties can be transformed into risks. These can subsequently pose a serious threat for business sustainability of private pension administrators. Initial second-pillar (fully funded pillar) pension legislation was passed by Slovak parliament in the beginning of 2004. Legislation clearly defined attributes of the system as well as rules for private pension administrators. These legislative rules and attributes were used by future pension administrators to calculate long term business feasibility. However, following 2006 election victory by leftist social democrats, financing of government's "pro-social" programs became a top priority. Assets accumulated by private pension administrators turned out to be too tempting as they were missing in the budget of Social Insurance Company and had to be financed from other sources (financing of explicit gap). Since then, the government proposed and executed several amendments to Slovak pension legislation, which substantially altered till-then generally accepted rules and attributes, and jeopardized existence of private administrators on the market. Table 3 below illustrates major proposed and realized changes, together with their status.

In addition to these changes, government also amended legislation on fund performance with a guarantee element. In practice this requires a pension administrator to subsidize negative fund performance from own assets and potential impact is multifold:

a) Amount of assets held by pension funds is so high, that even small negative performance would cause a significant damage to business feasibility of the pension administrator

b) In order to avoid this new risk, pension administrators invest into very similar conservative financial instruments. Hence (i) potential gain for savers is limited (even in growth funds), and (ii) composition of funds and their performance is very similar, hence savers have very little choice

c) In fact, depending on market conditions, asset appreciation in pension funds will most likely drop below rate at which PAYGO is indexed (Slovakia uses Swill indexation of a basket of inflation and average wage growth)

As consumer understanding of pension system in general is quite low, these implications can form yet another basis for the government to question validity of a fully funded pillar in Slovakia.

Scenario of reversal from multi-pillar to Defined Contribution is very rare (Argentina is a recent example), and has not been studied by academia in much depth. Although full reversal could be the most radical outcome of current challenges to pension systems in transition countries (and post-transition), case study of Slovakia certainly provides an example of how it could materialize into reality.

Academic community has to shed more light into topic of reversal to help governments and other institutions better understand full implications of their policy choice.

Table 3: Changing parameters of Slovakia 2nd pillar

	Description	Status
Management fee	This fee is deducted from AuM on the monthly basis. It has been lowered from 0,065 %-0,025 %. A new fee "success fee" has been introduced, but it is linked only to positive asset appreciation and in case of negative result, pension adminis-trator has to inject own funds into the fund	Already part of Slovak legislation effective as of July 1, 2009
Contribution rate	Percentage of gross monthly salary sent to a private pension administrator. to this date this was 9 % of gross salary, but is was expected to be decreased	To this date, the contribution rate has not been changed. However, govern-ment officials hinted at it lowering following next parliamentary elec-tions in 2010
Initial fee	This is a 1 % fee deducted from each saver`s monthly contribution. For pension administrators on Slovak market, this is the most important fee in the initial post-reform years before AuM build up	As with the contribution rate, government has hinted at lowering of this fee – depending on scale of decrease, this could have very serious consequences for 2nd pillar pension administrators
Change from manda-tory to voluntary	Under original legislation (2004), second pillar was voluntary for people who were employed at the onset of the reform and mandatory for all new entrants on the job market. Latest legis-lative changes made 2nd pillar voluntary for all	This is already part of legislation since 2008
Opening of pillar for exit by existing savers	2nd pillar has been "opened" for voluntary exit by existing savers twice in the years 2008-2009	Altogether roughly 170,000 people left the 2nd pillar (roughly 11 % of total savers)

Graph 4: General Government Debt in selected EU countries, 2008 and est. 2009
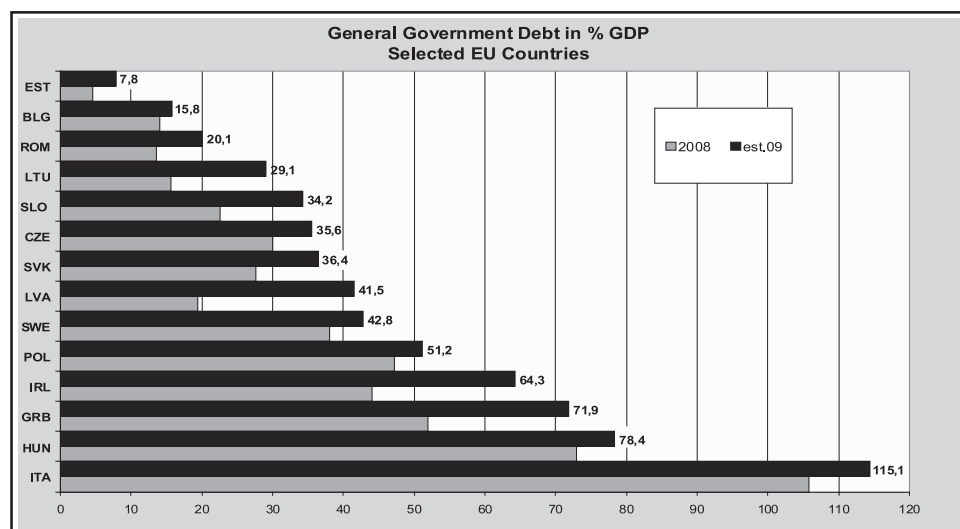
Source: Eurostat

Challenges ahead: External environment is getting worse

Challenges described in the paragraphs above will likely intensify with time, as the external environment will most likely become significantly tougher. We are already observing how already chronic public finance tensions further deepen due to current financial and economic crisis.

Stability and Growth Pact punishes countries that have converted part of their implicit pension debt into explicit fiscal burden – by including this into overall budget deficit. In other words: the transition costs of the partial shift to funded pensions are not accepted as an investment in favor of long-term sustainability of public finance. This can effectively discourage some countries from implementing a systemic pension reform.

Lastly we observe a clear ideological shift from neo-liberal approach toward a more significant role of states in economy – socialistic tendencies in all public policies across the developed world. Such an environment will also be an obstacle for paradigmatic reform approach in the pension area.

Conclusion – End to „age of naivety"

Since early 90´s paradigmatic pension reforms were accomplished in more than 20 middle-developed countries across LA and CEE. Private financial sector took an active role in most of these cases as a provider of technical know-how, supplying products and services, making significant investments into the financial services infrastructure, marketing and education of the public. Today, 10 to 15 years on (at least in CEE), pension providers and investors are experiencing significant frustration with newly materialized politically driven uncertainties and risks. In very real terms, these threaten sustainability of pension providers and pension reforms as a whole. Case study of Slovakia clearly illustrates how newly materialized risks damage long term business feasibility of private pension administrators. It is becoming more and more evident that many of the emerging transition economies were not sufficiently prepared for such a kind of radical pension reform. This especially applies to level of institutional development and quality of state administration and political culture. If pension reforms of the World Bank model are to be successfully implemented in the future, lessons must be learned from current developments. One of the key lessons is solid long-term anchoring of reform principles (legislative and technical) into political and economic framework. It is clearly insufficient to introduce a private element (private pension administrators) into public framework through mere legislative means. Instead future reforms need to be built on at least two pillars – legislative and contractual. Contractual pillar should be structured like classical Public Private Partnership project and serve as an insurance against foreseeable political uncertainties. Authors invite the academic community to build on arguments presented in this article and expand research in the area of long-term pension reform sustainability.

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Development Trends in Social Security with an Emphasis on Europe and Czechia

Vývojové tendence sociálního zabezpečení se zaměřením na Evropu a Česko

JAROSLAV VOSTATEK

The area of social security represents an intersection point of social, economic, and political interests. It has been the case for centuries and the social security will likely get more complicated and complex in the future. One of the theses hereof is the fact we should aim at resolving these issues in a comprehensive and systematic manner – preferably in the given country or uniformly in Europe, on the basis of a model. Easy to say, but hard to do – there are many strong economic and political interests in the world. Politicians and lobbyists tend to prefer partial solutions, which are beneficial for their careers. However, everybody will probably agree with our thesis concerning the need for a comprehensive solution on general basis, and it is up to us, theoreticians, to come up with the "correct" model solutions.

Europe has given the world the "Bismarck model" and the "Beveridge model". The significance of these models lies in the fact they represent comprehensive social security systems, in spite of the fact the Bismarck model did not represent a solution for the majority of population at the time it was drawn up. But it had to start somewhere – mainly due to political reasons; however, financing of the system was critical as well. The Bismarck system has undergone many changes; however, it is remarkable that the basic frame remained, and the Bismarck model represents a fundamental social security alternative to this day. Not only is the Bismarckian "social insurance" still endorsed by Germany, Austria, and other prominent countries, following the failure of the communist systems, the model has been reapplied in many Eastern European countries, e.g. in Slovakia and Poland. Currently, Czechia is "surrounded" by countries with a social insurance. The social insurance has not won recognition in Czechia, even though many reforms were implemented, while many reforms have failed for various reasons. Before we talk about some of them in more detail, we will try to define social insurance as a social security model or method.

In the USA, the social insurance is perceived as a synonym for the government's activity in the social area. We may come across an idea that the insurance provided by the government is marked as a "social insurance", its purpose being the protection of people from poverty. In line with this concept, the main American social insurance program is the US "social security system", which provides public pensions and health / disability provisions to the participants of the system (Act). According to this approach, other significant social insurance programs comprise the pension systems for federal public officials and soldiers, unemployment insurance, revenue and price support of farmers, and a number of support programs for war veterans (Tresch, 2008). Such interpretation of the term "social insurance" is very extensive; however, it is not associated with any specific construction of benefits and

social insurance premium payments so typical for the Bismarck model. Therefore, the views of certain American authors, who declared the social insurance to be a wrong income tax because it is not progressive, are not surprising. It is not useful to study the social insurance model from American textbooks; American authors are obviously not able to sufficiently free themselves from the American reality.

Bismarck model

In the European / Bismarckian approach to the social insurance, two equivalent fundamental principles of the social insurance are applied – the principle of equivalency and the principle of social solidarity; these two principles are then taken to the totally crucial construction of the social insurance premium and pecuniary benefits. The social insurance was (and, in principle, is to this day) primarily intended for employees, i.e. not for all individuals or just poor individuals. The social insurance is not intended for rich individuals or employees. The specific classification of employees – fully covered by social insurance and others – is determined by an earnings ceiling, designated as a multiple of a nationwide average salary. The social insurance model targets employees below the earnings ceiling; this limit is best set at the amount between once or twice the nationwide average salary. Higher earnings ceilings do not make much sense from the model perspective. Originally, the earnings ceiling also served as the limit for inclusion in the statutory insurance system: the system was mandatory only for employees with salaries up to a certain amount. Today, however, the earnings ceiling serves this purpose only sporadically. On the other hand, the economic construction of the insurance premium and benefits has been intact.

The earnings ceiling is crucial both for the calculation of social insurance premium as well as for the calculation of pecuniary benefits; the identical limit is applied in both cases. That is the profound purpose of the social insurance and the equivalency principle. The insured pays insurance premium from a salary falling below the given earnings ceiling, and his/her benefits are calculated on the basis of the same earnings, up to the same earnings ceiling. The basis for my payments is the basis for my benefits. It is simple and fair. ("Fairness" served as the slogan for an implementation of the social pension insurance in Slovakia.) This principle may be applied at all points in countries with social insurance, even before a constitutional court. This was the case in Germany, and the approach was brought to the attention of the Czech population by the Constitutional Court judge Mrs. E. Wagnerová, when she considered it necessary to disavow the "not enough radical" ruling of our Constitutional Court in respect of the Act on the Public finance stabilization. The judge referred to the fact that the German Federal Constitutional Court had come to the conclusion that in case an insurance premium is collected from an employee's income (it concerned a "Christmas bonus" in the case under review), it is necessary to include this income in the salary, which is the basis for the calculation of benefits. The ruling of the German Constitutional Court complies with the social insurance model; however, it is not conclusive for us, because there is no social insurance system in place in our country.

The social insurance model comprises the sickness insurance branch, which, in its classic form, also includes health care as an in rem benefit. Originally, the significance of health care was only subsidiary within the social sickness insurance (especially from the financial point of view; however, the situation changed dramatically after the Second World War, and health care became crucial within the original classification of the social insurance (to the

detriment of pecuniary sickness benefits). This is only partially affected by an introduction of long guard periods (e.g. 6 weeks) for sickness benefits as the basic pecuniary benefits of the social sickness insurance – whereas during the first weeks, employees receive benefits from their employers, i.e. in the form of occupational provision.

Public health care – and thus also in the framework of the social insurance system – is dominated by the social solidarity principle. This somewhat modifies the whole modern social insurance model – and ever more so that public health care services in Europe were expanded to almost the entire population after the Second World War. In terms of social insurance systems, health care is not longer provided to employees only; it is also provided to retirees as former employees, to the insureds' family members (unless they are insured directly), self-employed, etc. Even the social sickness (health) insurance in Germany has recently been modified in this direction, whereas in this context, it is actually the "last" country from the group of countries firmly embedded within the social insurance system. However, it is becoming apparent that it does not have to necessarily prevent the comprehensive approach to the social security issues; social insurance continues to be the primary pillar of the system.

The significant application of the equivalency principle means that the (modern) social insurance system is associated with a relatively smaller extent of redistribution than the model liberal system. We refer to the intra-generation redistribution, whereas we do not consider the risk sharing within a group of clients typical for any insurance (insurance as such) to be income redistribution.

We do not have a social insurance
Following our Velvet Revolution, the relevant ministry tried to introduce a social insurance system; however, it had failed, namely due to the significant liberal bias of the former cabinet. It is logical – classical and neoclassical liberals tend to prefer the Beveridge model, which provides universal benefits for the entire population. For the same scholarly political reasons, other elements of the social insurance model failed in Czechia as well. Today, the term social insurance is only used as a slang term (abbreviation) for the social security area in our country, where the "social security insurance premium and contribution for the state employment policy" apply. It does not apply to "health insurance"; on the other hand, the term "social and health insurance" is used as slang – this may partly be motivated by the need to express that our "public health insurance" is not part of the "social insurance".

From the legal point of view, the factual existence of the social insurance can hardly be deduced from the mere application of the terms "insurance premium", "pension insurance", and "sickness insurance of employees", or from the collocation "premium for pension insurance", etc. Besides, the aforementioned "insurance premium" is just another form of the state budget revenue. Furthermore, the following legal provision: "The pension insurance premium shall be maintained within a separate state budget account and reported as a separate state budget revenue item" does not indicate that we should have a social insurance system in our country; the aforementioned provision was motivated by political schemes concerning the public pensions, including the schemes relating to the privatization of the pensions (in order to cover up the public deficit increase resulting from the privatization). In spite of this, our Constitutional Court overruled the guard period of 3 days relating to the

sickness insurance of employees introduced by the Act on the Public finance stabilization, on the grounds of an alleged infringement upon the right to adequate material security in case of an incapacity to work, since the obligation to pay insurance premium was not affected. Apparently, the Constitutional Court subconsciously based its deliberations on the presumption we actually have a social insurance system – i.e. that it is correct to apply the equivalency principle.

Certain constructions have been preserved within the Czech public pension system, which remind of the standard social pension insurance system. A pension is calculated from the personal basis of assessment, which is derived from the insured's earnings, taking into account the insured period. However, the personal basis of assessment fully includes the earnings up to the amount corresponding to 45% of the nationwide average salary; in the next "reduction" band of up to 115% of the nationwide average, only 30% of the earnings are used for the purpose of the calculation, while only 10% of the earnings are considered within the last band of up to 400% of the nationwide average salary. Such construction is miles off the social insurance model.

In addition to the aforementioned, we have a "basic pension assessment", which resulted from an integration of the "state compensatory contribution" within the public pension system, whereas the "state compensatory contribution" was introduced in 1990 as a general allowance for all citizens (it is actually a negative head tax), with the aim of partially compensating the negative impacts of the elimination of state subsidies for foodstuff and certain other products (elimination of the "negative turnover tax" – a rarity within the former system of centrally controlled retail prices). The "basic pension assessment" is actually a universal pension, which amounts to 9% of the nationwide average salary this year.

However, the social insurance model is completely different: there is "only" one earnings ceiling, e.g. at the amount of 200% of the nationwide average salary; in such case, the personal basis of assessment equals to the actual earnings of the insured ranging from 0 to 200% of the nationwide average. Any earnings of an insured person exceeding the limit of 200% shall be disregarded. It is plain and simple. This is the real beauty of a social insurance model. The model provides security to employees proportionally to their earnings, respecting the maximum salary ceiling. The specific amount of the security is given by political and economic decisions. It amounted to the subsistence minimum during the days of Bismarck, while today, it amounts up to 70% of the previous earnings in case of lifelong gainful activity. However, on a model basis, it may even amount to 100% of preretirement earnings, which is typical for the "(civil) service model" used in many countries to this day (and also for the European Union officials).

The characteristics of the existing Czech public pension system and its significant difference from the social insurance model are also documented by an OECD study. The so-called progressivity index is used here with a view to assess the extent of application of the equivalency principle; in case the value of 100% is assigned to a certain country, it means that the given country uses the Beveridge model – i.e. all citizens receive the same pension, irrespectively of their previous earnings. On the other hand, in case the value of 0% is assigned to a country, it means that only the equivalency principle is used for the given country, which is the typical attribute of a social insurance model (up to the earnings ceiling).

There are only a few countries with an universal pension as the only element of public pensions. In the aforementioned study, Czechia was assigned index of 69% and it was included in the group of countries with a "highly progressive" system (the index exceeds 65% – together with New Zealand and Ireland (both countries were assigned 100%), Australia, Great Britain and Canada. We are thus in the company of countries with the most liberal system. In this regard, we are quite unique in the region of Central and Eastern Europe. Slovakia was assigned the progressivity index of 1%, while Poland and Germany were assigned 3% and 24%, respectively.

The existing construction of pensions in Czechia, which is unambiguously dominated by the social solidarity principle (over the equivalency principle), results from the partial reforms of the system in the previous 20 years, including the implemented system of pension valorization, which provides a significant room for the government to apply a "sneaking" modification of the pension construction, e.g. by promoting the importance of the "basic pension assessment" of pensions. A major reform of the Czech public pension system has not taken place, and this is why no model is applied within the basic pension system in our country (either Bismarck or Beveridge model). Currently, no major pension reform is proposed by any of the important political parties. This may also be affected by the minimum supply on the part of Czech theoreticians.

Beveridge model
The Beveridge model with its universal benefits and universal insurance premiums was established after the social insurance model. Furthermore, it was not established thanks to W. Beveridge in Great Britain in 1946 – 1948, but actually a few years earlier, since 1938 in New Zealand. It is a significantly more liberal concept, with a special construction. The modern concept of the pure liberal model does not include universal benefits, but only a social assistance as the (key) social security method. Nevertheless, when the retirement age is high enough (i.e. 65 – 70 years), it does not make any sense to examine whether persons over this artificial limit are disabled or not. This is the general concept of pensions, and it is also valid within the social insurance system at the time of its establishment. Let us suppose that analogical approach is also practical during the period of incapacity for work / disability of employees.

When the universal benefits are set below the subsistence minimum, we get the cheapest "modern" social security system, for the entire population. But why does the Beveridge model include a general "national insurance premium" paid by employees? It actually concerns a head tax paid by employees! Why should this tax be paid solely by employees and not by all individuals or residents? It is incorrect or at least controversial from the system point of view; a liberal system should include financing of universal benefits (moreover, at the social minimum amount) as a standard expenditure program, i.e. not by means of insurance premiums or any other specific tax.

However, the Beveridge system was formed the way it was – universal "national insurance" premium is a mirror image of the universal benefits of the "national insurance". It makes as equal sense as when employees and employers share the social insurance premium costs equally (50:50) – this originated as a political compromise, and many politicians still believe that this should be a general characteristic of a social insurance system. However, it cannot be

supported by the economic theory. Besides, insurance premium payments were significantly simplified in many countries with a social insurance, as only one payer is sufficient.

The Beveridge model also includes a universal health care, organized in the form of one nationwide public network, identified as the National Health Service in Great Britain. The health service is outside of the "national insurance" scope; however, for some reason, it currently receives 15% of collected insurance premiums from the system.

It may be important to point out that the term "national" in Great Britain refers to "state" or "government" rather than to "national" in our (Czech) meaning of the word. It has been the common practice to translate the term "national insurance" as "národní pojištění", so we will adhere to this. However, the British national insurance is not a social insurance system. And on the other hand: the Czechoslovak national insurance (since 1948) was a social insurance system, the last system of its kind within the territory of Czechia.

It will remain a historical fact that the Czech Cabinet led by V. Klaus practiced the policy of social expenditure damping in the past decade, which resulted in the social security system we have today. The social insurance model was rejected; however, for a long time, no model had been declared as a social reform objective. In terms of health care, there were attempts aimed at introducing plurality of health insurance companies and their products at first; however, the system of detailed central control was restored very quickly, namely due to fiscal reasons. No other system was available. The health care reform was then attempted by the Cabinet led by M. Topolánek; however, it was the beginning of its end. There were various discussions about the pension reform, and it is the key contribution of a government committee, and factually nonparty committee (the so-called Bezděk Committee), which not only prepared the prognosis of the existing public pension system, but also caused the parliament parties to specify their ideas on the pension reform. It is not the fault of the Bezděk Committee that no reform has actually taken place on the basis of its research.

With regard to the Beveridge model, it is interesting that approximately one year prior to the formation of the Bezděk Committee, V. Klaus declared for an introduction of universal pensions in our country. At that time, he was the Chairman of the Chamber of Deputies and his party (ODS) was the opposition party, preparing its "flat tax" concept and subsequently the "flat pension" concept. The pension reform proposal of ODS, targeting universal pensions at the amount of 20% of a nationwide average salary, was also tested by the Bezděk Committee. After the election stalemate, ODS – as the new leading government party – did not readdress the general pension concept, as it settled for parametrical modifications of the existing public pension system and only approved the concept of partial privatization of this system just before the end of its term (vote of no confidence). Today, the concept of universal pensions is endorsed by P. Mach and his political party, which is ideologically very close to V. Klaus.

Countries, in which the Beveridge model set in, experienced significant development of corporate/occupational provisory care as the second pension pillar. In principle, the following statement applies: the lower the level of public pensions (e.g. as a result of the Beveridge model application), the higher the need and room for the development of subsidiary pension systems. The corporate/occupational provisory care was originally a system based on the promotion of employees' "loyalty" to "their" company; employees lost their (pension) ben-

efits upon leaving the company. The concept of the corporate/occupational provisory care has totally changed in the past decades, also due to activities of international organizations. Today, such pension benefits are typically "transferable" to a new employer or to the system of individual pension security. This is a fundamental conceptual change, which makes the pension security even more similar to the primary system. In some countries – e.g. in France, Switzerland, or in the Netherlands – this pension security has actually become part of the primary system. This is more or less the case in the (few) countries, which (still) maintain general pensions.

Civil principle

Significant occupational schemes considerably modify the Beveridge system. In respect to our country, it is interesting that V. Klaus and ODS cabinets always stood out against the occupational schemes. This attitude corresponds to significantly liberal approaches: occupational schemes are associated with corporatism or collectivism. Furthermore, they also "spoil" the system of universal pensions, increase corporate expenditures, etc. On these grounds, the Cabinet of V. Klaus rejected this form of the standard 2nd pillar of the pension provision at the beginning of the past decade, and came up with a "civil" principle of the supplementary pension insurance, according to which a government may only support such insurance, which is concluded by a "citizen" – not by an employee or even an employer. As a result, state subsidies could also be drawn by retirees…

When applying the "civil" principle, employers may contribute to the supplementary pension insurance of their employees. Extreme liberals should probably refuse such "contributions" – however, with a reference to the current monopolization tendencies of the labor market (abroad), the government restricted certain pension benefits of mineworkers and similar professions in 1993-1994, and had to allow the provision of supplementary pension insurance contributions on the part of employers as a certain form of compensation.

Generally speaking, the "civil" principle is only a marketing support of purely individual insurance; however, it also has a general rational core. Individual insurance policies fit the modern approach to occupational schemes, which refuses the loss of pension rights when leaving an employer – it is the simplest arrangement, which, in principle, cannot be legislatively modified. On the other hand, the legislative arrangement of transferability of pension rights represents a modification of the basic construction of an insurance (or any other) contract, entered into by and between an employer and an insurance company (or by an employee if it does not concern insurance, but it concerns savings or pension promise). From this perspective, it is possible to explain introduction of personal pensions in Great Britain or the so-called Riester pensions in Germany. The preference of the 3rd pillar to the 2nd pillar (occupational schemes) has / may have this logic behind it.

However, in addition to possible legal reasons for the preference of an voluntary individual insurance to voluntary occupational scheme, it is also necessary to consider the economic aspect. This specifically concerns the costs of private insurance companies or other pension providers, associated with the provision of pensions – both in case of the occupational schemes and in case of individually arranged contracts with individual "citizens". In general, it applies that the occupational schemes are considerably less expensive; however, these deliberations must always be based on the specific conditions in the given country.

Currently, the situation in Czechia is as follows: the product called supplementary pension insurance with a state contribution (it is a contribution-defined pension plan) has such high administrative costs that on long-term basis, it generates zero real revenues to clients and zero dividends to shareholders of the providers. At the same time, it is a product used by the majority of economically active population – and the reason is the high state support, which is not included in the aforementioned real revenues. This product actually has the highest state contributions in comparison with all other countries of the world. The high subsidies significantly deform the whole savings market. At the same time, the supplementary pension insurance with a state contribution has successful competition – the so-called buildings savings, a system, which only has a common name with building or housing. Both products represent blatant unfairness and market deformation, which would, for example in Germany, be remedied by the Constitutional Court – by annulling state contributions of both products. The most absurd fact is; however, that the "right" liberal would not provide state support to any product, let alone a financial product.

Therefore, we have a basic public pension (and not only pension) system, which is close to the Beveridge universal pension, and we also have a system of personal pensions with the highest subsidies in the world. It almost seems we would like to provide a maximum support to private pensions. At the same time, virtually nobody takes out personal pensions from this system, because clients have a capital option (to take advantage of a "one-off settlement" instead of a pension). The so-called Pension Directive of the EU, which regulates "institutions providing occupational retirement provision" with a view to create common market and to decrease the administrative costs, does not have any practical significance in our country – because occupational pension products do not receive any state support in Czechia. However, these institutions could bring pensions with lower administrative costs in comparison to those of the Czech so-called pension funds, which are – from the economic point of view – just specialized life insurance companies, not respecting the EU legislation on life insurance and life insurance companies.

Universalism of health care

Today, the Beveridge model is basically a historical model, as it is only used in a significantly modified form, and in just a few developed countries. From the contemporary perspective, its most important component is the public health care system. A question is; however, to what extent the universal health care fits within the system of universal benefits. After all, there is a considerable difference between universal pensions at 15–25% of the nationwide average salary and health care, which was defined as a free health care for all citizens, which is to be the best and most modern health care (British White Paper of 1944). One way or another, the model of state (national) health care has survived and it is currently used in a number of countries – e.g. Great Britain, Sweden, Denmark … and, in principle, in Czechia as well. The primary concept of our detailed central control of health care is close to the state health care system.

The public health care represents a very specific component of the social security. While the public pensions, for example, "only" concern money to a certain extent, health care also concerns services provided by doctors and medical facilities as well as medicines and other goods and services. Not only insurance companies (or other providers of financial services), but also doctors, pharmacists, hospitals, etc. have their interest and significant room to

enforce them. The basic fact is the ever accelerating development of medical options and medicines. The potential of health care is always ahead of the budgetary restrictions on the part of the government, population, and other entities. In this regard, we talk about "medical inflation" – and the spread is higher and higher, and this otherwise positive development of health care potential will definitely continue.

One of the key consequences induced by the medical inflation and longer lifespan consists in the universalism of health care. While it was virtually implied in the past that (universal) health care should be provided to each individual to full extent and quality ("complete health care for everyone"), today, the system is dominated by "new universalism", according to which it is possible to provide only the basic care to everyone. In other words: in case health care is to be for everyone, it is not possible to provide all the services.

It is possible that we are going back, in a new form, to the "two-pillar" provision of health care – with the fact that all people or the majority of population may not "reach" the 2nd pillar care. Otherwise, however, the situation is comparable with other components of the social security – in respect of the pension security, for example, not everybody reaches the 2nd or even 3rd pillar, if only due to different preferences. It is possible to object that lives are at stake in case of health care; however, this has always been a case and, after all, some people have always had better position. During the times of leading role of the communist party, the party / government officials (some on the district level, too) had their SANOPZ – special health care system. Today, everybody can theoretically buy not only health care outside of the public health insurance system, but they can also pay extra for special or preferential health care in certain hospitals and other medical facilities. The offer also includes – outside of any insurance system – products of the so-called occupational preventive care, which receive tax benefits from the government.

However, the new universalism principally represents a new perspective in providing health care – it is not just the fact that "chosen ones" have always been advantaged. In principle, the quantity of the new health care supply has changed into new quality. At the same time, health care – similarly as other components of social security, public economics, and public expenditures – must be subject to regular analysis in respect of its relevant costs and benefits, and it is necessary to seek more effective solutions. At the same time, new information systems allow not only higher standards of client care, but also higher level of information provided to clients as well as more options and higher level of consumer protection. All this also brings new perspectives with regard to the status of health care participants, and new preferences. And it does not concern solely lives and health – it also concerns money. At the same time, the classic social security models are being modified, with completely new models being formed.

The new universalism has not been reflected to the relevant legislation yet, especially to constitutional laws. This also applies to Czechia, where the Charter of Fundamental Rights and Basic Freedoms (which is part of the constitutional regulation) states the following: "On the basis of public insurance, citizens are entitled to free health care and medical aids, under the statutory terms and conditions." The term free health care creates problems for the construction of the health care financing systems, and it forces authors of the reforms to bypass this provision.

Private insurance opt-out

At the beginning of 1980's, a new security model is being formed in Chile, which is characteristic by the fundamental emphasis on the mandatory private security. The pension / health provision reforms were part of the economic and social policy practiced by the Chilean military junta assisted by the "Chicago boys". The Chilean reform of the pension and health security was not motivated by the demographic developments in Chile, as the development was actually quite positive. The basic principle was a radical and complex privatization and maximum room for the market and competition. In 1981, the transformation of the social insurance system to the mandatory private pension insurance took place in the form of an opt-out – with the fact that the government provided all participants, who converted to the new system, with a bulk of insurance premium corresponding to the insurance premium paid to that date. Approximately 25% of existing insureds took advantage of the opt-out in the first month alone. The resulting budgetary deficit was financed by government loans, temporary taxation of salaries, privatization of state-owned enterprises, and previous surpluses of the state budget. Today, approximately 95% of employees take part in the system.

The Chilean system contains a number of motivational elements, e.g. after generating certain amount of funds on an individual account (enabling a pension at 50% of an individual's salary), there is no obligation to pay insurance premiums any more, and after reaching another, higher limit (with a pension at 70% of an individual's salary) it is possible to withdraw the surplus funds. Individual accounts are maintained by specialized private pension funds, which compete with each other and are subject to strict state regulation. Old-age security may be realized by purchasing pensions from a private insurance company, by withdrawing funds from an individual's pension fund account (programmed withdrawals), or by combining the two methods. The pension funds purchase disability and survivor insurance (as group insurance) from private insurance companies, charging the relevant fees to the participants (insurance premiums). The pension funds also charge a separate account administration fee to their clients, as a percentage of earnings.

In Chile, an insurance premium in the amount of 10% of earnings is intended for old-age security, and it is paid by the insured from his/her gross salary. Clients may also use this basic system in the form of a supplementary insurance – they may pay higher old-age pension insurance premium with the fact that this insurance premium is subject to the same tax mode as the mandatory pension insurance up to the amount of further 10% of gross salary. The supplementary insurance thus receives government tax support. Pensions are subject to an income tax.

The significant difference from the principally liberal Beveridge model as well as from the modern liberal social support model is apparent from the characteristics of the Chilean system of mandatory private pension insurance. Generally, employees receive pension security at the level approximately corresponding to what is customary in social insurance systems. In Chile, employees were promised that by saving 10% of their salaries – with a conservative 4% annual valuation – they will receive pensions at 70% of their salaries upon retiring, provided they would work throughout their life. At the same time, the specific amount of funds accumulated in pension funds significantly depends on the achieved return of resources allocated to individual funds.

The pension security has the nature of the product called funded (or financial) defined contribution pension scheme, or FDC in short. Investment risks are fully borne by clients with the fact that the government guarantees the minimum pension payout as well as 75% of claims exceeding this minimum.

J. Piñera, labeled as the "architect of the social security privatization" (he acted as the Chilean minister of labor and social security in 1978-1980), states in his paper of 2004 that:

● Average real annual return on the personal accounts of pension funds from inception are 10%;
● Pension funds accumulated resources equivalent to 70% of GDP, and these savings helped finance economic growth and spurred the development of liquid long-term domestic capital market;
● Pension reform contributed to doubling of the growth rate of the Chilean economy from 1985 to 1997 (from the historic 3 percent to 7.2 percent a year);
● Personal accounts have become the "third rail" of Chilean politics.

The critics of the Chilean pension reform point out the following deficiencies (Leiva 2005):

● High transformation costs and high public debt;
● Weak effective coverage of employees;
● High operational costs and management fees;
● High level of volatility and misleading rates of return;
● Discrimination against poor employees and namely women.

In 1981, Chile also introduced opt-out in the public health insurance – into the private insurance system. This private security is also operated by specialized private (health) insurance companies. The product offer comprises standard health insurance products with individualization according to (individual) risks and with the creation of technical reserves. Only the rich and healthy took advantage of the opt-out. In 1997, this form of insurance covered approximately 25% of the population, and only 15% used the opt-out in 2008.

The government does not regulate this private health insurance in any significant manner, and the insured may return from the private system to the public system. Due to the public system deficit caused by the departure of the best risks, the public system insurance premium increased significantly – from 4% to 7% of incomes. In 2005, the basic health care package was defined, which must also be provided by the private health insurance companies. In 2008, approximately 8% of the population lacked any form of insurance coverage. Europe would view the Chilean system of public and private health insurance as socially unfair and, as such, politically unbearable.

Mandatory private pension savings

In 1994, the World Bank published its research report on the old-age security, which significantly affected pension reforms of many countries. In principle, it is based on the Chilean public pension reform, whereas it is aimed at promoting some other pension products and systems, too. The basic ideological frame is basically identical with the pension reform in Chile. It emphasizes macro- and microeconomic effects and influence of pension systems.

The research report contains a number of partial analyses, which are to document the need for a major reform.

The 1994 research report of the World Bank significantly richened the pension theory and policy. Instead of public pensions and public sector, it offers, as a priority, mandatory private pensions and the regulation of private pension funds and other financial institutions. The offer does not apply to the World Bank as such (pension insurance of its employees), but to governments throughout the world, to which the World Bank provides advice and loans, which are usually subject to the execution of recommended reforms. The overall neoliberal approach to pensions represents analogy to approach to other areas with significant barriers for the free market system (e.g. the energy sector). All this is presented knowing that there are different conditions in different countries, and alternatives can therefore be considered.

While the social insurance model is built on two equivalently important basic principles – the equivalency principle and the social solidarity principle, the fundamental theoretical scheme of the 1994 World Bank report separates the two principles in two systems labeled as pillars:

- "Mandatory private pillar" is marked as the second pillar, and it operates exclusively under the equivalency principle – identified in the report as the "savings function";
- "Public pillar" is identified as the first pillar, with the "redistribution function".

According to the 1994 World Bank concept, the mandatory private pillar may be realized in two alternative forms: in the form of personal saving accounts and occupational plans; both alternatives require "rigorous regulation". Personal saving accounts take precedence – with the exception of countries with existing extensive and functional occupational schemes.

According to this concept, the public pillar may be executed in any of the following forms: general social assistance system, guarantee of minimum pension within the second pillar (as is the case in Chile), or in the form of universal pensions or pensions depending on employment duration only. On general level, this pillar is also assigned other "insurance functions": it should "coinsure" for the case of long-term low investment revenues, recession, inflation, and private market failures. The report does not contain any detailed specification of how to execute this "insurance function" of risks, which are uninsurable in the private sector. It can be interpreted that the government has to insure its citizens against the private pillar failure.

The role of the public pillar within the 1994 World Bank concept is significantly sidetracked, even though this pillar is identified as the first pillar. The existence of a general social assistance system, which is intended for the socially needy irrespectively of their age, is implied in all developed countries. In principle, the guaranteed minimum pension from the mandatory private insurance (or savings) system is part of an extensively defined social assistance system – and it is not necessary to discuss it separately. Therefore, we are left with the universal pensions, which are the core of the Beveridge model, and which are mainly provided in the World Bank concept as concession to the countries, which use these pensions.

The 1994 World Bank concept also envisages a third, voluntary private pillar. There is nothing specific on this matter.

It is also worth noting the thesis that the "insurance function" should be ensured by all three pillars – justified by the fact that "an extensive diversification is the best alternative to insurance against the very unsecure world". It can be seen as a starting point for the theory and policy of pillar diversification (with the motto "security through diversity").

The key question of each pension system is assessment of specific amounts of pensions for individual clients and their valorization. The World Bank report only discusses these issues in one of its appendices (Issue Brief 10). Due to the known problems of private pension markets as such (predictability of longevity risk, inflation protection) and under the preference of the FDC system (volatility of returns, especially in the preretirement period), the issue is very difficult to resolve, even from the perspective of the World Bank; this is apparent in the statement that pension markets (sale of pensions) must be strictly regulated, as well as in the deliberation, whether these pensions should be mandatory at all – i.e. whether clients should be forced to buy their pensions. The final sentence of the appendix states that the best solution could be the combination of public pensions and private pensions (annuities); furthermore, retirees should be able to choose from annuities and other alternative benefits in case the given minimum is exceeded. The private pension security could thus end with public pensions. This explains the emphasis on the "savings function" in characterizing the mandatory private pillar as savings – and not as (pension) insurance. The model enforced by the World Bank at the end of the last century may be characterized, above all, as a mandatory private pension savings model, with following public or private pensions.

The macroeconomic dimension of the 1994 World Bank model is based on the presumption that the private pension insurance will lead to an increase in savings within an economy; the increased savings will induce growth of productive investments, which will be reflected in the (additional) economic growth. This dimension of the model is so crucial within the World Bank approach that it has been reflected in the title of the publication; the subtitle emphasizes (in bold) that it is about policies to protect the old and promote growth.

The World Bank report is characteristic by the boundless confidence in the effectiveness of the private sector in respect of old-age security, as it is immune to political interventions on the part of governments. At the same time, it envisages strong government regulation – as if the regulation is immune to political interventions and activities of lobbyists or relevant financial groups – private pension fund owners. The regulation also directly determines the maximum rates of fees, which would be deducted from the clients' individual accounts.

One of the principal hypotheses of the mandatory private savings model is that the model will, on long-term basis, generate significantly higher valuation of clients' assets in comparison to those, which would be accrued by governments or social pension insurance institution. Together with the considerably higher administrative costs of the competitive private system, it means that the returns from the financial allocation of private funds' resources must be significantly higher than the revenues from government bonds. This is generally only possible with a significantly higher risk. In this situation, the volatility of financial revenues becomes crucial, as it also affects the overall value of individual pension funds' portfolios and, consequently, the amount of paid out one-off benefits of the pension funds as well as the following pensions. This is no "pocket change", but tens of percent in pensions.

The mandatory private pension savings model is based on a number of hypotheses, the legitimacy of which cannot be proven; in general, it is neither possible to prove the opposite. Similarly as in other cases, it is possible to find evidence or "proof" of everything in the world. This evidencing method is used quite frequently in the reviewed World Bank report. Finally, we should underline the question, whether the volatility of benefits is acceptable within the basic social security. I personally believe that it is not; generally speaking, it is the key issue of pension policy. Furthermore, we should probably recall that even the authors of the report are not sure, whether to allocate the payment of pensions from the basic pension security system to the private sector.

The mandatory private pension savings model leaves aside the security of disabled and survivors, which means, in fact, that it envisages a public social security system.

10 myths, diversification theory, and great circle of the World Bank

At the time of publication of the World Bank report (1994), pension reforms were carried out in line with the Chilean example, more or less, in a number of other South American countries. The World Bank recommended the reforms based on its scenario to the countries of the former Soviet Bloc. This was the case in a number of countries, with a different level of the private sector involvement. When enforcing pension reforms in individual countries, the World Bank proceeded with more caution that could have resulted from the preceding presentation of the mandatory private pension savings model. The main reason consisted in high transformation costs associated with a conversion to the funded system – in this regard, the World Bank had to, willy-nilly, behave responsibly to certain extent; impact on the public finance, which would be induced by the single-shot privatization of public pensions according to the Chilean example, could not be endured by any European economy. It is also remarkable that the European Commission officially tolerates (ignores) public budget deficits induced by the pension system privatization when calculating deficit for the purpose of compliance with the Maastricht criteria.

In the course of the theoretical justification of the public budget deficits caused by the privatization of the social old-age security, its protagonists used the theory on implicit public pension debt. This implicit debt is a theoretical, artificial construction, which should express the volume of pension claims that should be met by the government in the future – subject to existing legislation. The implicit public pension debt construction is aimed at emphasizing that the government is actually strongly indebted – with the fact that existing pension claims are not "backed" by the existence of actuarial provisions created in line with the actuarial principles of the private pension insurance.

Many authors, who write about social reforms, do not know that the original Bismarck model worked with actuarial provisions similarly or identically as the private insurance does. In practice, these provisions (and not only these reserves) were literally destroyed by wars and hyperinflations. Following such events, the provisions were recreated. (The creation of these provisions in our country was last envisaged by Act on the national insurance of 1948; however, this approach was abolished at the beginning of the 1950's, because the creation of provisions did not make any sense under the new political-economic system.) Following the Second World War, pensions were significantly increased, together with the higher lifespan and lower retirement age, etc., which multiplied the need for actuarial provisions – even to

the extent these funds would play a major role on the capital market. For these reasons, the relevant countries (with a social insurance system) abandoned the funded system, which was originally assumed from the private insurance.

In general, it is possible to say that the social pension insurance system need not create provisions in the same manner the private insurance does. However, it may be (it is) meaningful to create these funds within social insurance system in order to deal with the fluctuations in pension payments and other benefits. However, such funds are incomparably lower than the standard actuarial provisions, which are generated for the reason of redeeming clients in case of a sudden termination of a private (life) insurance company's activities. This risk does not exist within a social insurance system, provided we abstract from wars and other similar events. This is why the concept of implicit public pension debit is "solely" a concept, which is to facilitate the position of privatizers of the social security system. It is actually a "dirty trick of academicians".

The mandatory private pension savings model, included in the 1994 World Bank research report and enforced by the WB in the course of its activities, stirred up various reactions. A number of national economists and journalists adopted the model and even improved it further. In our country, the then biggest supporters of the model included the trio of young macroeconomists O. Schneider, V. Kreidl and T. Jelínek. In their articles and presentations, they finalized the model in all aspects, concluding that– "mandatory private pillar" shall be the pillar no. 1, which is absolutely correct from the model perspective. Furthermore, they simulated the profitability of this model.

The model mainly provoked negative reactions of organizations engaged in social security, including the International Labor Organization.

A paper by P. R. Orszag and J. E. Stiglitz at the 1999 World Bank conference in Washington represented a significant reaction to the 1994 World Bank report. The conference theme was "New ideas about old age security", and the paper of the above mentioned authors had a concise title: "Rethinking pension reform: ten myths about social security systems". Simply said, the paper generally dishonored the "World Bank model", specifically its basic, mandatory private pillar, and – with its provocative presentation – significantly affected further analyses and pension policies as a whole. We should recall that Professor Stiglitz is, inter alia, a recipient of the Nobel Memorial Prize in Economic Sciences (2001) and the former Vice President of the World Bank. P. R. Orszag is currently a member of President Obama's administration. The above mentioned 10 myths relate to the research report of 1994; myths are classified in three groups: to macroeconomic, microeconomic, and political economic. Researchers, and subsequently politicians, could not ignore this paper – in case they were seriously dealing with the issue of pension system privatization after 1999.

In the following years, changes can be seen in the standpoints of the World Bank, which was clearing out its positions. The need for a "multi-pillar" is being stressed more and more, together with the effectiveness of (even a temporary) existence of a significant public pillar. This "evolution" resulted in the new World Bank report titled Old Age Income Support in the 21st Century: An International Perspective on Pension Systems and Reform, which was published in 2005 and prepared by a team led by R. Holzmann and R. Hinz. This report is free of

downright one-sided views of the private pension markets functioning and their regulation. It takes into account experiences with the enforcement of the mandatory private pension savings model. Instead of this mono-pillar model, the report formulates a "multi-pillar model", consisting of (on general level) 5 pillars:

0. Non-contributory "zero pillar" is intended to do away with poverty – i.e. in principle, it has a social assistance or low universal benefit character ("demogrant" or "social pension");
1. Mandatory "first pillar" should replace some portion of the lifetime pre-retirement income – it should be financed from earnings-related contributions, and it should typically be a pay-as-you-go system;
2. Mandatory "second pillar" typically represents an individual savings account (defined contribution plan), with a wide set of options relating to the product design, with benefits linked with risks resulting from the private asset management, high transaction and administrative costs, and also with the longevity risks, provided that benefit in the form of annuity is requested;
3. Voluntary "third pillar", which is customized to individual needs of clients, and which may be in different forms – e.g. individual old-age, disability or death savings, occupational schemes; therefore, it is aimed at compensating the rigidity within the design of other pillars;
4. Non-financial "fourth pillar" comprises access to informal support (e.g. family support) or other formal social programs (e.g. health care and/or housing) and other individual financial and non-financial assets (such as home ownership or reverse mortgages).

The aforementioned sophisticated formulations have been taken over from the World Bank Pension Reform Primer and they are based on precise formulations, which should be suitable for various situations prevailing in individual countries, to which the World Bank provides assistance. Should we simplify the interpretation to European conditions, we could say the basis of this new concept is:

● Mandatory public pillar (e.g. in the form of social insurance); and
● Mandatory private pillar (identically with the 1994 concept).

At the same time, it is not said which of the pillars is the primary one – both are important, crucial. The significant difference from the 1994 model consists in the fact that the "basic" public pillar is in play again. The former first pillar became the "zero" pillar. The third and the fourth pillars represent supplementary pillars, which need not be addressed.

With some effort, this "multi-pillar model" may be regarded as a concept justifying the mix of public pensions and mandatory private pensions; according to this approach, both types of pensions have their pros and cons – and the optimum solution is to "combine" them in line with the specific conditions of the country in question. This is the theoretical basis for the pension reforms carried out in Poland and Slovakia; in Slovakia, they combined the two types in the rate of 1:1 (insurance premiums of 9% x 9%), while the combination rate amounted to 5:3 in Poland – all under the motto of Security through Diversity. However, some of the formulations of leaders of the World Bank team, which prepared the 2005 concept, signal that the basis of a modern pension system is a mandatory public pillar, and if

a country wants to privatize its public pension system, the World Bank would be happy to provide its advice, so that the local politicians avoid associated problems as much as possible. Naturally, this approach represents a major reversal – negation of the revolutionary ideas of the Chicago Boys, included in the 1994 concept. The key national economy maneuver included in the concept, generally promising an economic miracle as the product of public pension system privatization, is not discussed in the new concept. On the other hand, it is not possible to play down the microeconomic effects of various construction elements of individual products and pillars, they have their meaning and place in each modern deliberation on pension systems.

In conclusion of deliberations on models enforced by the World Bank, it is also possible to point out two different alternatives of the private pillar: In the original alternative (let us say Chilean alternative), clients are obliged to conclude a contract with one of the licensed, specialized pension funds. In this alternative, pension funds compete for clients, and the relevant financial groups also use their client databases to offer their other products.

The second alternative, which was applied in Sweden, for example, consists in the fact that a client selects (maximally) one of the more or less risky products, and based on this selection, the relevant public authority allocates assets to its selected investment companies – the reason being considerably lower administrative and management costs (fees). Generally speaking, this alternative is far less interesting for the private sector.

With regard to the supporters of the theory on the major national economic maneuvre associated with the public pension privatization, it is possible to draw up another (third) investment variant (alternative): not only will this alternative do without the collection of insurance premiums and the whole pension savings agenda on the level of individual pension funds (as the second alternative), but it will also get by the link of the state-invested financial funds to the existing (any) pension system. A government shall take a bulk of money from the state budget and remits it to a selected financial group (or groups) to allocate it on financial markets – it will reach significant returns for the state budget. The government may even borrow money for this financial maneuvre – after all, it would have to borrow substantial funds in case of a privatization. If we do this on the necessary scale, it will not be necessary to even pay taxes in time; instead, we will borrow money (cheaply) and invest the borrowed money (with higher revenues) in private investment funds. Naturally, this is an attempted joke; nevertheless, the public pension privatizations are similarly profitable maneuvre: governments will borrow money so that it could invest the borrowed money in private funds.

Modern social pension insurance: NDC

At the end of the last century, a new alternative of the social insurance model (in the area of old-age pensions) was formed in Sweden, Latvia, Italy, and Poland. It is the NDC system, which originally was the abbreviation of the term notional DC (DC = defined-contribution), which; however, more and more refers to non-financial DC, i.e. non-financial defined-contribution system. In this system, old-age pensions are calculated from the individual account balance, using the standard actuarial appliances (pension for single premium). The insured's individual account is credited with the insurance premiums by the insureda (or his/her employer). The insurance premium shall be assessed in the same manner as in the "standard" social insurance model – i.e. on the basis of income, up to an earnings ceiling. Unlike the private

pension insurance, the NDC system does not create any actuarial provisions – hence the adjective non-financial or notional.

The key contribution of the NDC system is its flexibility in respect of the demographic development, automatic reaction to population aging – without the need of political interventions in the form of amendments to various acts. Similarly as any other public / private pension system, even the NDC system is not immune to political interventions. The flexibility, simplicity, and transparency of the whole system are also important.

The standard social insurance model is a the so-called defined-benefit system (DB), containing "strict" old-age threshold and "strict" condition of minimum insured period (which has been extended throughout the long-term existence of the social insurance, thus becoming more and more important); upon the fulfillment of the defined criteria, a person was entitled to a pension on the basis of the following formula: "personal basis of assessment" multiplied by the number of insured years and ratio assessing each year of insurance period. This was (later) completed with various surcharges and bonuses for late / early retirement. All these parameters could be modified in practice, on the basis of volitional deliberations. This is how the social pension insurance system originated. We may also recall that old-age pensions were originally a special form of disability pensions (where it was not necessary to check the disability). Today, old-age pensions dominate the pension systems from the perspective of expenditures.

Last but not least, it is important that contribution-defined systems have only arisen and developed (within the private personal insurance) in the past decades. The key motivation for the formation of defined contribution (DC) systems was the reduction of actuarial risk, i.e. transfer of the (whole) investment risk to clients of private insurance companies. This has also led to higher dynamics of the private personal insurance throughout the world. New branches of life insurance are being formed on the basis of clients' individual accounts – such as universal life insurance and variable universal life / unit-linked insurance. The defined-contribution product, which is commonly offered by pension funds in the USA, is actually a universal or unit-linked insurance, narrowed down to savings (investments) within an individual account. It is actually a bank / investment product, which may be offered as an insurance coverage (e.g. in our country). I point out that the defined-contribution insurance schemes in the USA normally end with a one-off payment of the accumulated funds; a pension is not part of these products.

Naturally, the NDC system did not originate to transfer investment risks to clients. However, it is a mechanism, which can more easily react to demographic changes, i.e. it concerns a transfer of the demographic risk (longevity risk) to clients. This possible use of the NDC system is very important from the practical point of view; however, the construction of the system is neutral. The system may be used under any demographic conditions.

In principle, the NDC system may be set up in such manner that it is not necessary to change its parameters in medium-term horizon. However, it requires superior preparation of a pension reform; it is not possible to have a government proposal, which is subsequently significantly (as for parameters) modified by the parliament, as was the case in Czechia in mid-1990's.

Even though the NDC system is fairly young and its qualities are still to be tested in practice, the World Bank held a conference in 2003 on the Swedish island Sandhamm, dedicated to the potential application of the NDC system within the European Union. On the basis of papers presented at the conference, and upon the completion by other written materials, the World Bank released an extensive publication in 2006 (edited by R. Holzmann and E. Palmer) on pension reforms in the EU, in which it recommends that the EU focuses on the three-pillar system, with an NDC system at the core, supplemented with private pensions and social pensions. Such system would meet "all generic and EU-specific demands on a Pan-European pension system, including the room for national preferences" (R. Holzmann). Efforts at the all-European system (EU) are meaningful in respect to the continuing economic integration of the EU; it should replace the not so effective "open coordination method" used in other areas of activities within the EU.

The "social pensions" are included in the "social pillar". In the Holzmann's concept, this pillar is not a mere "zero pillar" (as within the multi-pillar model of the World Bank). This pillar, which currently comprises all "noncontributory" pensions in the form of general social assistance system or special social assistance system for elderly, or in the form of an universal pension (demogrant), should be more important within the Pan-European model than it is today, in average. The reason for this is the relation to the basic NDC system, which is to be built significantly on the equivalency principle. The institute of minimum pensions and other similar instruments should be moved from the primary pillar (newly NDC) to the social pillar.

Private pensions are also very important within the Pan-European model, generally comparable with the social pillar. Therefore, R. Holzmann characterizes this pillar as the "second or third" pillar of the system. It requires that the basic system (NDC) does not provide generous compensations, in order to ensure "consumption smoothing" in excess of the NDC benefits, and also to promote flexibility upon retirement, risk diversification, and support of mobility within the EU. For these rather general reasons, he prefers private pensions to supplementary insurance within the NDC. (Holzmann, Palmer 2006)

Four member states of the EU have already implemented the NDC system (find the year of act adoption / year of effectiveness in parenthesis):

- Sweden (1994/1999)
- Italy and Latvia (1995/1996)
- Poland (1998/1999)

At the same time, Italy and Sweden are implementing the NDC system gradually, for several decades. On the other hand, Latvia implemented the system immediately for all the insureds. According to R. Holzmann, only the Latvian method is suitable – in order to ensure the workforce mobility, which is the primary goal of the proposed Pan-European reform. Germany, France (and Slovakia – JV) have the so-called point social insurance system, which is close to the NDC system; this means that a conversion to the NDC system would be simple in these countries.

The NDC model, completed with social and private pensions, represents a suitable model for Czechia and the EU.

Mandatory private health insurance

In the area of health security/insurance models, the World Bank engaged significantly less that in the area of pension systems. Besides, the Chilean health insurance reform was not suitable for export. In addition to this, it would first be necessary to advise (from the model perspective) the government of the USA, where a market model is in force and it is not possible to apply the universal care standard, which is typical for other developed countries. Health care expenditure in relation to GDP in the USA are increasing faster than in other countries, this relation is double compared to other developed countries, whereas approximately one half of the expenditure is allocated to federal health care programs for poor and elderly. Approximately 46 million Americans do not have any insurance and further millions of Americans are underinsured.

Even though the domestic (US) health security problems are crucial, some ideas from the USA have been exported to Europe, specifically to the Netherlands and partially also to Czechia. An extensive health care reform has taken place in the Netherlands since 2006, inspired by the theory and reform proposals of the American professor A. Enthoven, which were, however, intended for the USA and not for the Netherlands. A. Enthoven calls his system as the managed competition system. It is a mandatory private insurance system, with very strong government regulation, including significant social elements. In the Netherlands, the system tends to be characterized as a private insurance with public guarantees or as a hybrid system (a combination of the social and private insurance).

The standard private health or sickness insurance has its characteristic construction elements derived from the equivalency principle and its implementation within the market environment. Prior to concluding an insurance policy, a private insurance company shall assess the client's health, trying to reflect the ascertained facts in the amount of insurance premium. A contract is simply not concluded at all in case of bad risk. In order to diversify risks and increase insurability, individual contracts and whole stocks are subject to reinsurance. Insurance contracts are concluded for a limited period of time, i.e. not from a birth till death. Under market conditions (USA), hundreds of thousands of products are offered by thousands of dealers. Most insured Americans are insured through their employers – i.e. only in the course of their employment.

On product basis, the mandatory private health insurance in the Netherlands significantly differs from a "standard" private health insurance (similarly as for other mandatory private insurance covers – e.g. "third party liability insurance"; this is common). In principle, it applies that a product is the same as it is / would be within a social insurance. In order to make this possible, everything necessary must be included in the relevant acts or agreed in line with statutory rules. However, insurance policies are arranged in line with private law, and insurance companies represent (special type) private insurance companies; they may also be established as nonprofit organizations.

Any differentiation of insurance premium according to risk (age, gender, health) is forbidden in respect of the Dutch mandatory private health insurance, and private health insurance companies must enter into an insurance policy with any (eligible) applicant. Insurance companies do not create fundamental actuarial provisions, i.e. "aging provisions" within the private health insurance. Had they created such provisions (within the constant insurance

premium system), these funds would, overall, be higher than in the pension insurance – this could be an impulse for the supporters of the mandatory private pension savings model: calculate the implicit public health debt and propose the creation of provisions, which health insurance companies would allocate on the capital markets – resulting, in line with their theories, in economic growth.

In the Netherlands, economically speaking, the government actually purchases (majority of) health insurance for its citizens from specialized private insurance companies; the insurance companies are selected by people. An insurance company will receive a (capitation) payment for each insured person, differentiated by age and gender as well as by approximately 30 major diseases (which the clients suffered from during the preceding period). Extremely expensive care is detached as a separate "pillar", which has the nature of social insurance. On model basis, an insurance company receives a payment from the Central health fund in the form of risk premium insurance. The "redistribution of insurance premiums" works similarly in Czechia. The revenue of the Central fund comprises "earnings-related insurance premiums", paid as a percentage from income (up to an earnings ceiling); employers pay 50% of the insurance premiums on behalf of their employees (since 2007).

Another important component of the system is the "nominal insurance premium", which is determined by the health insurance company in respect of its clients. This nominal insurance premium is paid to the insurance company by its insureds with the exception of the state insureds (children up to the age of 18) – the government pays the insurance premium on behalf of such persons. The "nominal insurance premium" is determined as a fixed amount ranging from approximately EUR 1000 – 1400 per year. It is possible to get a group discount (mainly discounts for employees) of up to 10%. The persons in need are entitled to a state contribution to the nominal insurance premium; approximately 40% of all insureds receive this state contribution. In respect of adults, the "nominal insurance premium" covers approximately 50% of costs of the relevant health care (on an average). The basic health care package included in the mandatory private health insurance is identical for all; however, it was possible to negotiate a deductible of EUR 100 – 500. The deductible has been mandatory since 2008 (min. EUR 155 per year), with the fact that it does not apply to minors up to the age of 18 as well as to some forms of health care. In 2006 – 2007, it was possible to arrange a no-claims bonus in the amount of up to EUR 255. The purpose of these constructions as well as the whole system of the "nominal insurance premium" is for clients to take into account the health care costs. The overall level of deductibles is considered to be low; the administrative costs (including profit margin) of insurance companies amount to approximately 5% of the insurance premium (Leu, 2009).

The Dutch "nominal insurance premium" represents an average private insurance premium for all clients of the relevant private insurance company. In respect of standard private insurance coverage, insurance premiums are differentiated on the basis of risk and not income (as is the case for social insurance). No insurance premium should exist in the model of state health care provision, which dominates in Czechia – it is a public expenditure program, financed from taxes – similarly as other public expenditure programs.

The Dutch health care financing model may be characterized, as for insurance premiums, as the system of average, universal insurance premium, which covers one half of the relevant

health care; the other half of the health care is covered by the government in the form of subsidies depending on age, gender, and health of individual private insurance companies' clients. Globally speaking, the government subsidizes the mandatory private health insurance to the extent of 50%. The other insurance premium – the so-called earnings-related insurance premium – is not systematic, because it is an income tax; this tax should be combined with the general income tax. From the perspective of a model, it does not make any sense for a government to levy special/separate income tax for financing of the health care (50%).

The main purpose of the "nominal insurance premium" may be for clients to at least partially realize high health care costs. From this price ("nominal insurance premium"), insurance companies grant discounts for (higher than obligatoty) deductibles. It is easy to image the existence of such constructions within the social insurance system or state health security system. The question is, however, the effectiveness of such instruments, including expended administrative costs. However, it is not necessary to privatize health insurance companies for these constructions alone.

In the Netherlands, approximately 1.5% of the population (240 000 people) lack any form of insurance – majority being immigrants and their children (even though the state pay the insurance premium for children). Sanctions apply to uninsured persons, which exceed the amount of the nominal insurance premium (by 30%). Further 1.5% of people arrange an insurance policy, but they do not pay any insurance premium. Insurance companies may get rid of these insureds.

Since 2006, there has been a rapid concentration of the mandatory health insurance market; 4 insurance companies currently control 88% of the market. The existing evaluations of the Dutch reform are quite noncommittal, with a reference to the relatively short period of application. The reform was mainly aimed at cost cuts and at empowering the role of consumers. In respect of quality in terms of the consumer protection, the Netherlands has ranked first in the world, followed by Denmark and Austria (Euro Health Consumer Index). However, the Netherlands claimed victory in this competition in 2005 as well. The classification does not include health care costs. Germany took sixth place (out of 33 European countries); the report (Björnberg 2009) states Germany is a "mysterious" country, with its health care system most focused (in Europe) on consumers, without restrictions and furiously increasing costs. As a speculative explanation, the report states that German doctors work harder. According to the aforementioned classification, Czechia is in the middle of the pack. Another conclusion of the report is that countries practicing the Bismarck model are beating countries practicing the Beveridge model.

The insureds in the Netherlands may arrange for a private supplementary health insurance, and most of them do it. The basic health care package covered by the mandatory insurance does not include dental care, physical therapy, glasses, and cosmetic surgeries. The supplementary insurance is arranged with the same insurance companies, which hold licenses for the mandatory insurance; however, it is not necessary to arrange such supplementary insurance with the same insurance company, in which clients have their basic insurance.

The health care reform, which was prepared by the Czech minister T. Julínek, was inspired by the Dutch reform. However, only the so-called regulatory fees have been implemented,

which led to the election defeat of the Civic Democratic Party (ODS) in the 2008 regional elections, and subsequently to the fall of the Topolánek's Cabinet in 2009. Julínek's reform did not have a corresponding political support, unlike the Dutch reform. It is also a fact that the previous Dutch health care system significantly utilized private insurance and other private sector attributes.

In terms of Europe, private health care insurance is also significantly used in Switzerland (since 1996). The Swiss system is much closer to the standard private insurance than in the Netherlands; however, on the other hand, insurance companies have the form of nonprofit organizations only. There are significant differences in individual "details" of the two systems.

A health care reform had been taking place in Slovakia since 2003; however, many attributes of the reform were either removed or deactivated after the 2006 election. The planned concept the Julínek's reform in Czechia was roughly the same as the implemented Zajac's reform in Slovakia.

Efforts aimed at using certain construction elements of the private insurance or efforts aimed at the utilization of economic instruments in order to reduce the pressure on health care expenditure increases, are absolutely logical. The same is being attempted by various theoreticians and practitioners within the social insurance or national health service systems as well. At the same time, additional modifications take place everywhere, after the execution of reforms, aimed at intensifying as well as correcting the reform. Both the Dutch system of "private insurance with state guarantees" and the Swiss system (operating since 1996) are at this stage.

The interim results of the Dutch reform have not proven the effectiveness of health insurance companies' privatization (in spite of the fact that nonprofit organizations operate / may operate in addition to typical private insurance companies). Perhaps, it will become obvious that health care costs can be better regulated by a system of detailed central control – as existing in Czechia – or within a national (or mainly regional) health service system in Sweden. In any case, it is not effective and professional to argue in favor of private health insurance companies, for example, by solely claiming that a private company always works better than a public company and that nothing beats joint-stock companies. It may have been sufficient for the Chicago Boys in Chile 30 years ago or in 1994 in the World Bank. The relevant pension model, corresponding to this health insurance model, is passé in Europe. The only fact is that some Czech national economists (even from the former National Economic Council of the Government) and journalists have not realized it yet.

The mandatory private health insurance system strongly reminds of the mandatory private pension savings model; however, its Dutch version is very sophisticated, and it cannot be ruled out that this system will generally continue to work – better than different systems in other countries. At this point, we are not only interested in this system (or another system / model) as such; we are interested in the social security as a whole, including health care. In this regard, we will have to decide, whether to aim at a comprehensive social security concept (including health care) or whether to reform health care, irrespectively of other social security branches and/or tax system.

The Dutch concept of health care regulation – similarly as the Slovak reform and Julínek's reform – establishes new state supervision authority over health insurance companies. It is intended even for supervision over private supplementary insurance, which should do with the existing supervision over the private insurance sector; this does not rule out the supplementation/amendment of relevant acts; e.g. Insurance Policy Act, which regulates private insurance products. In respect of the social insurance model and national health service model, the state supervision authority over insurance companies is not necessary.

Pan-European social security model

It is a pity that the World Bank or some other institution does not offer an analogy to the Pan-European pension system for the health security. We should try to create a model of such a system. And we should even try to interconnect it with other parts of the social insurance or security model, especially with sickness and disability insurance.

Our hitherto research and personal experiences have complied with the Pan-European pension system concept, the primary element of which is:

● Modern social pension insurance in the form of the NDC system;

Completed with other significant "wings" / systems, namely:

● Social pensions; and
● Private pensions.

Another fundamental social security system may be the Pan-European health, sickness, and disability system, the primary element of which would be:

● Modern social health, sickness and disability insurance;

Completed with other significant "wings" / systems, namely:

● Social health and disability care benefits; and
● Private supplementary health, sickness and disability insurance.

Simultaneously with the reforms aimed at the fulfillment of the Pan-European pension system and the Pan-European health, sickness, and disability system, we need to reform the connected tax / subsidy system in Czechia, because it has been significantly departing from a meaningful system. I do not know whether a Pan-European tax system would have to be established first, but we definitely need to clarify that a standard model of taxes and social insurance comprises:

● Social insurance premiums assessed from earnings up to a earnings ceiling, deductable from the income tax base;
● Integration of all pecuniary social insurance benefits in the income tax base;
● Integration of all pecuniary social insurance benefits in the basis of assessment for the social insurance premiums.

Furthermore, we need to clarify that the primary form of the state support of private pensions and private health, sickness, and disability insurance is:

● Deduction of contributions for private pensions and private health, sickness, and disability insurance premiums (up to the earnings ceiling) from the income tax base; and
● Integration of private pensions and pecuniary benefits from the private health, sickness, and disability insurance in the income tax base; whereas other forms of state support are redundant.

If we are liberals and for this reason, we oppose the social insurance system, but we propose, for example, an introduction of universal pensions, it is necessary to be consistent and propose an introduction of a head tax (it may even be called an universal insurance premium), or – even better – to do without such a tax. In case we refuse social insurance, we must also refuse social insurance premiums.

Summary

The Bismarckian social insurance model combines two basic principles: the equivalence principle and the social solidarity principle. In the old age social pension insurance the equivalence principle dominates whereas in the health & sickness social insurance branch the social solidarity prevails. The earnings ceiling plays a substantial role in this model: one ceiling for the computation of insurance premiums and as well as for the computation of pecuniary benefits. Originally the funded system of financing was used in this model; due to economic and political reasons the transition to PAYG financing occurred. The NDC system is a modern social insurance model.

The Beveridge model includes universal pecuniary benefits financed through universal contributions and a tax-financed separate national (public) health service system. The pensions in this system respect the liberal concept of the authors whereas the universal health care system covers all population at a relatively high level. This pension system was in practice substantially modified by the introduction of other important pillars.

The Chicago Boys introduced an opt-out to the private pension and health insurance system in Chile. The Chilean pension reform, heavily supported by the Pinochet government, was explained as a big success and taken over as the basic form of the World Bank concept of pension reform, with the mandatory private savings pillar as its core. To push through this pension reform concept the World Bank report of 1994 used all many theoretical devices such as the so-called "Aaron rule" and "implicit public pension deficit" is. The author reveals that the pushed-through privatization of old age pensions (savings) could be realized without involving the pensions (savings) themselves. This privatization represents an emergence of a massive real public debt, with the transfer of the money borrowed in this way to the private sector – expecting a higher return from this investment that the interest paid on the new public debt. If this construct were correct then it should be realized in the health insurance sector as well.

In the process of pushing through the privatization of public pension system (mainly in the post-Communist countries) the World Bank was changing its recommendations. A characteristic "semisolution" is the "diversification theory and policy" explaining that the best solution

is a mix of two mandatory pillars – a public one and a private one. The "Security through Diversity" slogan was used especially in Poland and this approach was "fully" (50:50) realized in the pension reform in Slovakia.

The new conditions in the health care sector require a substantial modification of the old universalism principle, leading to more "pillars" in the provision and financing of the health care. In Czechia there was an attempt to realize a health insurance privatization of a Dutch type, partly using also the Slovak privatization concept. Due to the lack of political consensus this Czech reform failed soon. The Dutch experience shows that it has not proved up to now that the managed-competition system is efficient as for controlling the costs of the private health insurance providers.

From 2003 many World Bank managers recommend to introduce a Pan-European pension model in the European Union countries, consisting of one public mandatory pillar in the form of NDC and two standard other pillars: (tax-financed) social pensions and voluntary private pensions. The author supports this approach and recommends extending it to other social security branches, having in mind especially a potential Pan-European health, sickness, and disability model.

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Figure 1: Implicit Public Pension Debt as presented by the draftsman of the magazine Finance and Development, 1996

Chart 1: Relation of pensions and the multiple of an average earning: Czechia (35 and 45 years of insurance) and the Social Insurance Model (50%, 65% and 100% of net earnings)
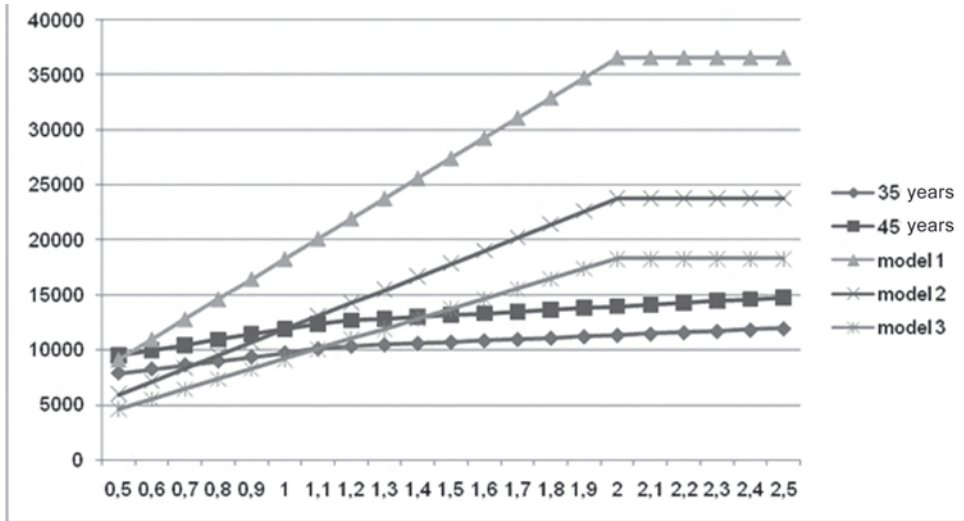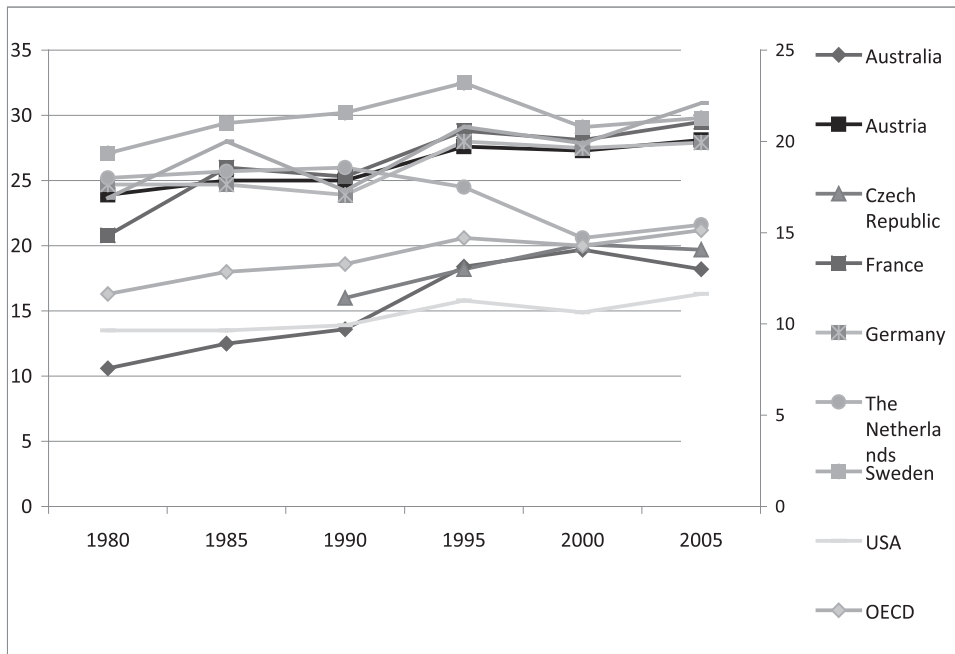

Chart 2: Social expenditure as a percentage of GDP

Next issue of the scientific reviewed journal ACTA VŠFS will be concerned with the current problems of the Czech economy, namely in the article about reporting in small and medium-sized enterprises (authors: **L. Müllerová**, **M. Paseková** and **D. Kubíčková**) and about VAT rates (authors: **J. Široký** and **A. Kovářová**). Theoretical economics will be represented by the article of morality in redistribution systems (authors: **R. Valenčík** and **P. Budinský**). Experience in economic development abroad describes article addressing the introduction of the euro in the Slovak Republic (author: **M. Špánik**).

Příští číslo vědeckého recenzovaného časopisu ACTA VŠFS se bude zabývat zejména aktuálními problémy české ekonomiky, a to ve stati autorů **L. Müllerové, M. Pasekové** a **D. Kubíčkové** o reportingu v malých a středních podnicích a ve stati **J. Širokého** a **A. Kovářové** o sazbách DPH. Teoretická ekonomie bude zastoupena statí **R. Valenčíka** a **P. Budinského** o moralitě v redistribučních systémech. Zkušenosti z ekonomického vývoje v zahraničí popisuje stať **M. Špánika** o dopadech zavedení eura na Slovensku.

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