18th International Conference on Pension Insurance and Savings

9th and 10th of June, 2022, Rabat, Morocco.

Report[1]

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[1] This event was co-organized by the Université Paris Dauphine-PSL LEDa DIAL, the Euro-Mediterranean Economists Association (EMEA), Paris School of Economics (PSE), NOVA IMS, and Singapour Management University (SMU). SIGMA Alliance researchers took part in this event.
We are very grateful to DIAL (Paris Dauphine), Labex Louis Bachelier, the House of Finance (Paris Dauphine), the Moroccan National Social security scheme (CNSS) for their support. We thank Yeganeh Forouheshfar, Sara Loukili, Morgane Monjour, Lisis De Freitas, and Alanna Irving for their kind help.

The extension of social protection is a top priority in many developing and emerging countries to improve the living conditions of millions of people and to accelerate social and economic inclusion. The pandemic and resulting economic crisis have pushed researchers, policymakers, public institutions, and the private sector to re-think about the organization and implementation of social policy and to develop innovative methods of financing in order to reach inclusive and sustainable economy.

The 18th conference on Pension Insurance and Savings, opened by Najat El Mekkaoui (Université Paris Dauphine-PSL, LEDa DIAL) and Rym Ayadi (Euro-Mediterranean Economists Association), highlighted the importance of well-designed social protection systems in development strategies. Well designed social protection programs can be powerful tools to enhance human capital, productivity and build resilience.

The conference discussed the design of social insurance programmes and the challenges in extending them; the impacts of social protection programs on multidimensional poverty and elderly wellbeing and care; saving behaviour and financial inclusion; and innovative financial resources to fill funding gaps and enhance socio-economic conditions for more inclusive development.

The Design of Social Insurance Programs

According to Nada Eissa (Georgetown University), demographic trends are presenting significant challenges to social insurance programmes. As life expectancy is increasing, the average beneficiary now receives benefits for many years. The design of social protection programmes should incorporate these demographic changes, aiming to be both effective in improving the standard of living of retirees, and financially sustainable in the long term. Developing countries have an advantage because their systems are immature and therefore can be transitioned more easily, and their populations tend to be younger. Moreover, they can use empirical evidence to design programmes, which was not possible for many of the mature programmes in developed countries today.

The challenges for developing countries in designing social insurance programmes include the high level of inequality, the political economy, and cultural norms with regards to reforms. In addition, the demographic trajectory is likely to be similar to that of developed countries and therefore the same problems for financing social protection systems are likely to arise. The design of social protection programmes must take into account who bears the risk burden (individuals or taxpayers in general), intergenerational redistribution, fiscal sustainability, and the specific context of each country, including their demographics and labour market structure. Differences in life expectancy across the population is an important dimension that should also be considered and could be addressed by non-uniform policies for retirement.

Session 1: Welfare and Accumulation

Jim Been (Leiden University) presented a paper on the welfare effects of using home equity (Households' heterogeneous welfare effects of using home equity for life cycle consumption). The paper focuses on retirees aged 65 and over in the Netherlands, which has specific institutional settings including a generous state pension, mandatory occupational pensions, and little out-of-pocket health spending in old age. The lifecycle model used in the paper shows that wealth decumulation in the Netherlands is too slow, meaning that people are over-saving. Liquidating housing wealth can bring consumption forward in the lifecycle, but reverse mortgages have been unpopular. The paper accounts for population-wide heterogeneity and uses administrative data on income and wealth, as well as data on smoothing and time preferences from surveys. The results show that selling a house at state pension age can have some negative welfare effects, whereas keeping the house and borrowing against it over the lifecycle produces welfare gains. The types of households that benefit most are those with more net housing wealth, lower current income, and lower projected pension income. Much of the heterogeneity in welfare gains is explained by heterogeneity in households' income and housing wealth, with heterogeneity in demographics or preferences for consumption smoothing and time having little effect. Bequest motives are also important. It was noted that while reverse mortgages could have the potential to become a fourth pillar in social security, the value of this may not be as high in other countries as it is in the Netherlands, where there is over-saving in illiquid assets, low income uncertainty, and few unexpected health expenses. However, there are several countries with high rates of homeownership and credit-constrained households which could derive benefit from these schemes.

Carlos Madeira presented a paper on the impact of Chilean pension withdrawals during the COVID pandemic (The impact of the Chilean pension withdrawals during the COVID pandemic on the future savings rate). Chile implemented pension withdrawals during the COVID pandemic at a much larger scale than other OECD countries. A substantial amount of funds was removed from individual pension accounts, leaving future contributory pensions at lower levels. The paper studies the implications of these withdrawals for the future savings rate in Chile. Using household expenditure survey data, the paper estimates a simple life cycle model of consumption and savings decisions to simulate the potential impact on the savings rate and pension income of the pension withdrawals implemented in Chile in 2020 and 2021. The paper also studies the effects that different social security reforms, currently under debate in Chile, would have on the savings rate of working age households, and on the pension income of future retirees. The estimated life cycle model shows that pension withdrawals in 2020 and 2021 may reduce the future economy-wide savings rate as many households have expectations of receiving higher public benefits to complement their low contributory pension income. The results also show that increasing the solidarity public benefits rate could cause a decrease in the economy-wide savings rate, while an increase in retirement age would increase the saving rate.

Jorge Bravo discussed an innovative ways to cover old-age income and long-term care service gaps to avoid relying on state-managed social transfers, which many countries will have little or no capacity to provide (Releasing Home Equity to Pay for Long Term Care: A Novel Rent-and-Loan Scheme). As populations age, the demand for long-term care, including medical, nursing, custodial, social and community services is expected to increase. The cost of these services largely exceeds average retirement incomes. The paper proposes a novel Leave-to-Let and Mortgage Equity Release Scheme targeting old-age individuals requiring long-term care, which integrates residential property with long-term care funding while maintaining ownership of the property. The household's main or secondary residence is rented, and the owner moves to an institution or family member. The scheme incorporates a flexible credit line facility to cover income gaps and initial expenses and does not require selling the house. The property owner does not take on any rental market risk and can always repay the loan in full and regain full control of the house. This model is flexible compared to reverse mortgages and equity releases.

Jérôme André discussed longevity risk and asset allocation under the solvency 2 rules (Longevity Risk and Asset Allocation under Solvency 2 regulation). He pointed out a trilemma in European economic policy between risk-based regulation, the wish to develop corporate funding by insurers, and the development of individual retirement savings products. Most regulations in Europe have taken longevity risk into account with specific capital requirements. At the same time, the financial sustainability of pay-as-you-go (PAYG) schemes is challenged by the increase in life expectancy, so governments are putting in place incentives to develop annuity products, as fully-funded complementary retirement products. Solvency capital requirements incorporate both financial risks and insurance risks and consist of value-at-risk calculations to define economic capital and allocate it. The main hypothesis is that insurance companies want to maximise the value of their dividends. For any given solvency capital requirement, the optimal allocations of retirement savings products favour sovereign bonds over corporate securities, compared to traditional life insurance. Without differences in terms of insurance technical margins, retirement annuities products would be less profitable than traditional savings products. The higher the leverage of the insurer, the lower the risk-taking, due to the liability hedging portfolio. The liability hedging portfolio of annuities is mainly composed of government bonds, whereas the liability hedging portfolio of traditional savings is much more balanced. The higher the leverage, the lower the return on equity; most leveraged players should heavily charge the cost of opportunities on retirement savings liabilities. For a low level of retirement savings, equities are preferred to corporate bonds. Regulation reduces the allocation to risky assets in favour of sovereign bonds, reducing the return on equity of insurance companies. Either this cost is billed to the insured, or the insurers do not distribute these annuity products; in both cases, the development of individual retirement savings products is penalised. Developing retirement savings too fast could lead to financing problems for European companies.

Session 2.1: Health

Victoria Szenkurök (Vienna University of Economics and Business) discussed home-based long-term care utilization in Europe (Home-based Long-Term Care Utilization in Europe: Examining Socioeconomic Inequalities and Societal Disparities using a Two-Part Multilevel Regression Model). There is an increasing pressure to reform care systems as the population in Europe is ageing. The paper explains inequalities in the use of home care as an interaction between socioeconomic status and contextual country-level characteristics among older adults (aged 50 and over) in 18 European countries. The method developed is a two-part multilevel decomposition technique based on individual level data on social, material, and human resources and macro-level indicators on the role of institutional arrangements, labour market factors and the generosity of the pension scheme. Four types of situations are distinguished when care is needed: no care, formal care, informal care, and mixed care. Informal care is by far the dominant type of care, but there are substantial differences between countries. Southern and Eastern European countries tend to rely on informal care, while Western and Northern European countries rely more on formal care. There is a strong North-South divide in unmet need for care: in Northern countries, most old adults do not receive care when needed. Results show that socio-economic characteristics determine both the likelihood of having personal care needs in the first place and the choice of care when needed. Wealth and education are associated with a lower likelihood of needing and receiving long-term home care and especially informal care. Social resources (spouse or partner) are positively associated with the use of informal care services. At the country level, the absence of restrictions on the assessment of means for care, financial support in the form of cash-for-care benefits, and generous pensions can mitigate inequalities in the use of care. On the other hand, increase in the share of women in the labour force may reinforce existing inequalities by limiting informal care.

Kaizô Iwakami Beltrão (Escola Brasileira de Administração Pública e de Empresas, Fondação Getulio Vargas) analyzed years of life lost by avoidable deaths for public officials and the general population in Brazil (Years of life lost by avoidable deaths: comparison of public officials with the general population – Brazil). The causes of death give information on the health conditions and give an idea of the different actions that can be promoted at the individual level and at the government level to extend the life of the population. The paper compares recent patters in cause of mortality of Brazilian federal civil servants according to age, educational level and gender to those of the Brazilian population by age and gender. Deaths are separated into preventable causes of death and non-preventable causes of death, and life tables based on estimated mortality rates are used to calculate years of life lost. The comparison made between federal civil servants and the Brazilian population shows a gap linked to different socio-economic conditions between the groups studied. Civil servants pass through a selection process that usually favors the best qualified people in term of education, and better education level is associated with lower mortality levels. The mortality rate associated with ill-defined causes is lower for civil servants, which suggests better access to hospital and laboratory services. The mortality rate associated with external causes is also lower for civil servants. This pattern reflects socio-economic conditions as well as risk factors linked to accidents and violence that are less prevalent among public employees.

Omid Moghadas (Paris Dauphine University – PSL) analyzed loneliness of the elderly and the support of care givers (How professional caregivers help the elderly with loss of autonomy to cope with loneliness). Loneliness is wide-spread among the elderly and is linked to depression, addiction, chronic disease, cardiovascular health and high blood pressure. The paper identifies potential solutions for loneliness in the elderly, and more specifically in the non-autonomous elderly. There are three inevitable ageing trends that make the elderly more vulnerable to social isolation: gradual decrease in social circle, decrease in communication abilities, and loss of autonomy. The paper explores the strategies used by more than 100 caregivers to help the elderly mitigate their loneliness. The analysis results highlight that caregivers develop two approaches to cope with the loneliness of the elderly: an empathetic approach (listening and discussing, play the role of a friend) and a practical approach (setting up activities and distractions). Caregiving agencies can participate in loneliness mitigation by providing facility resources and new communication channels.

Session 2.2: Income

Sara Loukili (Paris Dauphine University - PSL and Bank Al-Magrhib) evaluated women's lifetime income and financial inclusion in rural Morocco (Women's income, saving behavior and moderating role of financial inclusion in rural Morocco). Women lag behind men in access to the labour market, economic and financial inclusion, and educational attainment, all of which affect their income, and translate into even more disparities in retirement years as they accumulate less wealth. They face several barriers to savings including limited decision-making power in the household and lower financial literacy, leading to a lack of financial planning. The paper studies individuals' saving behaviour using quantitative and qualitative data from the Bank Al-Maghrib survey on the financial inclusion of women in rural Morocco, which contains a representative sample of over 2000 women across all age groups and all regions of Morocco. Less than 25% of respondents declare that they have savings, and over 80% of those savings are in cash. The data show that most women use savings to meet emergency or unforeseen expenses, instead of planning for big purchases or retirement savings. A Probit model where the dependent variable is the probability of saving is estimated in the paper. The results show that age is one of the most important motivations for saving. Basic access to any financial service and higher bargaining power within the household increase the probability of saving. Middle-aged individuals save more in interest-sparing instruments compared to younger individuals. Financial literacy, capabilities and resources are needed at a younger age, so that younger savers can also use interest-sparing instruments.

Keivan Diakite (UC Louvain-Lidam) analyzed progressive pension and life expectancy heterogeneity (Progressive Pension Formula and Life Expectancy

Heterogeneity). Many empirical studies have shown a positive relationship between lifetime income and life expectancy at retirement and have demonstrated the influence of wealth disparity on life expectancy. The paper uses proxies to measure socio-economic status, including level of income, kind of work, starting age of career, level of education, and socio-economic classes. Heterogeneity in longevity across socio-economic status does not decrease over time: at all ages, the probability of dying is greater for the poorer than for the richer. Socio-economic heterogeneity in longevity threatens two basic rules of public pension schemes: actuarial fairness, because the rich receive more than expected as they live longer, while the poor receive less than expected, and redistributive function. Postponing the retirement age is a reform often considered to account for longer life expectancy, but it will not solve these issues. The paper considers a defined benefit pension system as well as a stationary demographic framework in which agents are differentiated in terms of salary and life expectancy. The progressive pension model derived links the pension formula to demographic and economic factors, with the immediate result being that the pension is reduced as life expectancy increases. Results show that inter-class and actual fairness can be reached by including progressive factors in the defined benefits calculation.

Seonghoon Kim (Singapore Management University) analyzed consumption responses to income shocks, focusing on lottery winners in Singapore (Consumption Responses to Income Shocks through Lottery Winning). The relationship between income changes and consumption spending is important for understanding fiscal stimulus payments, income replacement programmes and private transfers. A difficulty in isolating the causal impact of income is that income is not randomly assigned and is highly endogenous. Lottery winnings can be used as a quasi-experimental approach to achieving the random assignment of income. The paper uses large-scale household survey data containing information on both lottery prize and ticket spending amounts, as well as rich information on consumption spending and household characteristics. A linear regression model is used to estimate the causal effects of income via lottery winning on household spending. The results show strong consumption responses to a transitory income shock via lottery wins. Consumption responses are stronger among households with stronger liquidity constraints, greater risk aversion, a longer remaining time horizon, and weaker self-control. These results have implications for public policy: fiscal stimulus policies and other public transitory and unexpected income transfers programs could effectively boost the consumption spending of recipients in the short run.

Myriam Lanotte (UC Louvain-Lidam) focused her research on pension tracking systems and their ability to engage with young people (Young people and Pension tracking systems). The paper undertakes qualitative research in the form of in-depth interviews to discover the needs and expectations of young people with regards to pension tracking systems. The aim is to provide insights to achieve a more effective design in terms of engaging interest and commitment to pension saving. The results show that needs and expectations depend on people's specific situations, including their digital and financial contexts. Issues identified include complex structures, non-intuitive navigation, poor visibility of buttons and links, inappropriate or insignificant fonts and colours, misleading titles and labels, repetition of information or information irrelevant to the user. However, there is a high level of confidence in the information because the platform is under the responsibility of the public authorities. The paper concludes that pension tracking systems need to be visually harmonised, offer decision support and simulations, and be adjusted to the user. Results did not vary across age, language, or level of education. It was noted that this research is specific to Belgium, and that while expansion to other countries would be useful, the approach would have to be adapted to different pension systems.

Plenary session 1: Funding gaps in social protection: perspective for Mediterranean and African countries in light of the COVID-19 and beyond

Rym Ayadi (Euro-Mediterranean Economists Association) emphasized the serious implications of the COVID pandemic and the war in Ukraine on inequality in Mediterranean and African countries. Countries have responded to the crises differently according to their operational and capacity capabilities and constraints.

This presents an opportunity to learn who should be targeted by policy responses, how, and through which channels. Increasing inflation and low growth rates are causing stagflation scenarios and require a re-thinking of what is meant by safety net, and of what perquisites are needed for safety nets to be effective, such as strong institutions and good governance. The informal sector, which is important in term of social value, needs to be formalized and given access to social security mechanisms. Another way forward could be social businesses, where the focus is moved away from efficiency and maximizing profits and towards resilience. Government-private sector partnerships should also become more explicit.

Parul Seth Khanna from Pinbox solutions noted the large adverse impact on replacement rates and replacement values of the premature withdrawals of pension savings to meet needs during the pandemic, and the great concern for informal, self-employed and un-salaried workers, which are a very heterogeneous group in terms of income level and social class. Insufficient saving leaves a large proportion of the population vulnerable to shocks and lifecycle risks. She also presented Pinbox, a digital micro-pension for non-salaried women and young people in Asia, Africa and Latin America, which offers the social protections normally unattainable for un-salaried workers. She pointed out that women are more vulnerable to old-age poverty, as they are likely to outlive their husbands and are less able to save due to lower levels of education and financial inclusion. The costs of administration and delivery are almost prohibitive for the private sector to be able to offer income security for women.

Plenary session 2: Better investing

Yasser Mounsif (Autorité Marocaine du Marché des Capitaux, AMMC) noted that better investing is about channeling financial resources to enhance the environmental and socio-economic conditions for more inclusive development and social justice. Better investing can be achieved through three avenues: investors targeting positive impact (Environmental, Social, and Governance – ESG – considerations are key aspects), available initiatives, and an enabling environment. The difficult part is to create synergy between these avenues.

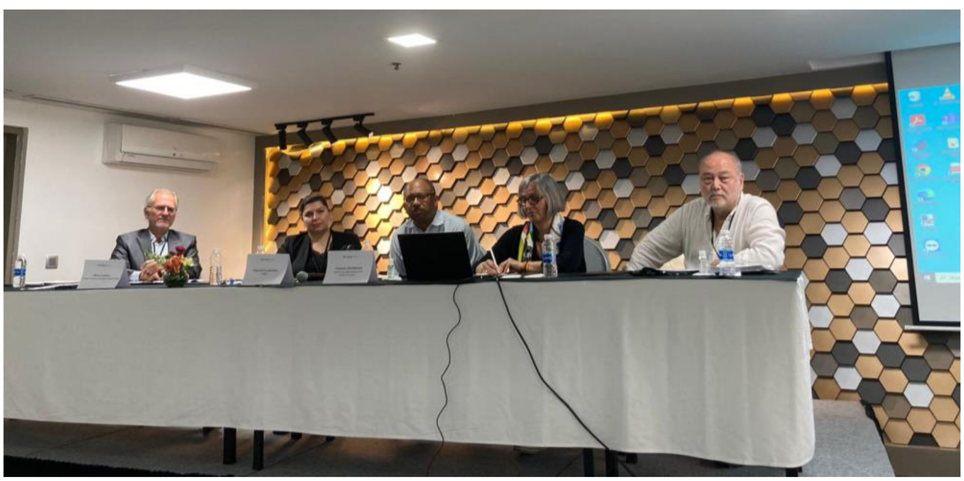
Olivier Lamber, a former country manager from the World Bank, noted than when discussing pensions and reforms there are two main dimensions that should be considered. The first is about adequacy, affordability and equitability of the system, and the second is about savings mobilization. In this respect, green bonds and public-private partnerships (PPPs) need to be supported.

It is important to provide a common framework to implement PPPs, to provide governments with a reference guide, and to make sure that the partnership is used for the right purposes. International financial institutions have come together to provide a reference guide, with the goal of engaging all stakeholders to make PPPs work and to ensure that they can be funded through multiple types of instruments such as project bonds, which are an alternative to banking debt. Supporting economic reforms and PPPs need to be linked with sectorial reforms and a truly enabling environment.

Bernard Casey from SOCial ECONomic RESearch focused on the role of retirement funds. First, they play a role in development by promoting capital markets, providing funds for growth and investment in infrastructure. Secondly, pension funds have also a role as providers of retirement benefits.

Session 3.1: Social protection

Touhami Abdelkhalek (University Mohammed VI Polytechnique) analyzed the impacts of social protection programs on multidimensional poverty (Impact of social protection programs on multidimensional poverty: new targeting approaches and application to Morocco). The impact analysis of public policies to fight poverty often considers a measure of monetary poverty, but social protection programs mainly target non-monetary dimensions. The article develops two new methodologies to approach the impact of the reform of the social protection system in Morocco on multidimensional poverty, which is measured by the Multidimensional Poverty Index (MPI) initially developed by the Oxford Poverty and Human Development Initiative (OPHI). The two approaches are distinguished by their mechanism for targeting beneficiaries. The first method consists of randomly selecting households from among those that were initially deprived on one or more of the indicators of interest and that are no longer in a situation of deprivation for these indicators because of social protection measures. In the second, more objective approach, which is based on a probabilistic model, households who have changed from deprived to non-deprived status are selected from those who have the highest probability of benefitting from social protection measures. In the empirical part of the paper, three reform scenarios targeting health and education indicators are selected and survey data are analyzed. The results show that the three simulated reforms have a positive effect on multidimensional poverty measures, regardless of the approach used, and that at the methodological level, targeting by objective identification is not necessarily superior to random targeting in this context.

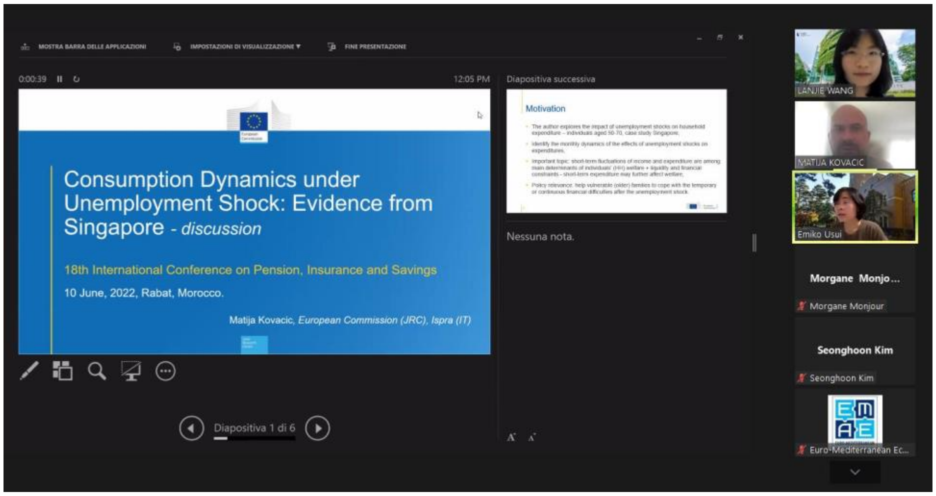


Kaizô Iwakami Beltrão (Escola Brasileira de Administração Pública e de Empresas, Fondação Getulio Vargas) presented an overview of the Brazilian pension system. Starting with a brief historical overview of the Brazilian Social Security System, he presented the evolution of the Brazilian labour force (with respect to occupational and social insurance status) further disaggregated by urban/rural conditions between 1995 and 2019. He continued by demonstrating a projection of future beneficiaries of the system under the present regulations and discussed a series of alternatives and changes in the current scheme and their impact on both the solvency of the system and individuals' benefits.

Yeganeh Forouheshfar from the Euro-Mediterranean Economists Association analyzed social security coverage and informal workers in Tunisia (Social security coverage and informal workers in Tunisia). Extending social security coverage to the informal sector is crucial in Tunisia as informality is highly prevalent, limiting access to social safety nets for a large share of the population. The paper analyzes challenges in extending of social protection to informal workers by focusing on the main characteristics of these types of workers and on informal workers who have transitioned to the formal sector. In the paper, informality is defined as not being affiliated to a Tunisian social security scheme. Using household surveys, a Probit model is estimated to identify the main socio-economic factors that may affect informality. The results show that the main factors affecting informality are age, type of work, educational attainment, region and workplace. The characteristics of workers who have transitioned to the formal sector are also analyzed using a Probit estimation. The results show a positive impact of being illiterate on remaining informal and a negative impact of secondary and tertiary education on remaining informal. A multinomial Logit model is also estimated to identify the probability of individuals to belong to one of the following three categories: those who have transitioned to the formal sector, those who have repeatedly changed status, and those who remain informal. The results show that older individuals, people living in urban areas, and more highly educated individuals are more likely to transition to the formal sector. There a several possible ways to extend social protection programs in Tunisia including dissociating access to social insurance programs from employment contracts.

Session 3.2: Elderly Wellbeing

Lanjie Wang (Singapore Management University) presented research on the dynamic impacts of unemployment on spending (Dynamic impacts of unemployment on spending: evidence from Singapore). Ageing is a key demographic challenge in many Asian countries, and unemployment of older individuals affects household spending and welfare via income shocks. The paper assesses the economic impact of unemployment on older individuals (aged 50 to 70), particularly on their expenditure, using high-frequency panel data. The effects of unemployment on total spending, and spending on durable goods, non-durable goods, visible goods and health are estimated using an event study design. The results show that the expenditure level sharply decreases after the shock caused by unemployment, and that the family health expenditure is strongly affected. The sustained impact of the unemployment shock lasts for more than one year, and non-durable goods spending is mainly affected in the long run. The long-run impact of female unemployment on income is greater than the long-run impact of male unemployment. A policy implication could be to set up better benefits for unemployed women. More generally, policies helping older adults to cope with temporary or continuous financial difficulties after unemployment are relevant.



Emiko Usui (Hitotsubashi University) analyzed pension expectations and household portfolio choice of the elderly in Japan (Pension Expectations and Household Porfolio Choice of the Elderly in Japan). The paper examines the determinants of the household portfolio choice of people aged 55 to 75 in Japan using survey data on health and retirement. Evidence from Japan is compared with the United States. Descriptive statistics show that, in Japan, the elderly are less likely to invest in stocks, and that age does not impact the share of stocks and bonds within a person's portfolio. In the United States, when people get older, their share of bonds increases, but this pattern is not observed in Japan, where most of the financial wealth of the elderly is held in savings. The effects of personal characteristics on the holdings of savings, bonds and stocks are also estimated: results show that more educated people with greater financial wealth and real estate, better maths skills and higher probability of survival until age 85 are more likely to hold stocks in Japan. The relationship between pension expectations and household portfolio choice is also investigated: among those who hold stocks, people who expect a greater decline in future public pension benefits reduce their stock share in financial assets. The prospect of future decline in public pension benefits reduces expected fixed pension income and induces people to invest in less risky assets.

Matija Kovacic (Joint Research Centre of the European Commission in Ispra) focused her research on the role of cultural heritage and relationship quality in the loneliness and health of older adults (Loneliness and health of older adults: The role of cultural heritage and relationship quality). Loneliness is widely recognized as an important public health issue, associated with a higher risk of depression, suicidal ideation and cardiovascular disease. It is also an economic problem implying healthcare expenditure, loss of productivity and low job satisfaction. The main issue in identifying the effect of loneliness on health is endogeneity due to reverse causality. The causal impact of loneliness on a variety of physical and mental health related measures across European countries is estimated using an exogenous proxy of loneliness. Specific cultural traits are used as an instrument for individual self-declared loneliness, as cultural background affects an individual's experience of perceived loniness and the quantity and perceived quality of relationships. Individuals with stronger cultural backgrounds expressed more positive cognitive evaluation of their life and, on average, were less likely to feel lonely. Once reverse causality is taken into account, the effect of loneliness on health is stronger. The results also show that relationship quality matters more than relationship quantity.

Plenary session 3: The challenges in extending social protection in emerging and developing countries

Najat El Mekkaoui (Paris Dauphine University – PSL LEDa DIAL) underlined that in less than a decade, social protection programs and the expansion of safety nets have become a central component of development strategies to fight poverty and protect vulnerable households from the increasing number of shocks related to disasters such as droughts, floods, epidemics and diseases.

A large number of systems were initially created to meet the income replacement, insurance and redistribution needs of insured workers. The objectives have evolved significantly in recent years, and social protection now aims to ensure that everyone can have access to at least basic social protection as a fundamental human right in line with the United Nations Sustainable Development Goals for 2030. Coverage is increasing but is still limited in many countries. Funding for social safety net programs remains a challenge. In most developing countries, the funding schemes for existing social safety net programs are not adequate to sustain the programs. It is also crucial to improve the effectiveness and efficiency of social protection programs and to reduce the high administrative and operational costs, for example through better targeting and the use of technology.
Strengthening tax systems is the most sustainable option for financing large-scale and sustainable social safety nets, but domestic revenues are unlikely to provide all the funds needed. Therefore, governments need to find alternative sources of funding. They could explore innovative financing options such as Development Impact Bonds, which allow private investors to finance social protection programs. Diaspora Bonds could also channel private remittances towards development goals.

Reda Benamar (Caisse Nationale de Sécurité Sociale, CNSS, Morocco) presented the medical coverage system for private sector employees in Morocco and the strategy adopted by the country for 2021-2025 to extend social protection. The extension of social protection regimes is at the core of Morocco's new economic development model. First, medical coverage will be extended, followed by family allowances. In a third step, pension coverage will be extended for the working population and unemployment benefits will be generalized. As a result, social protection coverage will continue to increase in the coming years in Morocco in an attempt to better protect vulnerable households.

Session 4.1: Financing

Maria Mercedes Claramunt Bielsa (University of Barcelona) presented an evaluation on reverse mortgage and financial sustainability (Reverse mortgage and financial sustainability). The paper analyzes the effects of contracting a reverse mortgage on the finances of families when individuals aged 65 or older are the sole owners of 100% of the property. The theoretical model includes randomness in mortality and in the dependence of family members, as well as the temporal evolution of family income and expenses. The paper defines a theoretical model with a focus on individuals who are 65 or above and own 100% of their property. The model analyses the effects of contracting a reverse mortgage on the finances of families in a country or a specific group. The model includes randomness in mortality, dependency of family members, and the temporal evolution of family income and expenses. The paper adapts the model to the Spanish legal framework for retirement, long-term care benefits and Spanish actuarial mortality, and uses survey data to estimate the impact of contracting a reverse mortgage on the finances of Spanish families over time. The results indicate that a family in Spain that meets the conditions for contracting a reverse mortgage sees, on average, an increase in its initial income and a decrease in both its probability of having liquidity problems in the future, and in the value of this lack of liquidity. It is also concluded that family composition influences the magnitude of these positive effects.

Richard Fullmer (Nuova Longevita Research) presented an analysis of a lifetime retirement income solution for the Chilean pension system (A Sustainable, Variable Lifetime Retirement Income Solution for the Chilean Pension System). The paper proposes a solution to address increased longevity and longevity risk, namely to develop a sustainable, variable lifetime retirement income. The idea is based on the tontine principle, in which longevity risks are shared among the participants rather than transferred to an insurer. There is no guaranteed level of income, which distinguishes the solution from Chilean annuities. The model derived in the paper uses a Monte Carlo simulation to model individual member accounts and outcomes by randomly selecting members from a population, randomly selecting their death dates using mortality tables, and randomly selecting investment returns from a distribution. The retirement income proposal for the Chilean pension system developed in this paper would be more flexible, more cost-efficient than increasing the take-up of annuities, and more suited to satisfy the needs and preferences of members. It does not distort the annuity market but complements it and provides a means to offer a form of longevity insurance even if insurers are unwilling to supply it. Moreover, it is in line with the transition of many countries to include tontine-like longevity risk-sharing in their defined-contribution designs.

Luís Teles Morais (Nova University) analyzed the link between ageing, public finances and immigration (Aging, public finance and generational inequalities: can immigration save the day?) In Europe, population ageing and the transition of the large "baby boomer" cohorts from working age to retirement is a challenge for the sustainability of public finances. This trend can have considerable distributional implications as the burden may be shared unevenly between generations. The paper assesses the potential of migration policy in mitigating the impact of ageing on public finances, with a focus on the case of Portugal, where population ageing is a serious issue. First, the paper provides an integrated assessment of the impact of ageing on fiscal balances considering the full extent of government budget. The results show that without any change of the age profile of population tax rates, contributions, and benefits, a permanent tax increase of 13.9% would be needed to ensure fiscal sustainability. Second, using survey data on the budget and the current age structure of the population, together with population forecasts, the paper investigates the potential of scenarios with higher migration to change the fiscal impact of ageing. The results show that migration policies cannot make the fiscal burden of ageing vanish, but can mitigate its impact. Policies boosting immigration could help significantly in dealing with the demographic transition and could reduce generational imbalances.

Session 4.2: Pension reform

Zsuzsa Munkacsi (International Monetary Fund) analyzed the cost of pension reform reversals (A framework for assessing the Costs of Pension Reform Reversals). While old-age dependency ratio is increasing across advanced economies, several countries are considering reversing parts of the pension reforms that were previously adopted, in order to improve sustainability. There have been recent pension reform reversals in Europe, including in Germany and Slovakia, which are taken as case studies in the paper. The paper quantifies the fiscal and macroeconomic costs of pension reform reversals by integrating the country-specific information from the latest Ageing Report published by the European Commission into a dynamic general equilibrium with overlapping generations (model OGRE). The results show that in spite of the already-implemented pension reforms, ageing still implies an increase in public debt. Undoing past reforms would generate substantial adverse macroeconomic costs and could put fiscal sustainability in jeopardy. Additional pension reform would need to take into account debt pressure and the macroeconomic impact of any such measures. Reform packages that consist of various pension reform measures can help to spread the burden more equally across generations.

Arno Baurin (UC Louvain) offered an evaluation of the intergenerational consequences of pension reforms (Intergenerational consequences of pension reforms: Tensions between democracy and equality). The paper explores how the costs of pension reforms could be shared across different generations. Pension reforms involve changing the accrual rate (the rate at which pension benefit is built up for each year of work) or the indexation rate (the rate at which pension benefit is tied to the nominal wage growth). The paper analyzes the distributional effect of adjusting pension benefit via the accrual rate and the indexation rate in Belgium for all existing cohorts in 2020. The effects of long-term budget balancing reforms are simulated. In survey responses, 80% of the population preferred accrual over indexation reforms, which implies that the youngest half of the population would bear 85% of the total adjustment cost: there is a tension between democracy and equality.

Petar Jevtic (Arizona State University) analyzed the link between space, mortality and economic growth (Space, Mortality and Economic Growth). Previous literature modeling mortality focuses on factor-based approaches, but little attention has been given to models of mortality that take patterns across space into account. The paper extends the seminal factor-based stochastic mortality (Li & Lee, 2005) to include spatial patterns. More specifically, the analysis focuses on the effects of the economic growth captured by the GDP and of the mortality of contiguous states in the United States. The results show that structural inequalities in economic growth across the states of the United States and spatial effects help model longevity risk. This research provides a starting point for more localized studies of mortality.