

DESCRIPTION OF SCIENTIFIC ACHIEVEMENT

1. Information on education and employment

Education:

- 1998 – Master’s Degree (with distinction) in Qualitative methods and information systems at Warsaw School of Economics (SGH)
- 1998-2002 – PhD studies at the Collegium of Economic Analysis at Warsaw School of Economics
- 2003 – PhD in Economics awarded at the Collegium of Economic Analysis at Warsaw School of Economics. The title of my doctoral dissertation: “Stability of pension systems in the view of ageing population”. Supervisor prof. dr hab. Marek Góra.

Employment:

- 1997-1998 – Office of the Government Plenipotentiary for Social Security Reform, Ministry of Labour and Social Policy (MPiPS) – analyst
- 1999-2002 – Institute for Market Economy Research – research assistant
- 2002-2004 – Ministry of Labour and Social Policy (MPiPS)/Ministry of Economy, Labour and Social Policy /Ministry of Social Policy: Director of the Department of Economic Analyses and Forecasts.
- 2004-2005 – Ministry of Social Policy: Undersecretary of State
- 2005-2006 - Ministry of Labour and Social Policy (MPiPS): Director of the Department of Economic Analyses and Forecasts.
- 2007 – Ministry of Regional Development: minister’s advisor
- 2007-2008 - Ministry of Labour and Social Policy (MPiPS): Director of the Department of Economic Analyses and Forecasts.
- 2008-2009 - Ministry of Labour and Social Policy (MPiPS): Undersecretary of State
- 2009-present – Warsaw School of Economics: assistant professor
- 2009-present – Educational Research Institute: assistant professor

A summary of professional career

In September 1995, as a third-year student I began my cooperation with the SGH Institute of Econometrics, where I taught classes in mathematical analyses as a trainee assistant to prof. Tomasz Szapiro who lectured on the subject. During my studies, I was part of a group of students who founded the Students’ Academic Club of Economic Analyses. In 1997, I visited Oxford University as part of the scholarship awarded to me by the Stefan Batory Foundation, where I studied under prof. Stephen Nickell, reviewing literature and research for my MA thesis. In my thesis, I used logistic regression models to assess the impact of unemployment on the internal migration in Poland, based on the data available from the 1994 Labour Force Survey.

In January 1997, I began working in the Ministry of Labour and Social Policy in the Office of the Government Plenipotentiary for Social Security Reform, where I was employed as an analyst under the management of my MA and future PhD supervisor prof. Marek Góra. My responsibilities included conducting analysis relating to the strategies planned within the reform of the pension system, including microsimulation analysis of pension benefit rates and working under the supervision of Swedish experts on the development of macrosimulation model projecting the influence of the



pension reform on the level of expenditure and assets of the pension system, depending on the adopted demographic and economic scenarios and the parameters of the pension system itself. This is when I had an opportunity to become acquainted with the analytical and forecasting methods used in demography. From September 1998 to March 1999, I performed the duties of Deputy Director at the Office of the Government Plenipotentiary for Social Security Reform. In 1999, I took advantage of the summer internship at the headquarters of the World Bank in Washington, where I worked on the analysis of the European defined contribution (DC) pension systems. At the time I also worked on the article summarising the introduction of the pension system reform in Poland. In 1999-2002, I worked as a research assistant at the Gdańsk Institute for Market Economy [Instytut Badań nad Gospodarką Rynkową] where I conducted analyses with the use of the Social Budget Model with regards to the functioning of the old-age and disability pension system. I also studied the functioning of professional rehabilitation in social security systems. Among the effects of this activity were international publications by the International Labour Organization. I also used the experience I gained at the Institute in the work on my PhD dissertation.

In April 2002, I became employed in the position of the Director of the Department of Economic Analysis and Forecasts at the Ministry of Labour and Social Policy. I coordinated the program and analytical works for the ministry and the government. These included the development of detailed strategies and assessment of the effects of the reforms proposed within the so-called "Hausner Plan," preparation of Joint Inclusion Memorandum, National Action Plan for Social Inclusion for 2004-2006 and 2007-2009, National Strategic Report for social protection and inclusion. I took part in the works of the Social Protection Committee and of the Working Group for Population Ageing (AWG). I was also a member of OECD Employment, Labour and Social Affairs Committee. In 2006-2008, I was a Vice Chairperson of the Social Protection Committee and member of the Bureau of the Employment, Labour and Social Affairs Committee. I also headed the Social Affairs Work Group in OECD. In the period of 2002-2008, when I worked in public administration, I was twice engaged as Undersecretary of State. Between December 2004 and November 2005, I was Undersecretary at the Ministry of Social Policy and between January 2008 and October 2009 at the Ministry of Labour and Social Policy. My responsibilities involved the management of the sphere of social security, family policy and equal opportunities (2008-2009). I was particularly responsible for the preparation of the Act on Bridging Pensions, Act on the Annuity Payments and the legislation amending the Act on Pensions from Social Insurance Fund that included proposal of adjustment of the disability pensions to the old-age pension system. The latter two Acts were, however, vetoed by the President. I also worked on the program "Solidarity between generations – activation of people aged 50+" and on the changes to the Labour Code, including the prolongation of maternity leave, making it more flexible and introduction of paternity leave. I also supervised the preparation of propositions for the Act on the pre-nursery care (for children in ages 0-3). In 2003-2005, I was a member of the Supervising Board of Social Insurance Institution [Zakład Ubezpieczeń Społecznych (ZUS)] and in 2007-2009, I was a member of the Financial Supervision Commission delegated by the Minister of Labour and Social Policy. In 2006, I received a nomination for a civil servant. In 2009 I received the Andrzej Bączkowski Award for my work engagement for public service.

In October 2009, I became employed in the position of assistant professor at the Institute of Statistics and Demography at my alma mater. At the same time, with the approval of the rector of SGH, I began working at the Educational Research Institute, also in the position of assistant professor.

While working at the Warsaw School of Economics I participated in the implementation of six academic projects, including four international enterprises, i.e. Generations and Gender Survey (GGG), NEUJOBS: Creating and adapting jobs in Europe in the context of socio-ecological transition, SHARE 50+ Survey of Health, Ageing and Retirement in Europe and The Generations and Gender Survey – Panel Research into the Transformation of Relationships Between Generations and in Family (GGG-PL2). Two other national projects: *System oceny i prezentacji wyników inwestycyjnych kapitałowych systemów*



emerytalnych [The System of Assessment and Presentation of Investment Results of Funded Statutory Pensions] and *Odwrót od obowiązkowych funduszy emerytalnych w krajach Europy Środkowo-Wschodniej w reakcji na kryzys finansowy i fiskalny* [Retreat from Mandatory Pension Funds in Countries of the Eastern and Central Europe in Result of Financial and Fiscal Crisis: Causes, Effects and Recommendations for Fiscal Rules] were funded by the Ministry of Science and Higher Education and the National Science Centre.

In January 2014, I began working on the research project "Ageing Europe: An application of national transfer accounts (NTA) for explaining and projecting trends in public finances – AGENTA" financed within the 7th Framework Programme by the European Commission in 2014-2017. The project budget for the team of the SGH Institute of Statistics and Demography is PLN 532,400. I am the leader of Work Package 4 of the project, aimed at the analysis of public revenue and expenditure, in the context of demographic changes.

In May 2014, I received a grant of PLN 528,500 for the implementation of the research project *Narodowy rachunek transferów oraz narodowy rachunek transferów czasu dla Polski (POLNTA)* [The National Transfer Accounts and National Time Transfer Accounts for Poland]. The grant was awarded within the HARMONIA programme of the National Science Centre and is realised in international cooperation with prof. Ronald D. Lee from University of California, Berkeley. The project is realised by the research team of the SGH Institute of Statistics and Demography, which consists of two professors, four members with PhD and a doctoral student. The project aims at working out the age profile for employment income, consumption, public and private transfers and the life course deficit for Poland, using the data available from statistical research and public institutions.

Since 2009, I have headed the Education and Labour Market Team and National Qualifications Framework Team at the Educational Research Institute, and since 2016, I am leading the Integrated Qualifications System Unit. These teams participated in the implementation of projects financed from the Human Capital Operational Programme. Within the scope of these projects, I coordinated the work on the following areas:

- Determinants of educational decisions, a household panel survey,
- The Programme for the International Assessment of Adult Competences (PIAAC), analysis of results for Poland,
- A higher education graduates' tracer study;
- A tracer study of VET schools graduates,
- An analysis of educational paths of children, students and graduates with disabilities,
- An inclusive education and labour market system for people with disabilities – recommendations for public policy,
- Educational and vocational decisions of lower secondary school graduates,
- The diagnosis of educational and vocational advisory system in the context of its capacity to fulfil its functions,
- Competence management in lifelong learning,
- The development of terms of reference for the implementation of the National Qualifications Framework and the National Qualifications Register for lifelong learning,
- Developing the national qualifications system – organising and institutionalising the Integrated Qualifications Register,
- Developing the national qualifications system – pilot implementation of the national qualifications system and its promotional campaign,
- Supporting the implementation of the Integrated Qualifications System in Poland.



In the course of my professional career, in the period of 1999-2015, I also worked as an expert for the World Bank, OECD, International Labour Organization, East-West Institute (within the TACIS project) regarding the functioning and possible reforms of pension systems in Poland, Russia, Slovakia, Czech Republic, Macedonia, Tajikistan, Moldova, Croatia, Montenegro, Ukraine, Bosnia and Herzegovina, Serbia and in the countries of East Asia. These studies helped me expand on my knowledge of the theoretical and practical aspects of the operations of pension systems, of which I took advantage when writing my PhD dissertation, and also in my other academic and publishing activities before and after I was awarded the PhD.

2. A summary of research interest and research conducted before and after the PhD defence.

The main area of my academic interests are the determinants of pension systems' operations and formation of pension rights. My analyses include the impact of demographic changes, including the ageing of population, on the functioning of pension systems. I consider both macroeconomic perspective with regards to financial stability of pensions, and microeconomic point of view regarding pension rates and their income adequacy. I also give consideration to inter-generational determinants. Each of these perspectives is significant to the subject matter of my research. The functioning of pension systems depends on such factors as: the situation of public finance, conditions of the labour market, functioning of financial markets and the adopted model of social policy. The demographic changes and situation of pension systems on the macroeconomic level are related with microeconomic phenomena, such as the life course of individuals and generations, their professional, family and educational activities as well as income received in the course of professional career, which has an influence on the income achieved at the retirement age. Intergenerational transfers (public and private) are the basis of the functioning of pension systems, or, more broadly, people's consumption after they finish their professional activity.

In my research, I take advantage of international and national statistical data, aggregate and individual, originating from the surveys realised by the Polish Central Statistical Office (GUS) but also from the Eurostat and OECD databases, public registers and data available from ZUS (Social Insurance Institutions), which in Poland is rarely used as a source of academic research. I also use data originating from special questionnaire surveys which I co-designed and which I formerly implemented in my work. I use a variety of research methods, including statistical analyses of aggregate data, individual cross-sectional data (regression models, principal component analysis) and longitudinal data (analysis of panel data, flow analysis), as well as statistical analysis of international data (principal component analysis, cluster analysis, regression models). I also apply qualitative analysis (of data from focus interviews and individual in-depth interviews). I combine various sources of data and information to achieve the fullest and most reliable idea of the processes I analyse.

1997-2003 (prior to PhD defence)

In 1997-2003, my interests focused on studying various determinants of the functioning of pension systems in Poland and the selected European countries. I particularly focused on the analyses of:

- the demographic, economic, social and political determinants of the pension system reforms in Poland and the European countries,
- the impact of selected solutions used in the pension systems on revenue and expenditure of these systems, and on the projections of pension levels.

My input into science is the analysis of pension system reforms in Poland, including the provision of information on the changes taking place in the Polish pension system to a broad circle of pension system researchers in Europe and globally. I conducted these analyses with the use of pension system projection methods I helped develop, i.e. long-term projection models developed for the Office of the Government Plenipotentiary for Social Security Reform (the model developed by a team of Polish



experts with the participation of experts from Sweden), as well as a Social Budget Model, drawn up in accordance with the methodology of the International Labour Office at the Gdańsk Institute for Market Economy. I also used my original microsimulation models in the analyses of the impact of the selected parameters of pension systems on pension rates. The results of my analyses were presented in the doctoral dissertation "The stability of pension systems in the light of population ageing" and also in the series of academic publications, including:

Chłoń-Domińczak A., 2002 "The Polish Pension Reform of 1999" in: E. Fultz (ed.) *Pension Reform in Central and Eastern Europe* (Vol. 1: Restructuring with Privatisation: Case Studies of Hungary and Poland). Budapest, ILO, Central and Eastern European Team

Chłoń-Domińczak A., 2002. *Administrative Costs of Pension Funds in Poland in International Perspective*, a paper for the INPRS conference, Tallinn,

Perek-Białas J., A. Chłoń-Domińczak, A. Ruzik, 2001 *Country Report for Poland, Public Participation and the Pension Policy Process: The Citizen and Pension Reform project*.

Chłoń A., M. Góra, M. Lubyova, L.H. Thompson. 2001. Pension reform in Slovakia – background and options: Can lessons be drawn from other transition countries?, OECD working paper.

Chłoń A., 2000. *Pension reform and public information in Poland*, World Bank Pension Primer Series.

Chłoń A., 2000. *Przychody i wydatki Funduszu Ubezpieczeń Społecznych w latach 1999-2020, w oparciu o model Budżetu Polityki Społecznej* [Revenue and expenditure of Social Security Fund in 1999-2020] A report for the Ministry of Labour and Social Policy, IBnGR.

Chłoń, A., G. Tidner, 2000. *Polish pension system simulation model*. A report for the Office of the Government Plenipotentiary for Social Security Reform.

Chłoń A., M. Góra, M. Rutkowski, 1999. *Shaping the Pension Reform in Poland – Security through Diversity*. WB Pension Primer Series No. 9923.

2003-2016 (after the PhD defence)

After defending my PhD, in the period up to 2009, I continued my research on the determinants of the functioning of pension systems, and the measurement of their stability, both from the research and implementation perspectives. I participated in the creation of strategies regarding the social security policy in Poland, and in other activities relating to coordination and analysis of the labour market and social policy in the European Union and OECD. My analyses included the determinants of pension system functioning and pension reform in Poland but also in other developed and developing countries, with particular consideration given to the impact of demographic changes on the operations of these systems. These were among others:

- analytical work on the determinants of the implementation of pension reforms in the countries of Central and Eastern Europe, including international comparisons of selected parameters of pension systems and their effects, in the context of political economy [item. 1.1 in the academic achievements' listing below]. As a result of this work, I broadened the conceptualization of the macroeconomic stability indicators of pension systems within the project Mainstreaming Ageing, conducted by the European Centre for Social Welfare Policy and Research headed by prof. Bernd Marin [item 2.1],



- continuation of my analyses regarding the implementation of pension system reform in Poland, including such elements as: multi-pillar structure of the pension system, the functioning of the non-financial part of the pension system, contribution collection in the pension system (in cooperation with the International Labour Office in Budapest, within the works coordinated by Dr Elaine Fultz, including the analysis of pension systems in Central, Eastern and Southern Europe) [item 1.2];
- analysis of the determinants of non-financial defined contribution systems (NDC) in the European countries that implemented this type of solutions. In this respect, I worked together with prof. Edward Palmer from the University of Uppsala and Dr Daniele Franco of the Italian Bank. [items 2.2, 2.7 and 2.8]

In this period, I became interested in the broader context of the functioning of social policy and its impact on the life course of people, including the participants in the pension system. I began to analyse the impact of various individual factors, such as e.g. sex, education, disability that might have an influence on people's behaviour in the period of their professional activity; determinants of professional inactivity and the impact of these behaviours and various events taking place in the life course of individuals and their situation after they finish working.

Old-age income depends on many factors influential during individual's life course. These are individual factors that have an impact on people's professional activity and income but also the overall socio-economic situation. Also relevant is the role of public policies, especially of education, healthcare, labour market or pension areas. In my research, I sought to answer the questions of what kind of strategies encourage a longer professional activity, leading to a good level of income after the period of professional activity. The understanding of these processes is significant to designing the activities and directions for reforms that favour the maintenance of social and financial stability of pension systems in the conditions of population ageing.

Once I started working at the Warsaw School of Economics and Educational Research Institute, in 2009 I explored and developed the range of my academic research and interests. One of the important research trends was conducting analyses of events taking place in individual's life course and their impact on retirement income. I conducted this research within the projects: NEUJOBS, GGS-PL1, GGS-PL2, as my own research, and also within the analyses conducted by the national research consortium of the international Survey on Health, Ageing and Retirement in Europe (SHARE) (publications [3.8] [3.15] and [3.18] discussed further on in this statement).

I also developed further this research topic in the work related to assessing the extent to which a presentation of information in the pension systems influences the decisions of people who participate in it (within the project *System oceny i prezentacji wyników funduszy emerytalnych* [The System of Assessment and Presentation of Investment Results of Funded Statutory Pensions]).

Following the financial and economic crisis of 2008, I considered the topic of the influence of the crisis on changes in pension systems in the countries of Central and Eastern Europe within the project *Odwrót od obowiązkowych funduszy emerytalnych w krajach Europy Środkowo-Wschodniej w reakcji na kryzys finansowy i fiskalny. Przyczyny, skutki, rekomendacje w zakresie reguł fiskalnych* [Retreat from Mandatory Pension Funds in Countries of the Eastern and Central Europe in Result of Financial and Fiscal Crisis: Causes, Effects and Recommendations for Fiscal Rules.]

The analytical works regarding transfers within pension systems and other determinants linked to the life-course phenomena in successive generations, which have an impact on the income of people who receive a pension, directed my research interests towards the generational economy. These interests are part of the trend of interdisciplinary work by economists and demographers (e.g. Lee and Mason 2011a, 2011b) as the area of economic studies regarding the shaping of public and private transfers

relating to consumption, income, taxation and benefits paid and received at various age. Pension systems have a considerable impact on the transfers received and passed on at various stages of the person's life course. They also shape the consumption of people who are no longer professionally active and the fiscal obligations of people who are. I conduct these analysis within two research projects: *Narodowy Rachunek Transferów oraz Narodowy Rachunek Transferów Czasu dla Polski (POLNTA)* [The National Transfer Accounts and National Time Transfer Accounts for Poland] awarded from the Harmonia programme of the National Science Centre, of which I am project manager, and *Starzejąca się Europa: Zastosowanie Narodowych Rachunków Transferów dla wyjaśniania i prognozowania trendów w finansach publicznych* [Ageing Europe: An Application of National Transfer Accounts (NTA) for Explaining and Projecting Trends in Public Finances – AGENTA), in which I am leader of one of the work packages.

Since 2011, I have been a coordinator of the SHARE research consortium in Poland, involved in the national work related to the international Survey of Health, Ageing and Retirement in Europe, coordinated by the Munich Center for the Economics of Ageing (MEA) as part of the Max Planck Institute for Social Law and Social Policy. The SHARE project is implemented in the European Research Infrastructure Consortium (ERIC) formula. In this role, I participated in the development of additional national questionnaire in the fourth round of the study, with regards to educational and social activity of respondents. I was also the science editor of a monograph devoted to the analysis of the results of the fourth round of the SHARE study in Poland and, together with Dr hab. Michał Myck, I co-edited a special number of the *Polityka Społeczna* [Social Policy] journal, dedicated to a review of the SHARE study results in Europe.

My research activity in the Educational Research Institute focuses on the issues regarding the links between education and lifelong learning, competences acquired and professional activity. I have, among others, conducted works relating to the creation of assumptions, research tools and analyses in the area of the tracer studies of university and vocational schools' graduates, using information gathered in various administrative registers (including ZUS). In this research, I took advantage of my knowledge of the social security system, while I developed my interests in institutional, social and other determinants that have an impact on the professional situation of young people and their transition from education to the labour market. One of the effects of the project *Monitorowanie Losów Zawodowych Absolwentów Szkół Wyższych* [Monitoring of the Professional Paths of University Graduates] and two other projects continuing this theme was the initiation of changes leading to the introduction of national system of the monitoring of economic paths of university graduates in the Higher Education Act, which has been conducted by the Ministry of Science and Higher Education since 2015. I also tackled the topic of the transition from education to the labour market in the analyses using the unit data gathered within the PIAAC study and postPIAAC (using the longitudinal data analysis method).

A significant place in my own research is also occupied by the themes of learning as an activity taking place throughout a person's life, having an impact on the quality of human capital, and of active ageing which is an important topic in contemporary demographic and social analyses.

I was also involved in the research aimed at a broader assessment of the determinants of educational decisions. These were the analyses of inter-generational determinants and also relationships between educational exclusion and social exclusion and regional differences in this area (within the study: *Uwarunkowania Decyzji Edukacyjnych* [Determinants of Educational Decisions]). I also investigated the determinants of decisions made by companies with regards to the development of their human resources (within the study *Zarządzanie Zasobami Ludzkimi w przedsiębiorstwach* [Human Resources Management in Enterprises]).

My work also involves the development of institutional and substantive assumptions for the functioning of the integrated qualifications system, including the Polish Qualifications Framework. These activities are linked with the monitoring and analyses of intergenerational experiences and also with working out the elements of the system, aimed at supporting lifelong learning possibilities and improvement of the quality of human capital.

While working on the projects involving the graduate tracer studies, I used public register data, which in a recent period gave me an idea of getting more engaged in the methodological aspects relating to the possibilities of using the information gathered in public registers for the purposes of academic research. This is why, together with a team of researchers from the Warsaw University, I worked on a proposal for creating the Scientific Data Centre, which would produce an opportunity for using administrative data, with full respect for the principles ensuring the anonymity of resources on the one hand, and high quality of data and their analytic utility on the other. This idea resulted in an application made in 2017 for project financing within the Digital Poland Operational Programme.

3. Scientific achievement presented for evaluation as discussed in Art. 16, Item 2 of the Act of 14 March 2003 (Journal of Laws [Dz. U.] No 65, position 595 with later changes)

As a scientific achievement, I submit for evaluation a series of thematically connected publications, which I entitled *Micro- and Macroeconomic aspects of the functioning and reforms of pension systems in the context of population ageing: theoretical and practical aspects*. The cycle consists in a series of 8 articles, 9 chapters in books and 1 monograph which I both edited and co-authored. 14 publications out of this cycle are written in English and three have been published in the JCR listed journals.

Item	Publication	My share	IF according to Web of Science	MNISW Points
ARTICLES PUBLISHED IN THE JCR LISTED JOURNALS (A LIST)				
1.1.	Chłoń-Domińczak A. Impact of changes in multi-pillar pension systems in CEE countries on individual pension wealth, <i>Journal of Pension Economics and Finance</i> (published on the Cambridge Core webpage in The Journal of Pension Economics and Finance, 7 Dec 2016).	100%	0.758	25
1.2	Stanovnik, T., Bejaković, P. and Chłoń-Domińczak, A. 2015. The collection of pension contributions: a comparative review of three Central European countries, <i>Economic Research-Ekonomska Istraživanja</i> , 28:1, 1149-1161.	25%	0.432	15
1.3.	Chłoń-Domińczak A., Strzelecki, P., 2013. The minimum pension as an instrument of poverty protection in the defined contribution pension system – an example of Poland, <i>Journal of Pension Economics and Finance</i> , Vol. 12/3. pp. 326-350.	50%	0.758	25
ARTICLES PUBLISHED IN OTHER JOURNALS (B LIST)				
1.4	Kotowska, I.E, Chłoń-Domińczak, A., 2012. Zarządzanie finansami publicznymi w kontekście zmiany demograficznej	50%		13

Item	Publication	My share	IF according to Web of Science	MNISW Points
	[Public Finance Management in the Context of Demographic Change], <i>Studia Ekonomiczne</i> No. 1 (2012), pp. 7-26.			
1.5	Chłoń-Domińczak A., 2012. Potrzeba prowadzenia długookresowych prognoz w systemach emerytalnych [The Need for Long-term Projections in Pension Systems] <i>Rocznik Kolegium Analiz Ekonomicznych</i> No 28/2012, pp. 35-64.	100%		9
1.6.	Chłoń-Domińczak A., 2010. Zmiany w systemie emerytalnym - zmiany w OFE [Changes in the Pension System. Changes in OPF]. Projects of the Ministry of Labour and Social Policy. A contribution to the debate. <i>Polityka Społeczna</i> No. 5-6, pp. 30-32.	100%		
ARTICLES PUBLISHED WITHIN THE PROJECTS REALISED UNDER THE EU FRAMEWORK PROGRAMS				
1.7	Chłoń-Domińczak A., 2013. Female Transition to Retirement. Neujobs Working Paper No D16.2B.	100%		
1.8	Chłoń-Domińczak A., 2009. Retirement Behaviour in Poland and the Potential Impact of Pension System Changes. ENEPRI Research Report No. 63.	100%		
BOOK CHAPTERS AND MONOGRAPHS				
2.1.	Chłoń-Domińczak A., 2015. Women's Work and Pensions. Drawing Lessons from Central and Eastern Europe in: B.Marin (ed.) <i>The Future of Welfare in a Global Europe</i> , Ashgate, pp. 111-124.	100%		
2.2.	Chłoń-Domińczak A., Franco, D., Palmer, E., 2012. The First Wave of NDC Reforms: The Experiences of Italy, Latvia, Poland, and Sweden in: R.Holzmann, E.Palmer, D.Robalino (ed). <i>Nonfinancial Defined Contribution Pension Schemes in a Changing Pension World</i> , World Bank, pp. 31-84.	50%		
2.3	Chłoń-Domińczak A. 2012. Ubezpieczenia społeczne jako podstawowy instrument bezpieczeństwa socjalnego obywateli [Social Security as the Basic Instrument of Citizens' Social Protection] in: K.Raczkowski (ed.) <i>Bezpieczeństwo ekonomiczne. Wyzwania dla rządu państwem</i> [Economic Security. Challenges to the State Government], Wolters Kluwer Business, (pp. 401-428).	100%		
2.4	Chłoń-Domińczak A., 2010. Pension system in Poland in the Gender Context, in: B. Marin, E. Zolyomi (ed.) <i>Women's Work and Pensions: What is Good, What is Best? Designing Gender-Sensitive Arrangements</i> , pp. 111-124, European Centre Vienna, Ashgate, London.	100%		
2.5	Chłoń-Domińczak A., 2009. The Pension System and Employment of Older Workers: How to Change the Incentive Structure – The Polish Experience, in: R. Holzmann, L. MacKellar, J. Repansek (ed.) <i>Pension Reform in Southeastern Europe</i> , World Bank, pp. 163-176, Washington.	100%		

Item	Publication	My share	IF according to Web of Science	MNiSW Points
2.6	Chłoń-Domińczak A., 2007. Sustainable Old-Age Security Core Indicators – Possible Use and Interpretations, in: B. Marin i A. Zaidi (ed.), <i>Mainstreaming Ageing. Indicators to Monitor Sustainable Policies</i> , European Centre Vienna, pp. 535-556. Ashgate	100%		
2.7	Chłoń-Domińczak A., Mora M., 2006. The NDC Reform in the Czech Republic, in: R. Holzmann i E. Palmer (ed.), <i>Issues and Prospects for Non-Financial Defined Contribution (NDC) Schemes Pension Reform</i> , pp. 551-573, World Bank, Washington.	50%		
2.8	Chłoń-Domińczak A., Góra M., 2006. The NDC System in Poland: Assessment after Five Years, in: R. Holzmann and E. Palmer (ed.), <i>Issues and Prospects for Non-Financial Defined Contribution (NDC) Schemes Pension Reform</i> , pp. 425-449, World Bank, 2006, Washington.	50%		
2.9	Chłoń-Domińczak A., 2004. Public and Private Mix in the Polish Pension System, in: M. Rein and W. Schmaehl (ed.) <i>Rethinking the Welfare State. The Political Economy of Pension Reform</i> , pp. 334-347, Edward Elgar.	100%		
2.10	Chłoń-Domińczak A., Kotowska, I. E., Kurkiewicz, J., Abramowska-Kmon, A., Stonawski, M., 2014. Population ageing in Europe. Facts, Implications and Policies. European Union, ISBN: 978-92-79-35063-4.	40%		

The following research goals can be identified in these publications:

- Analysis of the impact of population ageing on pension systems and labour market and individual's income in macro and microeconomic terms;
- Description and analysis of the changes implemented and those that are still possible to implement in the pension systems in Poland and in the CEE countries, from the perspective of the fundamental goals set ahead of pension systems;
- Analysis of implementation and the possibility of implementing non-financial defined contribution pension schemes (NDC) as a solution allowing for the adjustment of pension systems to the effects of population ageing;
- Evaluation of the impact of changes taking place in pension systems and labour markets on women's pensions.

My motivation for conducting research in these areas was the need to understand the linkages taking place between demographic processes, including population ageing and the functioning of pension systems. These demographic processes lead to an increase in demographic and economic dependency ratios, which affect the financial situation of pension systems, or in broader terms, of public finance. On the other hand, pension systems also lose their social stability, understood as the possibility of ensuring adequate income to older population.

Population ageing is a natural consequence of the transformations in the reproduction of the population and the decline in mortality that cause inevitable changes in the age structure (Lee 2007). These are reflected in an increase in the share of senior citizens in the total population and the

changing rate of the working-age population in relation to those citizens who receive various social benefits. The dynamics of these changes is most frequently measured by different old-age demographic dependency ratios and economic dependency ratios (e.g. Loichinger et al. 2014; Prskawetz and Sambt 2014; Sanderson and Scherbov 2015). The projected values of the most frequently used old-age demographic dependency ratio demonstrate that European countries, particularly the countries of Eastern and Central Europe will note a considerable increase of the ratio in the perspective up to 2060 (European Commission DG ECFIN 2015).

Population ageing has its specific economic consequences resulting from, most broadly speaking, consumption and income of people during their life course, on the one hand, and the changing ratio of people who are producers net (whose employment income is higher than their consumption) and consumers net (who consume more than they earn). These relations have an impact on the possibilities of accumulating capital but also on the functioning of the institutions that transfer means between generations: family support, social networks as well as public systems of healthcare, pension or long-term care (e.g. Lee 2007).

Special place is occupied in the literature by research on the impact of the ageing of population on pension systems. The main role of such studies is to provide an appropriate income to people who have finished their professional career due to old age. An increase of the share of senior citizens in the population exerts pressure on the growing expenditure of these systems. The consequences of population ageing for public institutions, including pension systems, were already commented on in the 1940s (e.g. Sauvy 1948).

A considerable increase of research into the impact of population ageing on the functioning of pension systems has been observed since the early 1990s, when the effects of the population ageing process in the developed countries began to be increasingly notable. A few trends in this research can be distinguished, as discussed below.

One of the themes combining the research into pension economy and demography is that of a fertility rates. Among the reasons behind the drop in fertility rates in the developed countries, as discussed in the literature of the subject, is an introduction of public pension systems (Cigno and Werding 2007; Galasso 2008; Galasso, Gatti, and Profeta 2008). It is also believed that well-considered strategies in the sphere of family and pension policy may contribute to the reversal of this phenomenon.

Another research trend refers to the macroeconomic effects of population ageing and the shaping of economic and social policy in such a way that the continued economic growth is actually possible (e.g. Clark, Ogawa, and Mason 2007; Knell 2013). The theme of population ageing in Poland, the effects of the process in the intergenerational perspective, and the consequences of these changes for social policy was discussed, among others by (Szukalski 2002; Szukalski et al. 2008). A topic, which is also frequently discussed in the literature is the financial stability of pension systems and their impact on public finances (e.g. European Commission DG Economic and Financial Affairs 2015; Grech 2010) and, in the recent years, also the financial situation of pension systems after the financial and economic crisis (e.g. Naczyk and Domonkos 2015; Orenstein 2011; Price and Rudolph 2013). Financial stability of the pension system is also subject of research in Poland (e.g. Bielawska 2011; Jabłonowski and Müller 2013; Szczepański 2016).

An important subject matter in the literature on pension systems is the political economy of the reforms of these systems, including the effects and consequences of the changes introduced (e.g. Gruber and Wise 2001; Rein and Schmähl 2004), and also consideration given to the theory and practice of the implementation of pension system reforms, taking into the account the basic functions and objectives ahead of these systems. (e.g. Barr and Diamond 2008, 2010; Góra 2002; Szumlicz 2005).



It needs to be emphasised that most of the literature focuses on the situation in the developed countries, while there are definitely fewer conclusions with regards to developing countries. One of the first in-depth, comprehensive analyses of the impact of population ageing on the basic functions of the pension system: redistribution, saving and insurance was the report of the World Bank *Averting the Old-Age Crisis* (World Bank 1994). Its authors underlined that the lack of certain income provisions in the old age is a global problem, manifested in different ways throughout the world.

Older people who live in the developing countries of Africa and partially Asia were to a large extent supported by their families, communities and other informal mechanisms which became unsustainable because of the changes relating to urbanization, natural disasters, wars that resulted in the weakening of the role of family and community networks. Consequently, these informal arrangements became unsustainable and a need arose for creating institutional solutions. The countries of Latin America, Central and Eastern Europe (CEE) and the former Soviet Union faced up to the challenge linked to the impossibility to sustain the generosity of their pension systems. This was, on the one hand, caused by the projected fast population ageing (particularly in the CEE countries) and, on the other, with a high level of contribution avoidance (particularly in Latin America) because of high costs of pension contributions, raised because of the growing costs of paying out relatively high benefits and early retirement age.

The World Bank Report included recommendations for building multi-pillar systems, taking into the account different sources of financing for pension systems, i.e. labour market based non-financial systems (*pay-as-you-go*) and financial systems based on pension savings, with clearly specified goals with regards to redistribution, insurance and savings. The World Bank model became an impulse for many reforms implemented in the CEE and Latin American countries (e.g. Müller 1999, 2003; Orenstein 2008, Żukowski 2013). The functioning of multi-pillar systems, including the effectiveness and stability of pension funds, and also the departure from these systems in the recent years as well as the consequences of these decisions to the participants in the pension systems are discussed, among others, by (e.g. Guardiancich 2009; Żukowski 2011).

The challenges facing pension systems also resulted in the tendency to seek solutions to inter-generational diversification of risks associated with demographic changes, including longer life expectancy. Managing the longevity risk is one of the most important challenges facing pension systems (e.g. Szczepański 2017). One of the solutions that addresses this risk is the concept of non-financial defined contribution (NDC) pension systems, in which the amount of benefit is closely linked to the contributions paid into the pension system in the course of person's life, which has important implications for the solutions such as the redistributive function of the pension system. The amount of the pension benefit also depends on the remaining life expectancy at retirement age, as well as individual decision related to the age of retirement. As a result, NDC systems automatically adjust the amount of benefits to demographic changes, in particular the longevity. The systems of this nature were introduced in Sweden (1999), Italy (1995), Poland (1999) and Latvia (1996). NDC systems are also a subject of research in the area of pension economics. These studies explore, among others, the stability of these systems and their actuarial stability, balance between assets and liabilities of the pension system, adequacy of retirement benefits (e.g. Góra and Palmer 2004; Holzmann and Palmer 2006; Holzmann, Palmer, and Robalino 2012a, 2012b; Valdes-Prieto 2000).

Pension system reforms often lead to changes in pension benefits in relation to wages. The microeconomic perspective in literature frequently refers to the redistributive function of the pension system, in particular ensuring adequate retirement benefits (e.g. Chybalski 2012; European Commission 2015; Grech 2013; OECD 2013). In this context, the gender perspective is also important. In most, also developed, countries women and men have very different life course as far as their professional activity is concerned, which also affects their future pensions (e.g. D'Addio 2013; Fornero and Monticone 2010; Ginn 2003; James 2011; Marin and Zólyomi 2010). Pension systems often include

strategies that are disadvantageous to women (e.g. lower pension age). In many countries, pension systems' reforms link the level of pension benefits with the level of income in the life course, which additionally puts women in worse situation. In the Polish context, this problem was discussed by, among others (Ratajczak-Tuchońka 2011). Taking this into consideration, in most of the European countries, but not only in Europe, we observe a phenomenon which has been recently referred to as Gender Pension Gap (Bettio et al. 2012).

In my research, I undertake activities aimed at the integration of the research themes mentioned above. In my achievement to date I have made a contribution to:

- (i) improving knowledge concerning the macroeconomic determinants of the functioning of pension systems in the context of population ageing;
- (ii) improving knowledge regarding the microeconomic determinants of pension systems, including the impact of the life course and professional history on the pension benefits;
- (iii) improving knowledge regarding the impact of the labour market situation and the shape of pension systems in the European countries on women's pensions;
- (iv) providing new data regarding the correlation between the functioning of the pension system, individual characteristics and the retirement decisions;
- (v) characterising the implementation of NDC pension systems in the European countries;
- (vi) investigating the determinants of the functioning of pension systems in Poland and other CEE countries.

Below, I shall briefly present my achievement in the six areas specified above.

- (i) **Improving knowledge concerning the macroeconomic determinants of the functioning of pension systems in the context of population ageing**
publications [1.4] [1.5] [2.3] [2.6] [2.7] [2.8] [2.10]

Traditional pension systems in the developed countries were created at a time when the populations of these countries were in the phase of demographic development, characterised by (still) high birth rate and relatively high, but decreasing, number of deaths. This means that the basis for the financing of these systems was demographic dividend, that is the potential for economic growth that can result from changes in the age structure of the population, while the share of working-age people in the population is higher than that of people in other age groups.¹ As a result of demographic changes associated with the second demographic transition (van de Kaa 1987, 2002; Lesthaeghe 1986), there was a significant decline in fertility. Consequently, the population of the developed countries passed to the phase characterised by both low fertility and low mortality, which led to a permanent change in the age structure of the population. This has a significant impact on the stability of pension systems due to a decreasing ratio of people who are working and paying contributions to those systems to people who have completed their professional activity and receive a pension.

In my research on the impact of population ageing on the stability of pension systems, conducted before the defence of my doctorate, and in my doctoral dissertation, I broadened my knowledge about this phenomenon, indicating that the stability of pension systems derives not only from the share of persons of retirement age in the population, but also from the dynamics of ageing of the population affected by the temporal changes in life expectancy, as well as the occurrence of demographic highs and lows in relation to birth rates.

In my work on the financial situation of pension systems, published after the defence of my doctoral dissertation, I contributed to further understanding of the importance of macro-economic approach to analysing the impact of changes in age structure of the population on public finances and on the

¹ A definition of the United Nation Population Fund (UNFPA).



financing of pension systems. In the publication [1.4], together with prof. Irena E. Kotowska (Institute of Statistics and Demography SGH) we demonstrate the scale of the transformations in the process of generational reproduction in Europe, which affects the long-term change in age structure of the population, especially in the countries of Central and Eastern Europe (including Poland), Southern Europe and Germany. Using the typologies proposed by Esping-Andersen (Esping-Andersen 1990) and Sapir (Sapir 2006) we indicate that Poland has an inefficient structure of social spending, in which the dominant role is played by transfers directed to people of retirement age, while the role of public transfers for children and young people is small, which leads to an intergenerational imbalance. The progressing demographic changes result in a growing pressure to increase spending aimed at providing benefits to the generation of post-productive age. This situation constitutes a threat to the possibility of implementing public policies aimed at social investment, in line with a concept of these investments presented by (Vandenbroucke, Hemerijck, and Palier 2011). It is also a threat to Poland being able to maintain the phase of development drift (Geodecki et al. 2012).

In this publication, we emphasise that the changes in the generation reproduction process in Europe, which define new demography of the continent, are permanent, also defining new conditions for development. Population ageing is a predictable and unavoidable consequence of the passage to the modern population reproduction. The greatest challenge is not so much the ageing process itself as its intensification in the near future, caused by the post-war generation of the demographic high reaching maturity. We propose that a solution for a further development of Europe and adjustment of economy and society to the demographic challenges is a conscious public policy, directed at the development of human resources and the best possible use of work resources available, taking into consideration the life-course perspective.

In publication [2.10], together with the co-authors: prof. Irene E. Kotowska, prof. Jolanta Kurkiewicz (Cracow University of Economics), Dr Anita Abramowska-Kmon (Institute of Statistics, Demography SGH) and Dr Marcin Stonawski (Cracow University of Economics, IIASA) we present an assessment of how, and to what extent, the European countries adapt their institutions and economy to the effects of population ageing. In our evaluation, we take advantage of the achievements of research conducted in the European Union, particularly in the projects funded by the 7th Framework Programme. Since the mid-1990s, the strategic documents of the European Union have indicated the challenges of population ageing in Europe and recommend measures to ensure financial stability of pension systems, to ensure the adequacy of pensions and to increase the level of professional activity, especially of women and persons over 50 years of age. We pay particular attention to the theories regarding the determinants of population ageing, taking into the account the role of intergenerational transfers which have an influence on the shaping of the population ageing process. We also indicate the need to consider the context of generation's life course and social determinants, including the functioning of families, when designing public policies. The publication also includes our original quantitative assessment which confirms that effective labour markets are those that involve people below 24 and above 55 years of age, which confirm the "lump of labour" fallacy. In the analysis, we take into account the data on employment in the European Union for the period 2000-2011 (and thus at different stages of the economic cycle). The efficient use of the labour resources available also means the need to implement policies to support the reconciliation of work and family life, as well as increasing the employability of people of all ages. The measures supporting the individuals' decisions to retire at a later age and extending their professional life are also important. In the publication [2.10] we discuss the determinants of retirement decisions, which depend not only on the legal possibilities defined by the statutory retirement age, but also on those linked to personal life course and family situation, such as spouse's retirement or having children and grandchildren.

These analyses also demonstrate that the use of the potential linked with the prolonging of working life requires investments into human resources, including education and training at various stages of life. The topic of learning for the preservation and improvement of skills in people aged 50+ attracted

a lot of interest from the Population Europe network, associating the leading European research institutes in the area of demography. Consequently, I also took part in the discussion about lifelong learning and its role in response to population ageing at the Population Europe seminar, organised in Poland by the Institute of Statistics and Demography SGH and Population Europe. Based on my presentation at the seminar, I co-authored a Policy Brief No 4/2012 entitled *Riding the Population Wave*, in which prof. Axel Börsch-Suppan, Dr Vegard Skribbek and I discuss policies for the population ageing of the demographic boom in Europe (<http://www.population-europe.eu/policy-brief/riding-population-wave>). I also talked about the role of lifelong learning in Demographic Insight No. 3/2012 (<http://www.population-europe.eu/population-insight/demographic-insights-32012>).

In the report [2.10], we emphasise the necessity of activities leading to the integration of public policies in Europe, also taking into the account their indirect effects. Such integration requires the adoption of the perspective of the entire life course and of the influence of institutional determinants, economic structures and social policies. These policies should combine the quantitative (e.g. within the sphere of family and migration policy) and qualitative dimensions (activities in the area of family policy, education and training, health, labour market).

In the chapter of the book edited by prof. Bernd Marin and Dr Ashgar Zaidi *Mainstreaming Ageing. Indicators to Monitor Sustainable Policies* entitled "Sustainable Old-age Security Core Indicators – Possible Use and Interpretation" [2.6] I try to attract the readers' attention to the fact that the stability of pension systems should be viewed both from the perspective of social and fiscal stability. The assessment of the stability of pension systems, in relation to population ageing, requires the use of appropriate indicators and their projections. Apart from the indicators based on the demographic data (old-age demographic dependency ratio, life expectancy at 65) one should also consider the indicators based on the data acquired from pension systems, such as the system dependency ratio (measuring the number of people who receive a pension for each 100 people who pay contributions) or the average age of finishing working career. The differences between the demographic and system dependency ratios may indicate the occurrence of ineffectiveness in the labour market and pension systems. In my analysis, I demonstrate that these differences are particularly high in the CEE countries, in which the broad access to early retirement caused an increase in the dependency ratio with the growing number of beneficiaries of the pension system in relation to a lower number of people who pay contributions. The varied age of access to retirement benefits confirms the differences in the average age of leaving the labour market. This indicator, as I point out in the chapter under discussion, reflects the institutional and social differences in the European pension systems better than the statutory retirement age.

In this chapter, I also indicate the need to take into consideration the implicit pension debt measure in the assessment of the stability of pension systems. The postulates by various researchers regarding the taking of these liabilities into the account have been now accepted. The ESA 2010 statistical standards adopted by the European Parliament and the European Council in May 2013 put an obligation on the member states to consider public debt in their statistics, both from the level of implicit pension debt and the changes in the pension systems which have an impact on the level of public debt (Dąbrowski 2016). In publication [2.6] I also illustrate the connections between the situation of the pension systems and the demographic change. To do this, I present the simulation of the changes in the pension values in relation to wages (if fixed contributions were to be maintained) or changes in the rate of contributions (if fixed pensions to wages ratio were to be maintained) in the selected countries, i.e. Poland, Italy and Kazakhstan. The results of these simulations show that it is not the advancement of population ageing but its tempo that is going to have an impact on the need to change these parameters in the pension systems. I emphasise therefore the need to monitor pension systems, taking into the consideration various measures that reflect the different aspects of their stability.

I continue the topic of the assessment of pension systems in the article [1.5]. This is where I present and analyse international experiences regarding the development and publication of projections of the pension system expenditure, considering the impact of demographic and systemic changes on the level of this expenditure and pension benefit rates. These are both European initiatives, i.e. the reports published every three years on the projections of public expenditure which is affected by population ageing (e.g. European Commission DG ECFIN 2015), and national reports (Sweden, USA, Great Britain, Poland). Against this background I present my original analyses involving the number of old-age and disability pensioners and pension expenditure in Poland since the 1990s. The analyses include all pension sub-systems functioning in Poland, i.e. for employees and self-employed (ZUS), farmers (KRUS) and the uniformed services (army, police and others) pensions. They provide arguments and knowledge allowing for the assessment of an impact of institutional changes on the performance of the pension system. I propose an integrated approach to projecting the situation of the Polish pension systems, including all functioning pension systems, based on consistent assumptions with regards to, among others, changes in the labour market, including mobility between the agricultural and non-agricultural sectors that have an influence on the changes in the number of people under the various pension systems. The analysis conducted to date are fragmentary and poorly integrated. I also indicate the need to combine macroeconomic and microeconomic projections in the assessment of the financial and social stability of pension systems.

In another publication [2.3], I link the principle of citizens' security with the stability of pension systems in the microeconomic and macroeconomic perspective, and also refer the challenges related to the stability of these systems to the demographic, economic and systemic risk (connected mainly with legal and institutional changes). I illustrate the ways in which institutional changes contribute to the changes in revenue and expenditure of the pension system in Poland. I also point to the need to introduce solutions that would permanently monitor the stability of this system.

In the chapters published in a book edited by R. Holzmann and E. Palmer *Pension Reform. Issues and Prospects for Non-Financial Defined Contribution Schemes* [2.7], together with M. Mora and [2.8] M. Góra we present an integrated approach to the assessment of the macroeconomic determinants of the pension systems in the Czech Republic and Poland. In chapter [2.7] we present a scenario for the pension system reform in the Czech Republic, implementing the non-financial defined contribution (NDC) system. The publication contains the projections of pension benefits I developed for the existing and the proposed system, the different variants of the pension structure combining the two functions of the pension system: consumption smoothing across the life course and protection against poverty, as well as the projections of revenue and expenditures of the pension system for different scenarios of changes implemented in the pension system, taking into account the demographic projection of the population in the Czech Republic. In chapter [2.8] we evaluate the implementation of the pension system in Poland, from the point of view of its long-term stability.

Summing up, in my analysis of macroeconomic determinants of pension systems I contributed to the deepening of knowledge about the need to adopt an interdisciplinary, broad perspective for the assessment of an impact of changes in the population structure on these systems. I emphasise that the stability of pension systems depends not only on how they are organised, but also on the broader determinants of socio-economic situation, including the labour market and public policies influencing the behaviours of the population. I complement these analyses with empirical examples regarding the assessment of the stability of pension systems in the selected countries (Poland, Czech Republic).

- (ii) **Improving knowledge regarding the microeconomic determinants of pension systems, including the impact of the life course and professional history on the pension benefits**
publications [1.1] [1.3] [1.5] [1.8] [2.3] [2.5] [2.6] [2.7] [2.8]



In my analyses of the social stability of pension systems I use the measures referring to the level of pension benefit rates, today and in the future. Many pension systems introduce solutions that relate pension rates to the length of working life and wages, which is why I investigate the impact of institutional changes taking place in the pension system on pension levels or pension rights.

In the article [1.1] I analyse the impact of the retreat from multi-pillar pension systems in the CEE countries on the pension wealth of the participants in these systems. The research was conducted within the project *Odwrót od obowiązkowych funduszy emerytalnych w krajach Europy Środkowo-Wschodniej w reakcji na kryzys finansowy i fiskalny* [Retreat from Mandatory Pension Funds in Countries of the Eastern and Central Europe in Result of Financial and Fiscal crisis: Causes, Effects and Recommendations for Fiscal Rules]. In the article, I use an original purpose-designed microsimulation model to evaluate the impact of the changes in multi-pillar pension systems in the CEE countries on the amount of pension wealth. The analysis is innovative in a number of areas. Firstly, I am referring to the amount of the accumulated pension wealth, and not to the commonly used measure, which is replacement rate, which allows for identifying to what extent the time left until retirement affects the level of accumulated pension rights. Secondly, in this model I consider both the effects of reduced contributions paid to the funded part of pension systems and the amount of pension rights in pay-as-you-go part of pension systems. Usually, evaluations of the changes taking place in pension systems focus only on the effects of the changes in the funded part. Thirdly, in the variants under analysis I took into the account individuals of different age at the time of the changes in the pension systems being introduced, and individuals with different wages. In my analyses, I also assess the sensitivity of results on the essential parameter of the microsimulation, which is return on investment.

The conclusions of these analyses indicate that the change of the pension wealth is more considerable in the countries which have introduced permanent changes to their systems (Poland, Slovakia). The way of determining pension rights in the non-financial part of the system has an impact on the direction of the changes of the pension capital. In effect, Poles can expect a reduction of their pension wealth and Slovaks its increase. The results of my analyses also demonstrate that changes to the system, including those transitional ones, will (as expected) be felt more by younger people who are higher earners. The direction and magnitude of the changes on the pension wealth also depend on the difference in wages increase and the way the pension rights are indexed in the non-financial system as well and on the return on investment in the capital part of the pension system.

In the article [1.3], Dr Paweł Strzelecki (Institute of Statistics and Demography, SGH) and myself discuss the topic of the minimum pension guarantee. We analyse the role of minimum pension in the Polish pension system and project its role in the future. We project the relation of the minimum pension to average wage based on the current regulations. We also analyse how the minimum pension guarantee is used in current pension system as well as the level of relative and absolute poverty among pensioners. We observe that with an increase of wages in the economy, relative poverty increases whereas absolute poverty decreases. We also present our original method of the assessment of risk relating to the use of minimum pension by women and men. We developed a microsimulation model for the purposes of the article, in which we assess the projected pension benefit rate in relation to the length of employment and wage levels. The innovative character of our analysis is in combining these two dimensions of working career and analysing them against the information on the length of employment and wages of people who retired in 2008. Assuming that this distribution will be maintained we assess the percentage of men and women who will receive lower pension than guaranteed minimum, for different scenarios of the formation of minimum pension. We also consider the impact of the equalisation of state pension age for men and women on the obtained results. We demonstrate that women's risk of receiving the minimum pension is almost ten times higher than men's. This is due to a different situation of women and men on the labour market, and an earlier retirement age for women. However, a decomposition of the impact of various factors on this

difference indicates that almost half of it is due to women receiving lower wages and this is the highest influence on the size of the difference. Another factor (almost a quarter of the difference) is a shorter time of employment, and only next down is early retirement age (also approximately a quarter of the difference). The equalisation of state pension age reduces but does not eliminate the difference between sexes as far as the risk of having to have the pension supplemented to the minimum level is concerned.

In my research, I also take advantage of analyses that use the measure of the social stability of pension system, which is the replacement rate. This is a measure which is also used to evaluate these systems by the European Commission (European Commission 2015b) and OECD (OECD 2015). Such analyses for Poland are presented in publications [1.5], [1.8], [2.3], [2.5], [2.6] and [2.8], and for the Czech Republic in [2.7]. Based on the originally designed microsimulation models I compare the replacement rates for pensions in the pension systems prior to the reform, i.e. defined benefit (DB) and after the reform, i.e. defined contribution (DC) systems, illustrating two significant phenomena. Firstly, the defined contribution systems produce much more incentives for prolonging working life. Pensions are much lower in the case of early retirement and increase fast in the case of extended professional career. Each additional year of employment results in higher accumulated pension capital on the one hand, and on the other reduced life expectancy. In the context of this indicator, I focus on the impact of changes in life expectancy on pension rates in the countries in which this factor is included in the pension formula (e.g. Poland, Sweden, and Italy). I emphasise that policies that support postponing the decision to retire should take into consideration the effect of such decisions on pension levels. Well-structured solutions within pension systems might encourage (or discourage) a longer working life. In chapter [2.8], together with prof. Marek Góra, I present the assessment of pension rates in relation to the following factors: (i) age of people in the year of these changes in pension system were introduced, (ii) the level of indexation rates of the capital accumulated in pension accounts. This helps us seeing how the solutions related to the transition from the old to new pension system and the parameters of the new pension system might affect pension levels.

In my work, I indicate an important characteristic of the NDC pension system, which is the automatic change of benefits in relation to longer life expectancy. In these systems, the annual updating of life expectancy factors helps adjusting pension rates to the changing demographic situation. I discuss this property of the defined contribution pension systems on the basis of the Polish system in publications [2.6] and [2.8], among others.

- (iii) **Improving knowledge regarding the impact of the labour market situation and the shape of pension systems in the European countries on women's pensions**
publications [1.3] [1.7] [2.1] [2.4]

In my research work, a special role is played by the analyses regarding the functioning of pension systems from a gender perspective. Even before my doctorate, I participated in the development of in-depth analysis of the functioning of the social security system in Poland in the context of gender (Balcerzak-Paradowska et al. 2003). After the defence of my doctoral dissertation, I continued the research on the economic situation of women in pension systems. Despite the fact that the subject arouses considerable interest of researchers in Europe, in Poland the situation of women in the pension system is discussed in the literature mainly in the legal rather than in economic terms.

In the chapter I published in the book edited by prof. B. Marin and E. Zólyomi *Women's Work and Pensions: What is Good, What is Best?* [2.1] I tackle the problem of the situation of women in the Polish pension system after its reform in 1999. I present women's status on the labour market, including fixed differences between the employment indicators, unemployment rates for men and women, taking into consideration women's education. I also discuss the characteristics of the pension system in Poland and their impact on pension benefit levels of men and women. These include first, different

retirement age for women and men, which results in a difference in benefits at the same salary level, amounting to approximately 40% of the pension. I also analyse the role of contributions paid from the state budget at the time women take maternity and child-care leave. Finally, I also take into account the distribution of means accumulated on pension accounts between spouses. The projections of old-age pensions for women and men in the new pension system demonstrate that lower salary and shorter period of employment will result in a lower pension for women. However, the use of unisex life expectancy tables for women and men in the pension formula means that women will receive higher pensions compared to the scenario with the gender specific tables.

In the article [1.3] Dr Paweł Strzelecki and I discuss the difference in pension rates caused by different working history of women and men, and also differences in the retirement age as discussed in the previous section. Our conclusions clearly demonstrate that a different situation of women and men in the pension system is to a large extent a result of differences stemming from the earlier stages of the life course. Lower salaries and shorter period of employment for women accumulate differences in the level of pension capital, which are additionally enhanced by different retirement age. It needs to be emphasised that in this article it is for the first time that the two dimensions of the situation on the labour market: work intensity (measured with the length of employment) and level of income are treated together for the purpose of such analysis.

In the literature of the subject we found no other publications that combined these two phenomena. The issues of wage gap between women and men, and of women's participation in the labour market are usually treated separately. In our study, we point to the need to link these two dimensions for analytical purposes: women more often than men work for a shorter period of time and receive lower earnings, which leads to the strengthening of the effect of gender gap in the pension system.

In the chapter of the book devoted to the analysis of the implementation of NDC pension systems in Sweden, Italy and Latvia [2.4] which I co-authored with prof. Edward Palmer (University of Uppsala, Sweden) and Dr Daniele Franco (Bank of Italy) we also discuss the topic of women's situation in the analysed pension systems. This part of the chapter was initiated and written by me. Taking advantage of the comparable results of the OECD pension model (prepared according to my specification) we illustrate the differentiation of women's pensions in the countries under analysis. We point out that lower retirement ages in Italy and Poland lead to reduced projected replacement rates for women (compared to men's retirement age) by 17 and 20 percentage points respectively. We also compare projections of pension benefits for women who take a 1 to 3 -year employment break for childcare purposes. This comparison shows that the design of contribution payment for this period in analysed countries' pension systems results in different net effects. In Sweden, this kind of break, even three-year long does not significantly affect the amount of received pension. In Poland (according to the regulations prior to 2012), childcare longer than a year has an impact on moderate reduction of projected replacement rate, whereas in the Italian and Latvian systems these reductions are at their highest. Our conclusions demonstrate that the method of compensating for the breaks in working career in the system has a significant impact on the level of pension that parents can expect as they break that working career for some period of time.

The publications listed above provided a starting point for a broader analysis of the gender gap in pension systems. In the paper [1.7], developed within the international project NEUJOBS (financed from the funds received from the 7th Framework Program), I discuss the topic of gender gap in the pension systems of the EU countries. In the recent years, this has been an issue which has appeared both in the literature (Bettio et al. 2012) and in the discourse on gender equality in the European Union (Bettio, Tinios, and Betti 2013; Burkevica et al. 2015). In these studies, the gender gap in pensions is defined in the qualitative approach on the basis of an assessment of income of current pensioners, i.e. individuals who in the period of their professional activity often experienced lower work intensity such as women on the one hand, and their pensions were calculated based on the principles from before



the changes introduced in the recent years on the other. In fact, the changes taking place on the labour market and in pension systems will significantly impact the differences in women's and men's pensions in the future. This is why, in the paper [1.7] I included a conceptualisation of the index of prospective gender gap in the European pension systems. The structure of this index is inspired by the active ageing index developed by the European Centre for Social Welfare Policy and Research and UNECE (Zaidi et al. 2013).

The index of the prospective gender gap is a composite one, comprising two components: (i) regarding the situation of women on the labour market and (ii) regarding the situation of women in pension systems. In each of the components I take into consideration the indicators which are regularly published by Eurostat and the European Commission in the pension adequacy assessment published every three years (European Commission 2015a). The first component includes two indicators: a gap in the duration of employment, measured by the average length of employment, developed on the basis of women's employment rates, in reference to the full length of a working career, taken into the account in the projections of the values of future replacement rate (40 years) and women's gender wage gap. The second component includes four indicators: a gap in pensions resulting from a childcare break in professional activity, a level of income redistribution in the pension formula for people with low income, an impact of pensions' indexation on their value in relation to the average salary 10 years after the benefit is granted and (if relevant) a difference in pension benefit rates between women and men in relation to a different retirement age. The choice of these indicators is linked to the fact that it is women who take care of children more often, have lower salaries but also live longer, which means that their retirement income is affected by the way pensions are indexed.

The obtained results demonstrate that in the future the gender gap in pensions will be still in place. In some countries, it may become larger and in some it might be expected that things will get better compared to the current pension gap. Moreover, a comparison of the value of the two components of the proposed index indicate that in the countries in which there is a larger gender gap on the labour market, solutions applied in the pension system often result in lower pensions for women (e.g. Italy, Romania, Slovakia, Hungary) and conversely, the countries in which the situation of women and men on the labour market is similar, often use solutions in support of equal treatment of men and women in the pension system (Slovenia, Denmark, Great Britain, Holland). I presented the results of the analysis included in this paper during an Annual Meeting Population Association of America in 2015, and in December 2016 at the seminar *EPP Combating and Preventing the Gender Pension Gap in EU Member States*² in the European Parliament. I also applied the index I developed in the evaluation of the situation of women in the labour market in the pensions systems of Central and Eastern Europe, as presented in chapter [2.1]. My main conclusion is that the changes taking place on the labour markets and in the pensions systems of the countries in the region after their political and economic transition might lead to an increase of the (currently small) gender pension gap in the future. These conclusions inform us that it is very important to monitor the situation of women and men in the entire life course on a regular basis, starting from their educational activity, health status, through the situation on the labour market and pension systems, to be able to gain a good understanding of the reasons behind the differences that occur, and recommend activities aimed at curbing them.

- (iv) **Providing new data regarding the correlation between the functioning of the pension system, individual characteristics and retirement decisions**
publications [1.7] [2.1] [2.5]

² <http://kozłowska-rajewicz.pl/wp-content/uploads/2016/12/Agenda-Joint-Seminar-on-the-Gender-Pension-Gap-1.pdf>

Decisions to retire, the impact of institutional and individual characteristics, including socio-economic status is one of the important topics in pension economics. In recent years, the topic of the factors influencing the raising of the effective retirement age has been frequently discussed in the literature.

In my research, I refer to institutional and individual circumstances of the retirement of women and men in Poland. In the ENEPRI working paper (European Network of Economic Policy Research Institute) [1.7], developed within the project Adequacy of Old-Age Income Maintenance in the EU (AIM) funded from FP6, I analyse the existing retirement practice in Poland and point to potential changes in these behaviours, which may result from changes in the pension system. On the basis of data on the retirement age distribution, I distinguish two periods characterised by different behaviour of employees. In the period from 1997 to 1999, Poland reached a slight shift in the retirement age, because of a reduced possibility of claiming of early retirement. In the six-year period from the beginning of this century to 2006 (which was the analysed period), retirement patterns for men and women did not change.

Using individual panel data available from the Labour Force Survey for 2005-2006, based on estimated logistic regression models, I have identified that it is such characteristics as gender, employment sector and education that are statistically significant in making retirement decisions. Women retire younger as do people educated below university level. Compared to employees of the industrial sector, people who work in agriculture, fisheries and market services sectors retire later. In the working paper, I also analysed the administrative data for 2006 made available by the Social Insurance Institution (ZUS) to link retirement decisions to previous wage levels. In the case of men, I observed that those with higher earnings, mainly miners, retired earlier whereas women who decided to retire later had relatively highest earnings. In the ENEPRI working paper and in the publication [2.5] I also indicate that the solutions in the new pension system in Poland encourage longer working lives through the increasing value of a potential pension.

I discuss the determinants of retirement, this one mainly in reference to women, in the working paper I have mentioned above [1.7] and in chapter [2.1]. Based on the data regarding the change in retirement age for women in the countries under discussion in the period from early 1990s to 2012 I demonstrate that institutional changes relating to raising retirement age in Hungary and limiting the option of taking early retirement in Poland contributed to raising the actual retirement age of women in these countries. In publication [1.7], I also use the results of the first round of the GGS-PL study, which indicate that most of women aged 50-54 no longer have plans to retire, and two thirds of women aged 55-59 who have not retired yet, have no such plans at all.

In my current research work I continue with the theme of the transition from work to retirement. My analyses, conducted within the project "Generations and Families – A Panel Study of the Transformation of Intergenerational Relations in the Family" (GGS-PL2), utilise longitudinal panel data from the two rounds of the study, investigating links between retirement decisions and gender, health and labour market status and family situation of people over 50.

(v) Characterising the implementation of NDC pension systems in the European countries
Publications [2.2] [2.7] [2.8]

The population ageing in Europe and seeking solutions to pension systems that would allow for their partially automatic adjustment to demographic changes became the basis for the creation of the concept of non-financial defined contribution (NDC) systems. The concept, based on original ideas presented, among others, by Buchanan (Buchanan 1968) was subsequently implemented in the form of pension reforms in five European countries (Italy, Latvia, Sweden, Poland and Norway). Since the very beginning of my professional and academic career, the functioning of these systems and various



aspects relating to their implementation are the main topic of my interests. My publications in this area are linked with my participation in the international network of researchers of retirement systems initiated by prof. Edward Palmer (University of Uppsala) and prof. Robert Holzmann. They initiated two international conferences devoted to NDC systems, in which I participated, presenting my analysis in Sandham (Sweden) in 2003, and in Stockholm in 2009. These conferences resulted in two books (the second in two volumes) devoted entirely to the implementation of NDC systems, with chapters co-authored by me (Holzmann and Palmer 2006; Holzmann et al. 2012a, 2012b) – publications [2.2], [2.7] and [2.8].

In these works, I analyse the experiences behind the design and implementation of the retirement system reform in Poland. This is a continuation of the research I conducted prior to my PhD defence (Chłoń-Domińczak 2002; Chłoń, Góra, and Rutkowski 1999), which has become a basic source of citation in the literature of the subject in reference to the pension system reform in Poland³. In chapter [2.8], together with prof. M. Góra (SGH), we assess the implementation of the pension system reform in Poland after 5 years. We characterise the main elements of the new system and focus on the practical aspects of the transition from the old to the new pension system, including the solutions that helped transfer pension rights between the systems, which in Poland took the form of the “initial capital”⁴. We also discuss the changes that took place from the time the reform was implemented in the context of demographic changes, labour market situation and in the pension system itself. In this analyses, we observe that the development of the labour market was different than expected. Moreover, once the reform was implemented, the contribution revenues decreased due to the fact that in the worsened country economic situation some employers no longer paid their contributions. At the same time, pension expenditure increased due to high pension indexation rates. Consequently, the deficit of the pension system, unrelated to the reform, has grown.

In the chapter, we also refer to the debate that took place at the time, within the so-called “Hausner Plan”, regarding the equalisation of retirement age for men and women. We also present the updated projections of the macroeconomic situation of the pension system as discussed earlier in this self-assessment presentation. We refer to the administrative challenges relating to the implementation of the pension reform (particularly to individual accounts) at the Social Security Department (ZUS). In the summary, we demonstrate that Polish experiences are an important point of reference due to (i) facilitation of mobility in the labour market by using uniform solutions, (ii) proper determination of the liabilities of the pension system, by recording the value of pension rights in the accounts of the persons insured; (iii) experiences relating to the implementation of solutions, which show that well-developed concepts also require adequate preparation on the part of the institutions implementing the changes, particularly when these changes are associated with a significant increase in the information resources collected by social security institutions.

I have also analysed the issue of the implementation of NDC systems in a broader perspective of four European countries: Italy, Latvia, Sweden and Poland in a chapter written for publication in 2009 [2.2]. Together with prof. Edward Palmer of the University of Uppsala and Daniele Franco of the Bank of Italy we analyse the experiences of the first wave of pension reforms implementing NDC systems. In this chapter, we analyse the paths leading to reforms in the countries of different demographic, economic and social characteristics. We indicate that NDC systems are implemented in the countries, in which pension systems are long-term unbalanced, primarily due to the population ageing. The experiences

³ According to Google Scholar the first of the publications mentioned here was cited 85 times, the second 185 times.

⁴ The method of calculating the start-up capital in Poland was developed as the original concept developed by me and the Swedish expert, Gunnar Tidner cooperating with the Office of Government Plenipotentiary for the Reform of Social Security System.



of Latvia and Poland, as the countries that underwent political transformation, demonstrate that the system of this type can be implemented also in response to the needs for change relating to the loss of stability of the systems functioning in the period of planned economy. This particular chapter is an extensive compendium of knowledge and information about the experiences of the countries under analysis, including: changes in the retirement age, administrative matters and social communication, the functioning of these systems, integration with other mandatory or quasi-mandatory models, the transition from unreformed systems to the new rules of operating individual accounts (periods for which contributions are paid, distributing profits from inheritance, indexation of retirement accounts). We pay particular attention to the various mechanisms of account indexation and the associated methods of stabilizing the pension system adopted by these countries, including the automatic balancing mechanism (ABM) used in Sweden. We also discuss the principles of calculating pensions which are slightly different in those countries. For example, in Sweden, the pension formula includes pre-indexation, which means that the initial value of the pension is a little higher than in the other countries. The potential effects of reforms from the macroeconomic and microeconomic perspectives, including the situation of women are also presented in the study. Based on the long-term pension systems' projections published by the European Commission (European Commission DG ECFIN 2012) we demonstrate that the implementation of NDC systems in the analysed countries allows for the stabilization of pension expenditure, compared to the countries with the traditional defined benefit systems. We also observe that pension systems in the discussed countries survived the financial and economic crisis relatively well.

My knowledge of NDC systems was also proven useful in formulating the proposals for pension reforms in other countries. In chapter [2.7], together with Marek Mora (currently of the European Council and at the time of publishing this book of the European Commission) we present a concept for the implementation of the NDC system in the Czech Republic. This chapter was written on the basis of the analysis, commissioned by the Czech Ministry of Labour and Social Policy and the World Bank. We present the demographic situation in the Czech Republic and the challenges ahead of the Czech pension system, and identify the economic and political costs of an introduction of the new pension system, based on the NDC formula. Together with Marek Mora, we also indicate that the implementation of this type of solutions allows for creating microeconomic incentives for the prolongation of professional activity, without the costs of moving to a capital-funded system, and has additional advantages, such as easier mobility and increased transparency of the pension system. At the same time, we emphasise that this system will reduce the strongly redistributive mechanisms existing in the current pension system, which enjoy high social approval. We present the original simulations of the effects of the proposed reforms in relation to the amount of benefits as well as revenue and expenditure of the pension system. Our results show that the implementation of the NDC system, combined with the raising of retirement age is a possible way of stabilizing the pension system in the Czech Republic in the long term.

(vi) Investigating determinants of the functioning of pension systems in Poland and other CEE countries

Publications [1.1] [1.2] [1.3] [1.6] [1.8] [2.3] [2.4] [2.5] [2.8] [2.9]

An important part of my achievement are analyses of the functioning of the pension system in Poland. As I have already mentioned earlier, this sphere has been part of my professional and research interests from the very beginning of my professional life. In my research, together with other Polish and international researchers, I conduct analysis of the operation of pension systems in the countries of Central and Eastern Europe. The main motivation behind these studies is to present the diversity of experiences of the countries in our region on the European and global arena, as these are often mistakenly treated as countries of similar socio-economic conditions, presenting a similar approach to social security systems.



In my analytical output the functioning of the Polish pension system appears in the context of almost every thematic area of research mentioned in this self-assessment, including publications [1.3], [1.8], [2.3], [2.4], [2.5] and [2.8]. In the chapter of the book edited by prof. Martin Rein and Winfried Schmähl *Rethinking the Welfare State. The Political Economy of Pension Reform* [2.9] we present the overall architecture of the pension system in Poland, and a broader context of the path to creating a multi-pillar pension system in our country. I discuss the process of political, expertise-based and media debate of the 1990s, along with the presentation of key decision makers and proposals of changes. The process was finalised with the adoption and implementation of the solutions, included in the concept of the pension system called *Bezpieczeństwo dzięki różnorodności* [Security Through Diversity], developed by a team led by Dr Michał Rutkowski and Prof. Marek Góra.

After obtaining my doctorate I also took an active part in the implementation of some elements of the new pension system, primarily by participating in the implementation of the regulations of the system during the period of my employment in public administration before 2008. When I began working at the Warsaw School of Economics (SGH) I took part in the debate on the changes taking place in the pension system. An example is my opinion presented in the article [1.6], in which I am critical of dividing a pension contribution between the two pillars of the pension system. In this expertise, I also present the analysis of returns on investment reached in the capital-funded part of the pension system (OFE) and the indexation of a pension account in non-financial part of the system (managed ZUS), indicating that the initial division of pension contribution between these parts led to much lower risk to the participants in the system (measured by the standard deviation of the weighted average annual return on investment for both parts of the pension system). Another example of my voice in the debate on the changes taking place in the Polish pension system is a brief report I wrote on the lowering of retirement age in Poland in 2017. The report was published as a result of my participation the experts' network *European Social Protection Network* (ESPN) (<http://ec.europa.eu/social/keyDocuments.jsp?pager.offset=60&&langId=en&mode=advancedSubmit&year=0&country=0&type=0&advSearchKey=ESPNFlash>)

In another report, prepared within a project financed by the National Science Centre (NCN) entitled *Odwrot od obowiazkowych funduszy emerytalnych w krajach Europy Srodkowo-Wschodniej w reakcji na kryzys finansowy i fiskalny. Przyczyny, skutki, rekomendacje w zakresie regul fiskalnych* [Retreat from Mandatory Pension Funds in Countries of the Eastern and Central Europe in Result of Financial and Fiscal Crisis: Causes, Effects and Recommendations for Fiscal Rules.], I worked together with Dr Dariusz Stańko (SGH) and Dr Kamila Bielawska (University of Gdańsk) on the presentation of experiences of seven Eastern and Central European countries, i.e. Bulgaria, Estonia, Lithuania, Latvia, Hungary, Poland and Romania (publication [3.4] discussed earlier on in this statement). One of the publications, written as a result of the project, is an article [1.1] presenting the effects of changes introduced to the multi-pillar structure of the six countries of our region, including Poland.

In the article [1.2] I worked together with prof. Tine Stanovnik of the University of Ljubljana and Dr Predrag Bejaković of the Institute of Public Finance in Croatia on comparing the experiences in three countries: Slovakia, Poland and Croatia with regards to collecting social security contributions. What these countries have in common is the experience of economic transition although they adopted different solutions for their pension systems. In spite of these differences, we observe a number of similarities between the countries. We also demonstrate that the reforms implemented in the countries of Eastern, Central and Southern Europe influenced their social security institutions. In the case of Slovenia and Croatia, the role of these institutions, also in the sphere of contribution collection, has been limited. In Poland, on the other hand, the role of Social Insurance Institution (ZUS) was strengthened. In all three countries, despite of the differences in the structure of their pension systems, individual pension contributions are paid on a monthly basis and are combined with the electronic information system about the contributions paid. Notably, in the first decade of the 21st



century, the total wage bill under social security fell in relation to GDP, which shows that the introduction of solutions relating to the electronic collection of contributions is insufficient for the improvement of collection itself. This objective could be reached only in cooperation of a number of government agencies.

Summary of achieved results, their practical application and input in the development of research on the pension systems in Poland and Europe.

Summing up, my research in the context of a scientific achievement under the title *Micro and macro-economic aspects of the functioning and reforms of pension systems in the context of population ageing: theoretical and practical aspects* is a contribution to the knowledge on the functioning of pension systems and their reforms, seen from the perspective of financial and social stability of the pension systems. The themes covered within this achievement are part of the current trends of interdisciplinary research on population ageing, conducted in Europe and in Poland.

My research demonstrates that maintaining social and economic stability of these systems requires an integrated approach, in which public policies and individual's initiatives are aimed at increasing social investments, leading to an improved quality of human capital and increased activity and engagement in work throughout the life course. As a result, the loss of potential labour resources, attributable to population ageing, may be partly compensated by an improved use of the resources available. In my work, I am also pointing out that the achievement of this goal requires a structuring of pension systems that would create incentives to work longer, by the corresponding increase in pension wealth in connection with the prolonged professional career. I also indicate the risks relating to the changes in pension systems, introduced in the period since the last financial and economic crisis, which did not take into consideration the long-term effects of the changes to the financial and social stability of these systems.

In my research, I also contribute to expanding our knowledge of the conditions behind the use of potential labour resources through the prolonging of working lives at the end of the working careers, also by identifying various factors of institutional and individual character which have an impact on a decision to retire.

Based on my studies, I have also drawn conclusions with regards to the impact of the changes taking place in pension systems and in the labour market on the situation of women, and how they affect the future gender gap in pensions. The reforms, aimed at the improvement of the financial stability of pension systems, may in fact increase the gender pension gap. I indicate that a considerable part of this gap is linked to the unequal situation of women and men on the labour market. My research results clearly demonstrate that an assessment of these inequalities should be multifaceted, considering the perspective of the entire life course, because lower professional activity and lower salaries for women compared to men often occur together, which results in even larger gender gap in pensions.

The character of my work is both epistemic and practical. The conclusions of my research point at the possible turns for public policy, which should be directed towards social investments at every stage of the life course and a labour market policy that creates equal opportunities for women and men as well as such solutions in the pension systems that would promote longer professional careers and reduce early retirement.

An important conclusion stemming from my research is that the economic and social stability of pension systems should be viewed together. A financially unstable system, in a long-term perspective cannot realize the social goal for which it has been designed. A socially unstable system, in which the risk of poverty is high, even if financially stable it does not realize one of its primary objectives.

The various analyses included in the scientific achievement presented here i.e. ***Micro and macro-economic aspects of the functioning and reforms of pension systems in the context of population ageing: theoretical and practical aspects*** create a multifaceted, in-depth study of the financial and social stability of pension systems, with particular emphasis on the functioning of the defined contribution pension system introduced in Poland, as well as changes in the countries of Central and Eastern Europe. I have examined the functioning of the pension systems from the perspective of their financial and social stability, in a broader context of the effects of demographic change.

I have carried some of the research independently and some in research teams, both Polish teams of doctors and doctoral students and international teams, in equal cooperation with academics at various stages of their career. I conducted my research based on various data: statistical data and indicators, contextual information and qualitative data, as well as quantitative data at the individual level, including longitudinal data. I used a variety of methods (macroeconomic projections and microsimulation models, panel data analysis, logistic regression models, a combination of quantitative and qualitative methods, and the use of composite indexes). My input into economic sciences consists in the proposal how to apply these methods to the analysis of research problems, such as poverty risk or prospective gender gap in pensions. My analyses are primarily focused on Poland. This choice is dictated by the fact that the ageing of the population of Poland will progress much faster than of many other European countries, and the Polish pension reform was, after all, aimed at changing the paradigm of this system. I also reach for comparative perspective by presenting the changes introduced in Poland against the backdrop of changes taking place in other countries: those that have similar pension systems and are in the same region of Central and Eastern Europe.

The scientific achievement I present for the consideration is also relevant to the formulation of guidelines for public policy. Owing to my professional experience, after I was awarded a PhD, I could apply my achievements also in my involvement in the implementation of social policy in Poland.

4. Discussion of other publications

Apart from the publications, which I presented as part of my scientific achievement, after I was awarded my PhD I also published other studies, regarding demographic changes broadly interpreted, and the impact of these changes on public finance (including a report published within the AGENTA project), life course of the population (including work and educational careers), and also reports dedicated to the analysis of the pension systems of Poland and Central and Eastern Europe. I edited and co-edited a monograph and a monothematic issue of the journal "Polityka Społeczna" [Social Policy], presenting the results of analyses conducted within the SHARE study. Below, I present a list of these works with their brief description.

Other publications:

Item	Publications	My share	IF according to Web of Science	MNiSW points
3.1	Chłoń-Domińczak, A., I. Magda, Ł. Sienkiewicz, 2016. Skills Mismatch in the New and Old Member States – Are Generations Affected Differently? <i>Filosofija-Sociologija</i> Vol. 27. No. 4, pp. 331–341	33%	0.333	15 (A list)
3.2	Chłoń-Domińczak, A., A. Abramowska-Kmon, I.E. Kotowska; W. Łatkowski, H.Qi. 2016. Demographic developments and	50%		

Item	Publications	My share	IF according to Web of Science	MNiSW points
	public finances in the past two decades in the EU countries; A report within the AGENTA project.			
3.3	Trawińska-Konador, K. A. Chłoń-Domińczak, Ł. Sienkiewicz. 2015. Development of the Sectoral Qualification Framework as an Example of a Knowledge Management Approach, European Conference on Management, Leadership & Governance: 496-503. Kidmore End: Academic Conferences International Limited.	30%	In the Web of Science database	15
3.4	Bielawska, K., A. Chłoń-Domińczak, D. Stańko. 2015. Retreat from Mandatory Pension Funds in Countries of the Eastern and Central Europe in Result of Financial and Fiscal crisis: Causes, Effects and Recommendations for Fiscal Rules. A report published within the NCN project.	40%		
3.5	Chłoń-Domińczak, A., Trawińska-Konador, K., Ł. Sienkiewicz. 2014. The Development of the Polish Qualifications Framework as an Application of Knowledge Management in Public Policy, The proceedings of the 15th European Conference on Knowledge Management, pp. 2014-222	33%	In the Web of Science database	15
3.6	Chłoń-Domińczak, A., A. Kamińska, I. Magda. 2014. Women as a Potential for European Labour Force, Neujobs Position Paper, D16.C	20%		
3.7	Chłoń-Domińczak, A., M.Lis. 2013., Does Gender Matter for Life-long Learning Activity?, Neujobs Working Paper D16.2a	80%		
3.8	Chłoń-Domińczak, A. M. Myck, Introduction (pp. 9-13). 2014. in: Chłoń-Domińczak, A. (ed.). Portret generacji 50+ w Polsce i w Europie. Wyniki badania zdrowia, starzenia się i przechodzenia na emeryturę w Europie (SHARE) [The Portrait of 50+ Generation in Poland and Europe. The Results of the Survey of Health, Ageing and Retirement in Europe. Educational Research Institute, Warsaw. ISBN: 978-83-61693-32-1	50%		
3.9	Chłoń-Domińczak, A. 2013., Chapter 1. Introduction, in: J.Burski, A. Chłoń-Domińczak, M. Palczyńska, M. Rynko (eds.), P. Śpiewanowski, Umiejętności Polaków – wyniki międzynarodowego badania kompetencji dorosłych (PIAAC) [Polish People's Competences – Results of the Programme of International Assessment of Adult Competences, PIAAC]. Educational Research Institute, pp. 9-22	100%		
3.10	Chłoń-Domińczak, A., M. Kawiński, D. Stańko. 2013. System oceny i prezentacji wyników inwestycyjnych kapitałowych systemów emerytalnych [The System of Assessment and Presentation of Investment Results of Funded Statutory Pensions] pp. 1-224, Oficyna Wydawnicza Szkoły Głównej Handlowej, Warsaw, ISBN: 978-83-7378-837-4	33%		

Item	Publications	My share	IF according to Web of Science	MNISW points
3.11	Chłoń-Domińczak, A., Ł. Sienkiewicz, K. Trawińska-Konador, 2013. Competency-based HRM and Lifelong Learning in Poland. Proceedings of the 10th International Conference on Intellectual Capital, Knowledge Management and Organisational Learning: ICICKM 2013. pp. 401-410.	40%	In the Web of Science database	15
3.12	Chłoń-Domińczak, A. The Collection of Pension Contributions in Poland, in: E. Fultz i T. Stanovnik (eds.), <i>The Collection of Pension Contributions: Trends, Issues and Problems in Central and Eastern Europe</i> , pp. 155-196, ILO, 2004, Budapest	100%		
3.13	Chłoń-Domińczak, A. 2004. Evaluation of Reform Experiences in Eastern Europe, in: <i>Pension Reforms: Results and Challenges</i> , FIAP, pp. 145-237	100%		
3.14	Chłoń-Domińczak, A. 2004. Pension reform in Poland, in: <i>Reforming Public Pensions. Sharing the experiences of transition and OECD countries</i> , OECD	100%		
Science editor and authorship of monographs/monothematic journal issues				
3.15	Chłoń-Domińczak A., M. Myck. 2016. Starzenie się populacji. Wyniki badania SHARE: 50+ w Europie. [Population Ageing. Results of the SHARE 50+ Study in Europe]. A monothematic issue of <i>Polityka Społeczna</i> [Social Policy]. The Institute of Labour and Social Affairs (IPISS) (science editor)	50%		
3.16	Chłoń-Domińczak, Agnieszka, Irena E. Kotowska (eds.) (2015) <i>Uwarunkowania decyzji edukacyjnych. Wyniki drugiej rundy badania panelowego gospodarstw domowych. Raport tematyczny z badania – skrót</i> [Determinants of educational decisions. Results of the second round of the household panel study. Summary research report.] Educational Research Institute	50%		
3.17	Chłoń-Domińczak, A., D. Holzer-Żelaźewska, A. Maliszewska, M. Pawłowski (2015) <i>Regionalne uwarunkowania decyzji edukacyjnych – wybrane aspekty</i> [Regional determinants of educational decisions – selected aspects]. Educational Research Institute	35%		
3.18	Chłoń-Domińczak, A. (red.). 2014. <i>Portret generacji 50+ w Polsce i w Europie. Wyniki badania zdrowia, starzenia się i przechodzenia na emeryturę w Europie (SHARE)</i> [The portrait of 50+ generation in Poland and in Europe. Results of the survey of health, ageing and retirement in Europe (SHARE)]. Educational Research Institute, Warsaw ISBN: 978-83-61693-32-1			

The publications mentioned above could be divided into two groups. The first includes publications on demographic changes and population ageing. The second, includes various themes referring to human capital and education.

Publications regarding demographic changes and population aging

In publication [3.2] the team presents the tasks and results of an analysis of demographic change on public finance. The report includes the analysis and projections of the evolving demographic and economic support ratios, based on National Transfer Accounts (NTA) age profiles for 25 countries of the European Union, identification of welfare state models from the point of view of outcomes, measured on the basis of public transfers for various generations in accordance with NTA profiles, assessment of the impact of changes in demographic and economic support ratios on public expenditure, and assessment of the impact of investment into human capital (health and education) on students' results in the student competences study (PISA).

In the publication [3.4] dr Dariusz Stanko (SGH), Dr Kamila Bielawska (University of Gdańsk) and I submit the results of research conducted within the project *Odwrót od obowiązkowych funduszy emerytalnych w krajach Europy Środkowo-Wschodniej w reakcji na kryzys finansowy i fiskalny. Przyczyny, skutki, rekomendacje w zakresie reguł fiskalnych*. [Retreat from Mandatory Pension Funds in Countries of the Eastern and Central Europe in Result of Financial and Fiscal crisis: Causes, Effects and Recommendations for Fiscal Rules. A report published within the NCN project]. The report presents a brief analysis of multi-pillar reforms in seven countries of Eastern and Central Europe and the changes in the shape of these systems at the time of the economic and financial crisis. We analyse the impact of transition costs from the multi-pillar system on public finance (using variance analysis). We also present an originally developed decomposition of the financing sources of transition costs, and the return on investment rates reached by pension funds in the capital part of pension systems as well as the ways in which transition costs are included in the fiscal rules used in the European Union, and the financial stability of the pension systems in the countries analysed, based on long-term projections and assessment of implicit debt related to pension system liabilities. We propose a new fiscal rule that would include investments relating to the transition to a multi-pillar system. The report was quoted by the Noble Prize laureate prof. Peter Diamond in his article, among other publications. (Barr and Diamond 2016).

Publications [3.8], [3.15] and [3.18] include the analyses carried out within the activity of the Polish SHARE research consortium. In the introduction [3.8] to a monograph [3.18] from the fourth round of the survey, together with Dr hab Michał Myck (CenEA) we summarise the conclusions of the survey for Poland, relating particularly to professional activity and retirement, social and educational activity, health, cognitive abilities and events in the last year of respondents' life. This is the first Polish monograph, which comprehensively presents the results of international research coordinated by prof. Axel Boersch-Supan from the Max Planck Institute in Munich, including the various aspects of health, ageing and retirement in Europe. In the monothematic issue of *Polityka Społeczna* [Social Policy] [3.15], which I co-edited with Dr hab Michał Myck (CenEA), we present a review of literature research with the use of SHARE data, which is a preparation for the analyses planned within the subsequent waves of survey in Poland.

The monograph [3.10] is a summary of research conducted within the project *System oceny i prezentacji wyników inwestycyjnych kapitałowych systemów emerytalnych* [The System of Assessment and Presentation of Investment Results of Funded Statutory Pensions]. This is an analysis, conducted by Dr Marcin Kawiński (SGH), Dr Dariusz Stańko (SGH) and I, of issues relating to the allocation of assets

in pension savings, benchmarks used in the systems and methods of investment assessment as well as analysis of the experiences of international use of benchmarks in the investment of reserves in mandatory non-financial systems and mandatory financial systems. We also evaluate the solutions used in Poland and refer to the changes proposed in this area. The research and the publication are complemented by the conclusions of the qualitative studies (focus groups), aimed at the assessment of the level of knowledge Polish people have on the functioning of the pension system, and their understanding of the content published by pension funds and ZUS and addressed to them. The report indicates the need for an introduction of well-structured internal benchmarks for the assessment of investments of Polish people's pension savings. It also points at the need to simplify the language of communication between institutions and participants in the pension systems. We conclude that Polish people are in need of education related to the pension system.

Publications [3.11], [3.12] and [2.13] are a result of my cooperation with international research teams under the guidance of International Labour Organization, World Bank and OECD. This is where I present the experiences of the Polish pension system, particularly with regards to the issue of contribution collection in relation to the individualization of pension accounts [3.11] and implementation of pension reform in Poland [3.13]. In Chapter [3.12] I comprehensively assess the implementation of multi-pillar pension reforms in the countries of Eastern and Central Europe, taking into the consideration demographic changes and changes in the labour market, development of pension system institutions and experiences in the first years of the implementation of these reforms.

Publications regarding human capital and education

As part of a series of publications regarding human capital, article [3.1] which I wrote together with Dr Iga Magda (SGH and IBS) and Dr Łukasz Sienkiewicz (SGH) is an assessment of skill mismatch on the labour market of the EU countries, taking into the account age and country of origin (new and old member states) using unit data from the European Survey of Competences CEDEFOP of 2014. We indicate that the phenomenon of skill mismatch is more evident in the new member countries and in the case of older employees. The mismatch is also affected by education levels and the type of contract on the labour market, particularly in new member states. The publication is a result of research cooperation within SGH. My share in the study was to prepare a review of literature (especially in reference to the mismatch of skills and employees' age). Together with Dr Iga Magda we also carried out calculations of logistic regression models and interpreted the results.

In the articles [3.3], [3.5] and [3.11] together with Dr Łukasz Sienkiewicz and Katarzyna Trawińska-Konador (IBE) we present the results of research on the Polish Qualifications Framework (PQF), including the creation of the Sectoral Qualification Framework as a method of knowledge management, and the development of PQF as an implementation of knowledge management in public policy. In the publication [3.11] we apply the Principle Component Analysis and logistic regression to the assessment of the impact of various human resource management methods and approaches to employee training on the participation of employees of medium and large companies in training. In this article, we use the results of the original research, prepared and conducted by the team I managed at the Educational Research Institute.

Publications [3.6] and [3.7] were written within the international project NEUJOBS. In the first of them, Dr Iga Magda, A. Kamińska (IBS) and I evaluate a role of women as a potential of the European workforce. This is an analysis of public policies and of the situation of women in the EU countries from the perspective of the life course, starting with transition from education to the labour market, reconciling professional and maternal responsibilities, educational activity and lifelong learning as well as the transition from the labour market to retirement. In the publication [3.7], together with Dr Maciej Lis (IBS) we present the analysis of lifelong learning by women, including the impact of their characteristics (age, education, family situation, status on the labour market) on their participation in



various forms of education and training. The publications issued within the project allowed for a comprehensive assessment of the potential and role of women in the European labour market, and of the future actions that may promote better use of their potential.

In publication [3.9] I present the introduction to the analysis of the Programme for the International Assessment of Adult Competencies (PIAAC), explaining the role of competences and human capital as a development factor, international experiences in the study of competences, research objectives and the role of the development of human capital in the light of international and national strategic documents as well as selected determinants of competences and human capital resources in Poland. The research was continued nationally, as a panel study, in which I also analysed the transition of young Poles from education to the labour market (Chłóń-Domińczak and Palczyńska 2015).

Publications [3.16] and [3.17] include a summary of the results of panel study *Uwarunkowania Decyzji Edukacyjnych* [Determinants of Educational Research]. This was a project coordinated by the Education and Labour Market Team at the Educational Research Institute that I managed. The study collected information on educational, professional, migration and family path of our subjects and the children living in their household as well as social and educational exclusion. In the reports, we present the results of the analysis of educational paths of young Poles, the influence of education on the situation on the labour market, inter-generational determinants of human resources, educational exclusion across Poland and in a smaller regional perspective.

Publishing performance indicators

My publishing achievement in the period after I was awarded the PhD includes:

- 4 scientific articles in foreign academic journals from the JCR list of journals (2 as the author and 2 co-authored);
- 3 articles published in post-conference publications included in the Web of Science (all co-authored)
- 3 scientific articles in the Polish scientific journals (2 as the author, 1 co-authored);
- Editing of 9 monographs (1 in English, 8 in Polish, 1 co-edited, 8 as the sole editor);
- 12 chapters in books published in English (9 as the author, 3 co-authored)
- 1 report (co-authored) and 4 research bulletins (2 as the author and 2 co-authored) of the research conducted in international teams, financed within the 6th and 7th Framework Programs and published online;
- co-author of 1 monograph presenting the results of research, financed by the Ministry of Science and Higher Education (in Polish)
- Co-author of 1 report of the research financed by NCN in English.

Parametric assessment of my publications:

- H-index according to Google Scholar: 13
- Number of citations according to Google Scholar: 820
- Total IF of my articles, published after PhD according to JCR list: 2,281
- Total number of points for scientific articles published in peer-reviewed journals and international conference proceedings recognised in the Web of Science database: 147.

5. Other research achievements

Participation in research projects



In the period after the defence of my doctoral dissertation I managed 1 research project financed by the National Science Centre and 4 research and implementation projects financed from the European Social Fund. I am a manager of research tasks in the 1 international research project within the 7th framework program and in the 1 national research and implementation project. Moreover, I participated in 6 research projects, 4 of which were international. Below I list these, together with the most important project information and my role in the project.

International projects

A project, in which I lead a research task:

Ageing Europe: An application of National Transfer Accounts (NTA) for explaining and projecting trends in public finances (AGENTA), 7th Framework Program of the European Commission (2014-2017), coordinator: prof. Alexia Fürnkranz-Prskawetz (Vienna Institute of Demography, Austrian Academy of Sciences), Austria.

I participated in the preparation of the project proposal and take part in its implementation. I lead the work package (WP4), dealing with the links between public spending and population ageing, in which I analyse (together with the task team) economic and demographic support ratios, links between public finance and support ratios, as well as the outcomes of welfare state models in the EU from the perspective of public and private transfers to different generations. A research report has been published on the project website; work is also underway on the proposals of articles for international journals. I also participated in the preparation of policy brief.

Other projects:

Creating and Adapting Jobs in Europe in the Context of a Socio-Ecological Transition (NEUJOBS), 7th Framework Program of the European Commission (2011-2015), coordinator: Miroslav Beblavy, Centre for European Policy Studies (CEPS), Belgium.

I took part in the preparation of project application and in the realization of research task on women's employment. I prepared two research bulletins on the role of gender in lifelong learning and transition from work to retirement as well as the generation gap in pensions. I co-authored a special report, dedicated to the potential of women on the European labour market. All reports are published on the project website.

Survey of Health, Ageing and Retirement in Europe (SHARE). The European Research Infrastructure Consortium (ERIC) structure. The project has been implemented since 2004 and is coordinated by prof. Axel Börsch-Suppan of the Munich Center for the Economics of Ageing (MEA) – part of Max Planck Institute for Social Law and Social Policy, Germany.

In 2012-2015, I represented Poland in the SHARE Council. I am a coordinator of the national SHARE research consortium. The national project coordinator is Dr hab Michał Myck (CenEA). I was the editor and science co-editor of the monograph and a thematic issue of the journal presenting research results and analysis of literature regarding SHARE for Poland. I participate in the works of research team realizing rounds 6-8 of the survey in 2016-2023.

Generations and Gender Survey (GGS), Institute of Statistics and Demography SGH, a project financed by the Ministry of Science and Higher Education (2009-2012). Project manager: prof. Dr hab. Janina Jóźwiak (SGH). The project was a part of international research program, aimed at cyclical collection of data and making it available to the academic circles. The data allow for a better understanding of demographic and social processes that take place in the contemporary world. In this particular research, I participated in the works on adjusting the research tool and I also carried out the analysis regarding active ageing. I cooperated in the preparation of a contextual database.

Generations and Gender Survey – A Panel Study of the Transformation of Intergenerational Relations in the Family” (GGs-PL2) Institute of Statistics and Demography SGH, a project financed by the National Science (2013-2016); project manager: prof. Irena E. Kotowska (SGH)

Within this project, I carried out the analysis regarding the determinants of retiring and professional activity of people over 50, which have been prepared for publication in the project report. I am currently working on the article based on this research.

National projects

Projects that I lead or led:

The National Transfer Accounts and National Time Transfer Accounts for Poland (POLNTA), Institute of Statistics and Demography SGH, a research project financed by the National Science Centre within the Harmonia Program, 2013-2017.

The aim of the project is to expand our knowledge on the impact of changes in the structure of the age of population on inter-generational public and private transfers, and the reallocation of assets. The research allows for the allocation of income and consumption, financed from the public and private funds for specific age groups. The application of the National Transfer Accounts (NTA) methodology allows to taking into the account (i) the relationship between public and private transfers at different stages of the life course; (ii) the impact of investments in human capital in the early stages of the life course on the need for transfers in the later stages of the life course; (iii) non-financial transfers related to work performed at home, including differences between genders (iv) the impact of population ageing on the size and structure of public expenditure targeting different age groups. The project team includes 2 professors, 3 doctors and 1 doctoral student. Within the project, we develop the National Transfer Account and National Time Transfer Account databases. To date, the project results have been presented at 7 international conferences. We are currently working on publications which will be sent to scholarly journals.

Opracowanie założeń merytorycznych i instytucjonalnych wdrażania Krajowych Ram Kwalifikacji oraz Krajowego Rejestru Kwalifikacji dla uczenia się przez całe życie [The development of terms of reference for the implementation of the National Qualifications Framework and the National Qualifications Register for lifelong learning].

Educational Research Institute, research and implementation project financed from the Operational Program Human Capital (2010-2015).

Budowa krajowego systemu kwalifikacji - wdrożenie zintegrowanego rejestru kwalifikacji w zakresie organizacyjno-instytucjonalnym [Developing the national qualifications system – organising and institutionalising the Integrated Qualifications Register]

Educational Research Institute, research and implementation project financed from the Operational Program Human Capital (2010-2015).

Budowa krajowego systemu kwalifikacji - pilotażowe wdrożenie krajowego systemu kwalifikacji oraz kampania informacyjna dotycząca jego funkcjonowania [Developing the national qualifications system – pilot implementation of the national qualifications system and its promotional campaign]

Educational Research Institute, research and implementation project financed from the Operational Program Human Capital (2010-2015).

Within these three projects a team of experts, under my leadership, developed the institutional and legal assumptions for the functioning of the integrated qualifications system in Poland. The result of these works is the reference report accepted in 2013 at the European forum, which allows for comparing the qualifications gained in Poland to those gained in the EU countries. We also developed the Polish Qualifications Framework project. The tasks undertaken within these projects were aimed at the preparation and pilot implementation of the developed solutions in the scope of the functioning

of the new qualifications system. The project results provided the basis for the preparation of the Act of Parliament on the Integrated Qualifications System which was passed on 22 December 2015.

The design team was interdisciplinary and consisted of dozens of people: lawyers, economists and sociologists, including 1 team member who was Dr hab. and six members with PhD. I co-authored three articles within the project, presented at international conferences and published in conference materials, recognised in the Web of Science as well numerous reports, guides and information materials.

Wspieranie realizacji I etapu wdrażania Zintegrowanego Systemu Kwalifikacji na poziomie administracji centralnej oraz instytucji nadających kwalifikacje i zapewniających jakość nadawania kwalifikacji [Providing support to First Stage of the implementation of the Integrated Qualifications System at the Central Administration Level and Institutions Awarding Qualifications and Ensuring the Quality of Qualification Awarding] Educational Research Institute research and implementation project, financed from the Operational Program Knowledge-Education-Development (2015-2018).

Research, training and information tasks are included in the projects. The planned effects are, among others: providing support to public administration in the implementation of Integrated Qualifications System (IQS) and to institutions describing and granting qualifications; supporting the creation of solutions for the validation of qualifications and external quality assurance; development of sectoral qualifications frameworks; monitoring and evaluation of the implementation of IQS, including the study of the demand and supply of skills by sector (quantitative and qualitative study) and (quantitative and qualitative) testing of vocational, educational and vocational counsellors. The project is planned to develop a concept of the measurement of lifelong learning scale for adult Poles, integrating the past Polish experiences in this field.

Other national projects:

„Badanie jakości i efektywności edukacji oraz instytucjonalizacja zaplecza badawczego (Entuzjaści Edukacji)” [The Study of Quality and Effectiveness of Education and Institutionalization of Research Background – Education Enthusiasts] Educational Research Institute, a systemic project realised financed by the European Social Fund (2010-2015). Project manager: Dr hab. Michał Federowicz (IBE). The main goal of the project was to consolidate the education system in the sphere of educational research, and increase the use of scientific research in educational policy and practice as well as education management. I led the project component related to links between education and the labour market with the following responsibilities:

- Research into the university graduates’ tracer, which resulted in the Ministry of Science and Higher Education introducing the “ELA” system for monitoring the professional paths of graduates,
- Developing methodology for a panel survey *Uwarunkowania Decyzji Edukacyjnych* [Determinants of Educational Decisions] and its implementation. The survey covered over 50,000 households. Three research reports and one summary report were written. I co-authored one of the reports and co-edited the summary report. The research involved a multifaceted assessment of the respondents’ life courses, including their educational and professional careers as well as inter-generational determinants of social and educational exclusion,
- Conducting studies of educational and vocational counselling,
- Developing and implementing studies involving the students of the last years of vocational schools, establishing a panel for further following the careers of the graduates of such schools,
- participation in the analysis of national PIAAC results and the team developing and implementing the longitudinal postPIAAC study.

Within this project, I edited and co-authored five research reports, I was also the science editor of "Raport o stanie edukacji 2012" [The Report on the State of Education 2012]. I was the author and co-author of chapters in three Reports on the State of Education.

„System oceny i prezentacji wyników inwestycyjnych kapitałowych systemów emerytalnych” [The System of Assessment and Presentation of Investment Results of Funded Statutory Pensions] Collegium of Socio-economics SGH, the project was funded by the Ministry of Science and Higher Education (2009-2011), managed by Dr Marcin Kawiński (SGH).

I participated in the preparation of the project concept and also in the preparation of the analysis of international practices in the use of benchmarks and analysis of proposals for changes in the capital-funded pension systems in Poland. I cooperated in developing various scenarios for focus studies and the analysis of their results. I am a co-author of the final report of this programme.

„Odwrót od obowiązkowych funduszy emerytalnych w krajach Europy Środkowo-Wschodniej w reakcji na kryzys finansowy i fiskalny. Przyczyny, skutki, rekomendacje w zakresie reguł fiskalnych” [Retreat from Mandatory Pension Funds in Countries of the Eastern and Central Europe in Result of Financial and Fiscal Crisis: Causes, Effects and Recommendations for Fiscal Rules.] Collegium of Socio-economics SGH, the project was funded by the Ministry of Science and Higher Education and National Science Centre within the OPUS program (2013-2015) and managed by Dr Dariusz Stańko.

I was a member of the project team, conducting analysis regarding the connection between the costs of transition to the multi-pillar system and the situation of public finance. I developed the concept of decomposition of costs into the various sources of their financing. I also developed a microsimulation model for the assessment of an impact of the changes in pension systems on individual pension capital. I am a co-author of the final report and the author of an article published in an international journal.

Major presentations in international conferences

Since I began working as an academic at the Warsaw School of Economics, my work has been presented at approximately 17 international conferences. The most important of them are the European Population Conference taking place every two years (I have participated in every conference since 2010), Population Association of America Annual Meeting (I presented posters in 2015 and 2016), international NTA conferences (I participated in every conference since 2012 and presented research results in 2014 and 2016), Foundation for International Studies on Social Security conferences in 2012 and 2014. The full listing of the conference papers I gave is presented with the listing of my publications and creative professional work. Below I have listed only the invited talks:

1. "Measuring Skills Mismatches Revisited - Introducing Sectoral Approach", a paper given at the Jobs and Development conference, **World Bank HKUST Institute for Structural Research**, Washington USA, 3 Nov 2016 (a paper prepared in cooperation with A. Żurawski of the Educational Research Institute).
2. "Population Ageing and Social Security in Europe", a paper given at the Expert Group Meeting on Changing Population Age Structures and Sustainable Development, **Population Division, UN**, New York, USA, 13 Oct 2016.
3. "Revision of the European Qualifications Framework: Lessons from Research", a paper given at the **European Parliament** seminar "Skills Development and Employability: New Skills Agenda for Europe", Brussels, 8 Sept 2016.
4. "Recuperating from a Pension Crisis – Polish experience", a panel speech at the **World Pension Summit 2015**, The Hague, Netherlands, 10 Sept 2015.
5. "Resource reallocations across generations: the state, the market and the household", a paper given at the conference: Demographic Change in Central and Eastern Europe organised by the



Austrian Federal Ministry of Science, Research and Economy within the Joint Programming Initiative "More Years, Better Lives", 24 March 2015.

6. "Women's employment: How well is Europe doing?" Introduction to discussion at the panel of the conference: Green, Pink and White: Can Europe still create jobs? Project summary NEUJOBS, CEPS, Brussels 1 Dec 2014. (prepared together with I. Magda and A. Kamińska).
7. "Women's Work and Pensions. Drawing Lessons from Poland and Central Eastern Europe", a paper given at the symposium "The Future of Welfare in a Global Europe" (I also took part in the ministerial panel further on in the symposium) a jubilee event on the 40th anniversary of the foundation of the **European Centre for Social Welfare Policy and Research**, Vienna, 15 Sept 2014.
8. "The Public Debt Clock. Management of the public finance in the context of demographic change", a paper given at **EEAC Annual Conference 2014, A Balanced Future. Social capital and human aspects of sustainable development**, Budapest, Hungary, 16 April 2014.
9. "Labour market and pension coverage", a commentary to the paper given by prof. Christopher Pissarides (Nobel Prize laureate) at the International Seminar "Individual Savings: Better Pensions plus Economic Development" organised by the **International Federation of Pension Fund Administrators (FIAP)**, Cartagena, Colombia, 11 Apr 2014.
10. "The Sustainability and Adequacy Tradeoff as Countries Age- the Lesson from Poland", a paper given at the **6th Global Pensions and Savings Conference, The World Bank**, Washington, 2 Apr 2014.
11. "Coordinating European Pension Policies – A Bridge so Near?" – participation at the **European Forum Alpbach** (with Elsa Fornero, Robert Holzmann, Christian Keuschnigg and Ulrich Schuh), Alpbach, Austria, 20 Aug 2013.
12. "Population Dynamics and Sustainable Development", discussion after the paper given by prof. Wolfgang Lutz (IIASA, VID/ÖAW, WU), **UNECE Regional Conference on ICPD beyond, 2014 "Enabling Choices: Population Priorities for the 21st Century"**, Geneva, Switzerland, 1 July 2013.
13. Developing Human Capital of the Adult Population: the Challenge of Life-Long Learning, a speech as part of the panel *Enabling people to work longer* at the **4th European Demography Forum** organised by The European Commission, Brussels, 6 May 2013.
14. "Costs of mandatory pension funds in CEE countries", a paper given at the conference **IOPS/PensionsEurope Seminar: Pension Developments in the CEE Region**, 1 March 2013.
15. "Long-term sustainability of the Polish pension system", a paper given at International Conference on Pension System Sustainability, **Faculty of Economics, Sapienza University of Rome**, 21 Feb 2013.
16. "Developing Human Capital of the Adult Population: the Challenge of Life-Long Learning", a paper given at the **Population Europe Event "Riding the Population Wave: Policy Options for the Ageing Baby-Boomer Generation in Europe"**, 17 May 2012.
17. "The role of social services, including health or education", a paper given at Joint Seminar "Employment, Poverty Alleviation, migration and Social Inclusion in the context of the economic restructuring in China and the EU" organised by **The European Commission and the Chinese Academy of Social Sciences**, Xi'an, China, 26 March 2012.
18. "New qualifications system in Poland as an impulse to modernise Vocational Education and Training in Poland, a paper given at **Third International Congress on TVET UNESCO**, Shanghai, China, 14 Feb 2012.
19. "Reversal of the pension reform in Poland", a paper given at the 5th Contractual Savings Conference, **World Bank**, Washington, 9 Jan 2012.
20. "Coverage of social pensions in Central and Eastern Europe", a paper given at **World Bank – Hitotsubashi – MoF Workshop on Closing the Coverage Gap: the Role of Social Pensions**, Tokyo, Japan. 22 Feb 2008
21. "How to mobilise political support and public opinion for reform? The political economy of pension reform" a paper given at the annual international pension conference "Funded

Systems: their role in solving the Pension Problem” organised by the **International Federation of Pension Fund Administrators (FIAP)** with the Association of Supplementary Pension Security Companies (BASPSC), Varna, Bulgaria, (co-authored with M. Mora) 31 May 2007.

22. “Non-financial Defined Contribution schemes as well as introduction of funded statutory pensions as a pension policy and their likely impact on retirement incomes and pensioner poverty. The case of Poland”, a paper given at the conference “Challenges in Combating Pensioner Poverty. What alternative options for a policy direction in EU”, **European Centre for Social Welfare Policy and Research** with the government of Finland, Helsinki, Finland, 4 Dec 2006.
23. “Pension reform experiences in Central and Eastern Europe”, a paper given at international seminar “Pension Reforms in Europe: Experiences and Perspectives”, organised by **International Federation of Pension Fund Administrators (FIAP)**, Ukraine, 27 May 2004.
24. “Sustainable Old-Age Security Core Indicators”, a paper given at the seminar “Sustainable Ageing Societies: Indicators for Effective Policy Making” organised by **IMERSO/European Centre for Social Welfare Policy and Research/UNECE**, Madrid, Spain, 14 Apr 2004.

Prizes and awards

1. Rector’s award of the 2nd degree (SGH Warsaw) for the cycle of publications (2013).
2. A diploma of recognition awarded by the Rector of SGH Warsaw for the best publication results in 2013, 2014, 2015.

Services for the academic community

After my PhD I participated in the preparation of five international conferences as:

1. Member of the scientific committee of the conference “Qualifications for the Labour Market. Sectoral Qualifications Frameworks as new tools for competence management” organised by Educational Research Institute, 23-24 Apr 2015 (approximately 100 guests);
2. Co-organiser of the international seminar “Warsaw Pensions Seminar. Pensions for 21st Century” organised by Polska Grupa Emerytalna (Polish Pension Group) of SGH and IBS, 25-26 Sept 2014 (approximately 50 guests);
3. Member of organisation committee of the 46th EUCEN Conference, Warsaw School of Economics, 11-13 June 2014 (approximately 80 guests);
4. Co-organiser of the Population Europe Event “Riding the Population Wave: Policy Options for the Ageing Baby-Boomer Generation in Europe”, Population Europe and Warsaw School of Economics, 17 May 2012 (approximately 40 guests);
5. Member of the Scientific Committee at the 6th International Policy and Research Conference on Social Security “Emerging trends in times of instability: New challenges and opportunities for social security”, ISSA International Conference, 28-30 Sept 2010. (approximately 100 guests).

I am also involved in the reviewing activities. I reviewed articles for the following journals:

Journal of Pension Economics and Finance, Studia Demograficzne [Demographic Studies], Studia Ekonomiczne [Economic Studies], Rozprawy Ubezpieczeniowe [Insurance Hearings] (approximately 2 reviews a year).

I reviewed a book edited by Robert Holzmann, Edward Palmer and David Robalino “Nonfinancial Defined Contribution Pension Schemes in a Changing Pension World. Volume 2: Gender, Politics and Financial Stability”. The World Bank, which was published in the Journal of Pension Economics and Finance 13(3): 336-337.



I also reviewed project applications for the National Science Centre (as an external expert and also as a member of expert panel in the Harmonia competition in 2014). I was also a member of the expert panel in the KOLUMB program of the Polish Science Foundation in 2011. I reviewed one project application for the Estonian Research Council.

Since 2012, I have been a member of the Scientific Council of Educational Research Institute. I am currently in my second term. Since 2013, I have been also a chairperson for Fundacja Ośrodek Badań nad Migracjami [The Migration Research Centre Foundation).

Expert activity and popularisation of science

In my post-doctoral work I was included in various activities as an expert, and also in promoting science in non-academic circles, both abroad and in Poland.

International involvement as an expert

Since 2009, I have been a liaison person in the European network of demographic institutes Population Europe. I am also a member of the network's Board of Advisors (<http://www.population-europe.eu/>). The aim of Population Europe is to disseminate findings of demographic research outside of academia. As part of this work, I took part in preparing the assumptions for the activities of Population Europe network and I co-organised a Population Europe Event in Warsaw. I was a co-author of the Policy Brief.

I was also a member of the Policy Advisory Board in the Multilinks project (FP7). My responsibilities included providing comments to the Policy Briefs' proposals and communicating the project results to non-academic circles. I commented on one of the papers at the final conference.

Within the AGENTA project I was a co-author of the policy brief (<http://www.agenta-project.eu/Jacomo/upload/publications/d-9-6-policy-brief-3.pdf>), I also commented on 2 policy briefs prepared within the project.

Since 2013, I have been a member of the experts' network European Social Policy Network (ESPN) (<http://ec.europa.eu/social/main.jsp?catId=1135&langId=en>) (together with Dr Irena Topińska (CASE) and Dr Agnieszka Sowa (CASE), providing consultancy to the Directorate-General of Employment and Social Policy, under which I prepare reports and studies on technical issues related to the labour market and pension system, as well as short thematic reports. I cooperated and prepared national reports on: provision of support to long-term unemployed, social investment, pensions for people working in special conditions, as well as a short report on raising the retirement age.

Since 2014, I have been a member of the Expert Group on Education, advising Directorate-General of Education on issues relating to activities for education in member states.

Since 2010, together with prof. Ewa Chmielecka, I have represented Poland in the Advisory Group on the European Qualifications Framework. This is a non-formal group created for providing support to the European Commission and European Union in the sphere of qualification framework, dealing, among other things, with the assessment of national reference reports.

I am also a World Bank expert, having performed consultancy on the functioning and reforms of pension systems in Russia, Macedonia, Tajikistan, Ukraine, Montenegro, Moldova, Czech Republic as well as in Eastern Asia and the Pacific region. For the past seven years I have been a lecturer at the Pension Core Course organised by the World Bank, where I teach on issues relating to the functioning of pension systems.



My involvement as an expert in Poland:

As a member of the research team called the Polish Pension Group (PPG-SGH) I participated in expert work for the Economic Chamber of Pension Funds in Poland, analysing the factors determining the functioning of the Polish pension system.

Since 2015, I have been also a part of a team of experts commissioned by the Minister of Science and Higher Education to develop a concept for the monitoring of professional paths of doctoral students and PhD graduates.

I cooperated with the Polish Rectors Foundation (PRF). I took part in the team which prepared a diagnosis of higher education in Poland (published in 2015) under the leadership of prof. Jarosław Górniak. I also participated in the PRF team preparing a concept of studies at the fifth level of the Polish Qualifications Framework.

I was a chairperson for the Consultation Council for the implementation of the Government Programme "Solidarity between generations. Measures to increase economic activity of people aged 50+ "(2015). Previously (2013-2014) I managed a group of experts, commissioned the Minister of Labour and Social Policy to prepare the update for this program. I prepared an expertise within the Family Policy Program of the Republic of Poland "Dobry Klimat dla Rodziny" [Family-friendly climate] (2012).

I was also an expert of the Parliamentary Commission for Family and Social Policy. As commissioned by the Parliamentary Analyses Bureau I prepared two expert opinions for the government bill on the changes of the act on social insurance as well as a few other acts (in 2014), and "The condition of net assets of Open Pension Funds at the end of December 2010 and at the end of 2011, and the evaluation of OFE operations to date". (in 2012).

In 2009-2010, I coordinated research and expert works conducted for the regional monitoring of the labour market in the Świętokrzyskie Province within the project "Od diagnozy do prognozy – potrzeby gospodarki a jakość kapitału ludzkiego w województwie świętokrzyskim" [From the diagnosis to a forecast – the economic needs and the quality of human capital in the Świętokrzyskie Province].

In 2011-2012, I was a feature writer for "My Pension" [Moja Emerytura] service published by the Rzeczpospolita daily.

Within my work as an expert I have also spoken for the television (TVP, TVN Biznes i Świat, Polsat News, TVN 24), radio (m.in. Tok FM, Trójka, Program Pierwszy) and the press (Gazeta Wyborcza, Gazeta Prawna, Rzeczpospolita, Polityka), as well as for the internet websites (Wirtualna Polska). My talks are about the various areas of the pension system, family policy, labour market and education.

6. Teaching

Since I was awarded my doctorate I taught the following university courses:

- **Courses for doctoral students:** part-time PhD level courses in statistics (6 teaching hours) in cooperation with the Central Statistics Office (GUS) in 2015/2016.
- **Postgraduate courses:** teaching Education at the postgraduate course "Social and economic analyses methods", 1st edition (3 teaching hours) in 2015/2016.
- **Courses for undergraduates and MA students** in statistics (classes taught in Polish in the academic years 2010/2011/ 2011/2012/ 2012/2013, 2013/2014, 2014/2015), lectures in pension policy (2012/2013, 2013/2014), lectures in social security (6 teaching hours in



2014/2015, 2015/2016), lecture in health economics (2 teaching hours in 2013/2014, 2014/2015), lectures in social statistics (6 teaching hours in 2012/2013, 2013/2014, 2014/2015, 2015/2016); lecture in Pension Systems (taught in English in 2011/2012), lecture in economic and social policy (15 teaching hours in 2011/2012 i 2012/2013).

I supervised 5 BA and 9 MA theses written at the Warsaw School of Economics. I was also a supervisor of three dissertations written within the postgraduate GUS diploma. I oversaw the work of 4 students of the European Doctoral School of Demography taught at SGH in 2013-2015.

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