

# Intereconomics

## Review of European Economic Policy

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# The Pandemic Requires a Coordinated Global Economic Response

Global pandemics are costly for many reasons. First and foremost, for their death toll and, more generally, for health and social reasons. The second reason is economic. I will focus on the latter given my field of expertise.

The economic impact of a pandemic depends upon the way it is tackled both from a health and an economic perspective. Regarding the former, strategies to deal with pandemics are mainly twofold, with two different economic outcomes. The first, mitigation, focuses on slowing but not necessarily stopping the spread of the virus, with the objective of reducing peak healthcare demand while protecting those most at risk. The second, suppression, aims at reversing the epidemic growth but with the risk of a rebound any time the suppression measures are lifted. The first is bound to last longer but have less intense social and economic consequences. The second should be faster but also carries extreme economic consequences, not only due to vanishing demand but also collapsing supply. The hope, though, is that the economy can recover more quickly as long as there is no pick up in the number of cases. It should be noted that a pandemic tends to have a timeframe of 18 months, until a vaccine becomes available.

Before moving to the economic policy responses to the pandemic depending on the disease containment response given (mitigation or suppression), it seems important to understand how different the economic consequences may be. Mitigation, being a longer but less abrupt strategy, should have a negative impact on demand but less so on supply as the population will not be fully locked down. In other words, depression (deflation and recession) is the most likely economic outcome. If a government chooses to suppress the pandemic, as China did, especially in Hubei province, the supply shock might be greater, as most tasks requiring physical presence cannot be performed in a full lockdown. Within that context, stagflation (high inflation and recession) is the most likely scenario.

The response to depression is well known as the Keynesian policies that were introduced after the Great Depression were widely reviewed in standard economic textbooks. Massive fiscal stimulus is the key with the help of central banks and international policy coordination to avoid beggar-thy-neighbour policies. In the case of stagflation, central banks have their hands tied due to inflation pressures. Most importantly, supply-side policies are needed to increase the supply. While these differences in policies are relevant, it seems clear to me that the overall global shock is depression as panic in financial markets has contributed to the lack of demand from consumers and investment plans by corporations. More importantly, the world is much more integrated than in the late 1920s at the time of the Great Depression, which means that international cooperation is absolutely essential to address the hugely negative economic impact of a pandemic.

While international cooperation is, by nature, necessary during a global shock like a pandemic, policymakers have increasingly been unwilling to cooperate on global issues. A number of examples come to mind, from the demise of the World Trade Organization to the US-led trade war against China and, to a lesser extent, against the European Union. International policy cooperation is needed to increase the effectiveness of expansionary monetary and fiscal policies carried out at the national level and to avoid beggar-thy-neighbour poli-

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cies, such as competitive devaluations. Beyond its general usefulness, international policy cooperation is even more essential than in 2008 for a number of reasons. First, the shock to the real economy is bound to be bigger than that of the global financial crisis given the number of countries directly affected. Second, it hits the heart of the real economy, namely companies' cashflows as well as households' income. This damage will soon be extended through companies' inability to repay banks' balance sheets, worsening asset quality and solvency at a time when banks' regulatory constraints are much tougher than in 2008. Third, the non-banking part of the financial system has become huge and lacks direct access to central bank liquidity. Fourth, the global financial system is even more interrelated than in the past. In fact, the stock of foreign direct investment and portfolio flows had continued to increase and we are now seeing huge outflows from emerging economies. Finally, risky assets are a bigger asset class than in 2008, not only in the developed world with the huge surge in high yield credit but also those from emerging and frontier economies.

The reality is that no single central bank or government alone can pacify markets and get the crisis under control. In fact, if economic leaders continue to act at a national level, as has been the case for the past few weeks, there is a risk of a race to the bottom and beggar-thy-neighbour policies. This goes beyond the usual financial variables all the way to medical equipment – which is also uncoordinated. Export controls of necessary medical supplies are to be avoided. Leaders should discuss how to pool their capacities and work together to stem the health crisis. But beyond that, bold economic steps are needed. Within that context, here are some takes of the key aspects needed as regards monetary cooperation.

First, monetary policy coordination must go beyond a series of rate cuts and quantitative programs by individual central banks. There is an increasing shortage of US dollars in international financial markets, which was one of the key reasons for the defaults of major financial institutions in 2008. To prevent the current pandemic from becoming a full-fledged global financial crisis, dollar liquidity needs to be granted cross-border. To that end, the existing swap lines that the US Federal Reserve has kept with major central banks since the global financial crisis (European Central Bank, Bank of Japan, Bank of Canada, Bank of England and Swiss National Bank) need to be expanded and made even cheaper and longer in maturity. In addition, central banks in the emerging world desperately need the dollar liquidity that the Fed or the International Monetary Fund will need to extend.

Second, dislocations in foreign exchange markets are increasing the odds of the collapse of a major financial institution – harkening back to 2008. Furthermore, large swings in oil markets only make this situation more dangerous. In particular, financial institutions outside the G7 are vulnerable since they do not have access to the same kind of refinancing facilities but desperately need hard currency. All in all, coordinated forex intervention should be high on the agenda of international policy coordination. This will also help avoid beggar-thy-neighbour actions.

Third, fiscal policy is key to providing liquidity to corporates and households in a scenario of depression, as Keynes pointed out. A coordinated fiscal stimulus is needed to reduce the risk of free riding. It is crucial therefore that national fiscal authorities – in a coordinated manner – provide much-needed relief to vulnerable individuals and the entire corporate sector, for example, by taking over part of the social security payments that companies pay, as well as mortgages for households. In situations like this, it is best that the government insures the economy. The cost of that insurance will be passed to all tax payers later on in one way or another; however, this is not the time to discuss the end of the crisis but how to end it.

All in all, the COVID-19 pandemic is a symmetric global shock that equates to vanishing demand globally – with instances of a negative supply shock and, thus, shortages, for some sectors, especially in countries following suppression strategies. Such shock requires fiscal and monetary stimulus in a coordinated manner. There is no time to lose.

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# The Cost of Growing Older: Challenges for European Pension Systems

Pension reform has been on the agendas of many European policymakers for the better part of the last three decades. While some EU countries have made sweeping reforms several years ago, others are currently in the process. Undoubtedly, most will need to re-evaluate their systems due to the coronavirus crisis, at least temporarily. With Europe's ageing populations, declining fertility rates and increasing life expectancy, the associated rise in the old-age dependency ratio puts strain on unfunded, pay-as-you-go pension systems. This implicit pension debt has important macroeconomic implications. Often politically controversial and subject to intense policy debate, pension reforms may reduce entitlements for some demographic groups of the population. This has led to widespread public dissatisfaction among the affected groups. It is necessary to look at a country's history and key features of its pension system in order to understand the related policy discussion. This Forum analyses the effects of different pension arrangements – with a focus on the challenges, history and demographics of Finland, France, Germany and Italy – on labour markets, on national growth, and on the distribution of burdens and benefits.

## Pension Systems in the EU – Some Policy Issues

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## Lessons From Italy: A Good Pension System Needs an Effective Broader Social Policy Framework

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## Towards a Universal Pension Points System in France

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## They Will Definitely Need Us, When We Are 64: Old-Age Provision in Germany

**Martin Werding**, Ruhr-University Bochum; and CESifo Research Network, Munich, Germany.

## The Finnish Pension System and Its Future Challenges

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Mikkel Barslund\*

## Pension Systems in the EU – Some Policy Issues

Pension reform has been a staple ingredient in economic and social policy-making in most European countries over the past three decades. Some countries, such as Italy, enacted sweeping reforms as far back as the 1990s, whereas others are still in the process of comprehensive pension reform (France). Population ageing – leaving relatively fewer people of working age to support pensioners and occurring with varying speed in different countries – has been the most important catalyst for reforms. Pension reforms have often been politically controversial and subject to intense political debate and public dissatisfaction.<sup>1</sup> Changes to pension rules often affect a large part of the population and due to the demographic situation most often involve a reduction in entitlements; hence large groups of the electorate can be mobilised. France is the proverbial example of this, with massive strikes over proposed pension reforms occurring once or twice a decade, most recently in 2019. Reforms in Italy following the financial crisis also led to widespread social dissatisfaction.

There are two main dimensions to pension policy: a public finance dimension and a broader social policy dimension. In the face of population ageing, the critical public finance issue is that of sustainability. In Europe, most pension systems have a (substantial) pay-as-you-go (PAYG) element – current pensions are in part financed by taxes levied on current workers. Securing public finance sustainability as the population ages comes down to a combination of increasing the effective retirement age and lowering the average pension amount paid out per person (Valkonen and Barslund, 2019). The social policy dimension is primarily about redistribution within the pension

system, ensuring an adequate pension is available to all and setting the age at which one can draw a pension. The contributions to this Forum illustrate these elements well.

Franco and Tommasino (2020) trace the history of Italian pension reforms, starting from the overhaul in 1992, which addressed severe financial unsustainability and a fragmented pension system, and through subsequent adjustments. They then look at the outcomes in terms of labour market participation of older workers, financial sustainability, pension adequacy and supplementary private pension savings. Their overall assessment of the Italian pension system is (mildly) positive, though spending on pensions as a percentage of GDP will outpace that of other eurozone countries. As they discuss, the system is not without challenges, some of which are common to other countries' pension systems. In particular, they take up the issue of pension coverage of non-standard workers, a category of employees predicted to increase in the future (OECD, 2019a).

The French pension reform proposal, currently going through legislation and social partner deliberation, is covered in great detail in this issue by Boulhol (2020). As with the Italian case, financial sustainability and simplification of a fragmented pension system are important objectives. Employees in France are covered by a multitude of different pension schemes with varying rules on pension entitlements. The latter limits both transparency and job mobility that requires a change in the pension scheme. It also creates inequalities concerning pension entitlements for otherwise identical career trajectories and life time earnings profiles. These issues are, to some extent, addressed in the new proposal, and Boulhol discusses some ideas for further desirable improvement.

Valkonen, in his succinct description of the Finnish pension system, attributes its relative success in terms of fiscal sustainability and coverage to a “capacity to make extensive reforms when required” (2020, 92). Besides, the Finnish system has an automatic sustainability stabiliser linking the pension age to life expectancy – a feature now available in a number of EU countries including in the Italian system as well as the current reform proposal for the French pension system. Valkonen then goes on to discuss the implications of potential challenges to the Finnish pension system and pension systems in general. Like Franco and Tommasino, he touches on life expectancies among socio-economic groups and changes in the struc-

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<sup>1</sup> See Verbič (2019) for a discussion of the political economy of pension reforms and an overview of number of reforms since 1970 in EU countries and beyond.

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ture of labour markets. In Finland, a recent reduction in fertility challenges the long-term financial sustainability of the pension system and Valkonen outlines potential options for adjustments.

Werdning (2020), writing about ageing and the pension system in Germany, assesses that the current system is financially viable until around 2025, after which the effective retirement age will have to increase or pension entitlements must be reduced. A government commission is currently mulling over further reforms. One issue is that private – so-called third pillar – pension savings are not delivering the desired results. This is mainly due to low uptake and regulation that limits investment in equity. Werdning argues that an expansion of occupational – second pillar – plans may be a promising path forward.

### Financial sustainability of public pensions in a European perspective

All four contributions illustrate that when it comes to ensuring the financial sustainability of pension systems, EU countries have come a long way over the past two decades. Ageing populations will lead to only a moderate overall increase in pension expenditures as a percentage of GDP towards 2040, as seen by comparing the lines from the 2015 and 2018 Ageing Reports (Figure 1). Contrast this with the first European Commission report in 2001.

The main drivers of this development have been cross-country decreases in the average pension paid out relative to average country wages (the pension benefit ratio) and a substantial (expected) increase in the future effective retirement age. The increase in effective retirement is a function of a reduction in early retirement options and other pathways to early retirement, as well as an increase in the statutory pension age in most countries (Nordheim, 2016).

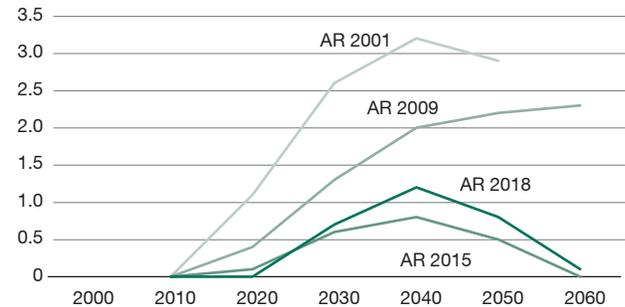
This article discusses in brief two themes – touched upon in one or more of the articles in this Forum – of importance to current and future pension policy, namely differences in life expectancies and the issue of means testing of pension benefits and associated high implicit marginal tax rates.

### The challenge of socio-economic differences in life expectancy

It is well established that there are (substantial) differences in average life expectancy among groups with different socio-economic status in most EU countries. While there is no one set definition of socio-economic status, one

**Figure 1**  
**Projected changes in pension expenditures in EU countries**

% of GDP



Note: AR 2018 refers the 2018 Ageing Report, AR 2015 to the equivalent 2015 report and so forth.

Source: Author's own elaboration based on the following primary sources: European Commission (2001), *Budgetary challenges posed by population ageing: the impact on public spending on pensions, health, and long-term care for the elderly and possible indicators of the long-term sustainability of public finances*, EPC/ECFIN/655/01-EN final; European Commission (2009), 2009 Ageing Report: Economic and budgetary projections for the EU-27 Member States (2008-2060), *European Economy*, 2; European Commission (2015), The 2015 Ageing Report – Economic and budgetary projections for the 28 EU Member States (2013-2060), *European Economy*, 3; European Commission (2018), The 2018 Ageing Report: Economic and Budgetary Projections for the EU Member States (2016-2070), *Institutional Paper*, 079.

approximation is to consider groups of people based on their educational attainment. Mosquera et al. (2019) did a structured literature survey of studies analysing differences in life expectancy at age 50 for EU countries. They found that differences in remaining life expectancy at age 50 between individuals with low (ISCED 0-2) and high (ISCED 5-8) educational attainment range from 1.6 years in Finland for women to 11.3 years in Estonia for men. Though these differences in life expectancy and health do not seem to be increasing, there is also no evidence that demonstrates that attempts to reduce socio-economic inequalities over the last two decades have been particularly successful (Mackenbach et al., 2016; Barslund and Ludolph, forthcoming).

To what extent a pension system can be judged fair given structural differences in life expectancy across socio-economic groups is not straightforward and will depend on the exact design of the system and other social policies in place, and how these policies interact with the pension system. However, as pointed out by Franco and Tommasino (2020), if there is a tight link between labour market performance and the accumulation of pension rights (as, for example, in the Italian points-based sys-

tem), converting these rights into pension annuities based on a population-wide estimate of life expectancy will short-change groups of individuals with lower than average life expectancy.<sup>2</sup>

Heterogeneity in mortality rates also has a bearing on the calculation of pension adjustments in pension systems that allow for some flexibility in retirement relative to a ‘target’ pension age, including where flexible retirement is allowed only after the target age.<sup>3</sup> Postponing retirement beyond the target age increases future pension payouts in an actuarially fair manner, on average. Average life expectancy is the basis of this calculation. If a group of people have a shorter life expectancy than the population average, the pension adjustment for this group of people will be less than their shorter life expectancy warranted on strictly actuarial terms. Similar arguments can be put forward regarding a statutory pension age differentiated by differences in group life expectancy.

While it is clear that there are arguments in favour of taking group-specific mortality rates and life expectancies into account in the pension system design, it is much less clear whether such an approach is practically feasible. There is also the question of why this approach should be limited to the pension system, and not also, say, to health care usage or unemployment benefits, where there may also be population group differences in average usage.

An important aspect often missing in the discussion of group differences in mortality and health is that while there can be substantial differences in group *means*, the *distributions* of outcomes may have considerable overlaps. To illustrate this, consider the distribution of the number of chronic diseases for individuals aged 60-64 in EU countries by educational attainment (Figure 2).<sup>4</sup> The difference in means is visible; however, it is also shown that a significant share of people with low educational attainment have better health outcomes than many people with high educational attainment.

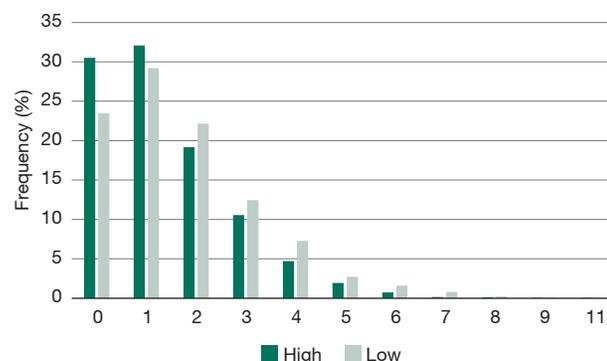
The implication is that using educational attainment (or other broad socio-economic measures) is likely to be a

2 For a specific discussion of the Italian system see also Holzmann et al. (2020). For a numerical example of how large the difference can be in monetary terms between equal or differentiated mortality rates, see Knell (2019). See also the discussion in Valkonen (2020).

3 See Valkonen (2020) for Finland and Boulhol (2020) for France.

4 Data on the distribution of life expectancy outcomes would have been preferred, but by its nature such data comes with a large temporal lag. Subjective health correlates with objective health indicators, which again at older ages correlates with mortality. See Miilunpalo et al. (1997).

Figure 2  
Number of chronic diseases by educational attainment in EU countries among 60-64 year olds



Note: ‘High’ and ‘low’ refer to high educational attainment (ISCED 3+) and low educational attainment (ISCED 0-2) respectively.

Source: SHARE data wave 6, pooled sample for the countries AT, DE, SE, ES, IT, FR, DK, GR, BE, CZ, PL, PT, SI and HR.

very imprecise instrument to target differences in life expectancy and will probably introduce other inequalities as a result. Individual targeting and assessments of working capacity are alternative instruments to address health and associated mortality inequalities.

### Means testing of pension benefits and high implicit marginal tax rates

Means testing of pension benefits occurs when eligibility for a given pension benefit is subject to a test of other income or asset resources (means) available to the individual or the household. Means testing is often applied when a minimum or basic pension benefit is in place to avoid old-age poverty, but has also been suggested as a means to reduce the costs of universal pension benefits (Cumbo, 2017). As a social policy instrument, means testing is cost effective in reaching targeted groups. However, it can have adverse behavioural effects and in the context of (private) pension savings can introduce very high implicit marginal tax rates (Sefton et al., 2008) when the means tested benefit is tapered off as own resources increase. As an example, consider an individual close to retirement age with a labour market career of low wage employment and with many interruptions. This person may not, through the pension system in place, reach the minimum basic pension as he retires. He will therefore qualify for the means tested minimum pension once retiring. But, this also implies that any additional pension savings done before retirement (and which are included in the resources that the basic pension is means tested against) faces

an *additional* implicit tax equal to the means tested basic pension benefit foregone as a result of the extra pension savings done prior to retirement.

In general, means testing can distort behaviour when it comes to decisions on how much to save (accumulate resources), and which assets to save in (which resources to accumulate) if not all assets are part of the means testing. A further complication is that means testing rules can be complex and not straightforward. This has the advantage of limiting distortive behaviour (as individuals cannot react to the adverse incentives), but may on the other hand lead to poor savings management by disadvantaged groups.

Means testing is prevalent in most EU countries (OECD, 2019b). It primarily affects asset-poor people, but in some instances can affect a larger share of the population. Andersen (2015) reports that for some types of means tested pension benefits in Sweden and Denmark, marginal effective tax rates on pension savings can be close to 100% at some pension wealth levels, once the tapering off of pension benefits is included. Means testing in those two countries also affects both low and middle income groups.

The trade-off with means testing is between targeting (and hence lower public expenditures) and behavioural distortions. The more precisely a benefit is targeted, the steeper the tapering off of the benefit, raising the implicit marginal tax rate on the accumulation of own resources. Managing this trade-off can only be done on a case-by-case basis. However, with many EU countries actively encouraging the development of private pension savings (either via occupational savings or private savings products), and with tight public finances, the importance of paying attention to means testing and distortionary effects will increase.

### Concluding remarks

Pension systems differ across the EU due to historical legacies. Countries are also following different demographic trajectories and may, therefore, have different options available in adjusting to population ageing. Furthermore, pension systems interact with the tax code and many other aspects of social policy, including those related to long-term care and health services. Hence, the purpose of this Forum is to shed light on some key issues and features of pension systems relevant to most, if not all, EU countries by looking at the history of and policy discussion around the pension systems in the four countries of Finland, France, Germany and Italy.

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## Lessons From Italy: A Good Pension System Needs an Effective Broader Social Policy Framework

In many countries, pension arrangements are still at the core of the policy debate. Funded and pay-as-you-go (PAYG) schemes are both in question. In Chile, people are taking to the streets to change the funded scheme, which is blamed for low retirement incomes and high fees. In France, citizens are also protesting the government reform of the PAYG system and its attempt to reduce occupational disparities.

The need to tinker with social security is prompted by three main interconnected factors.<sup>1</sup> First, the ageing of the population will increase public expenditure for transfers and services of the elderly, with pensions bearing much of the pressure.

Second, pension rules are often not neutral with respect to retirement decisions and encourage early retirement. The adverse effects of pension rules on labour market participation rates are particularly worrisome in view of the ageing process.

Third, while the economic conditions of the elderly have improved in relative terms and their incomes have largely been spared by the recent economic crisis, low-paid and fixed-term contract workers increasingly experience poverty, marginalisation and economic insecurity (OECD, 2019a). High pension spending reduces the resources available for protecting these social groups.

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<sup>1</sup> See Francese et al. (2005) and Pino and Yermo (2010) for comparative surveys of earlier reform efforts. Barr and Diamond (2008) provide a thorough and authoritative analysis of the economics of pension reforms.

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Italy, which is sometimes considered a laggard in terms of social and economic reforms, can boast a pension system that is, by and large, functioning sufficiently well in terms of ensuring an adequate purchasing power to retirees and a financially sustainable outlook in the long term, even when taking into account adverse demographic developments. This notwithstanding, the system is currently under attack from different angles. Some of the criticism is technical and can be addressed without changing the nature of the system. Other critical comments address a more fundamental level, but are basically related to the shortcomings of other social protection instruments (e.g. active labour market policies and poverty alleviation schemes).

Technical criticisms are mostly well taken but, in the current juncture, risk being counterproductive. With their quest for perfection, these criticisms may distract from what appears to be the largest looming danger, namely that the system as it is now – not perfect, but relatively satisfactory – could be jeopardised by short-term political considerations.

### The Italian pension system: Where we are and how we got here

The need to overhaul the Italian pension system has been on the agenda since the late 1970s, but the reform process only began in 1992 due to pressure from the exchange rate crisis and an urgent need to curb the double-digit public finance deficit.

Italy's pension system had three main problems: high and rising expenditure, inadequate labour market incentives and chaotic distributional effects.

Pension expenditure, which had increased from 5% of GDP in 1960 to about 15% in 1992, was expected to increase further to close to 25% of GDP by 2030 (Franco and Marino, 2002). The contribution rate needed to cover private sector employees' benefits was set to increase from 44% in 1995 to 60% in 2025. The existing pension formula, eligibility conditions and indexation rules granted rates of return that were considerably higher than the rate of growth of the social security tax base.

The lack of any direct link between the size of the pension benefit and the age of retirement was an incentive to retire as early as possible. In addition, the segmentation of the

pension system into several separate pension schemes, each one operating with its own rules, hampered the mobility of workers both between and within the public and private sectors.

There were also equity reasons for the reforms. The rate of return on contributions was extremely uneven across different groups of workers. It was usually higher for individuals with earnings rising towards the end of their careers.

### The 1992 reform

The 1992 reform primarily addressed the sustainability issue, cancelling overnight about one-quarter of existing public pension liabilities (Franco, 2002).

The age of retirement in the private sector was raised gradually from 55 to 60 years of age for women and from 60 to 65 for men. The reference period for calculating pensionable earnings gradually increased from five to ten years and, for younger workers, to the entire span of the working life. The minimum number of years of contributions for entitlement to a pension was raised from 15 to 20. The minimum number of years of contributions required for public sector employees to receive a seniority pension was raised gradually to 35 (the requirement already in effect for the private sector). The pension benefits indexation was changed from wages to prices.

### The 1995 reform

Traditional textbook discussions of pension policy usually begin with the comparison of PAYG and funded systems. In PAYG systems, current contributors pay current pensioners; in funded systems, pensions are paid out of a fund that has been built up over several years.

However, PAYG schemes can borrow some of the features of investment-based schemes, especially with regard to the intergenerational distribution of macroeconomic and demographic risks. This is the approach adopted in notional defined contribution (NDC) plans (Holzmann and Palmer, 2005; Holzmann et al., 2012; Holzmann et al., 2020). The financing of the system remains PAYG but the formula that translates the contributions into benefits weighs each year's contribution by a discount factor that is proportional to the medium-run growth of the wage base – as if the contributions had been invested at a compound interest rate equal to the rate of growth. At retirement, the actualised sum of contributions is divided by a factor that reflects life expectancy and the age of the individual, as if the person were using his or her notional wealth to buy an annuity on the insurance market. Social security administrators keep track of cumulated contribu-

tions and can communicate this amount to the worker, as if the person had an actual account.

As a consequence, NDC systems can mimic the microeconomic incentives of an investment-based plan without imposing the strains of the transition that would be needed if a PAYG system were to be transformed into a funded system. From a macroeconomic viewpoint, NDC systems can be designed to adjust automatically in order to respond to changes in exogenous variables, thereby reducing the need for discretionary rule changes. Personal accounts can give workers a clearer perception of their pension situation. Transparent accrual rules increase the information available for efficient decision-making during working life. Finally, giving people personal accounts makes it easier to move across jobs and sectors.

The 1995 reform focused on incentives and distribution (the two remaining problems, after the explosive expenditure outlook was curbed by the 1992 reform). Italy switched to an NDC pension system, although with a rather long transition period.<sup>2</sup> Its design was a big step forward in both areas, as Italy moved towards homogeneous retirement rules and uniform rates of return. In the new NDC system, workers could choose to retire between 57 and 65 years of age, provided the pension benefit amounted at least to 1.5 times the 'social pension' (*pensione sociale*)<sup>3</sup> and the number of contribution years was at least five. The supplementation of old-age pensions up to a pre-set minimum level (*integrazione al minimo*) was abolished. Seniority pensions were retained, but the eligibility requirements were tightened.

The reform also introduced greater incentives for the development of supplementary pension schemes, with the idea that a shift to a multi-pillar system would foster the development of the Italian capital market and help to maintain adequate replacement rates – reduced generosity of the PAYG pillar notwithstanding.

The NDC system was introduced without it being preceded by an extensive debate about its merits and usefulness. Relatively little preparatory work was carried out, no major report was released to the public and the pension formula was not immediately published. Perhaps also because of this, the reform had some major weaknesses (Franco and Sartor, 2006). Most notably, it envisaged a long and complex transition period: only those who started working after 1995 came fully under the new regime.

<sup>2</sup> As it is well known, Sweden and Italy were the first countries to adopt the system. Chłoń-Domińczak et al. (2012) provide a comparative overview of the early NDC experiments.

<sup>3</sup> In the 1995 law, this parameter was set equal to 1.2.

Furthermore, the minimum retirement age was relatively low (57 years) and the self-equilibrating mechanisms were not fully adequate (Gronchi et al., 2020).

Even though an NDC system improves work incentives, the effects are not automatic. For them to materialise, governments should properly inform the public about pension rules, and policy makers should avoid interfering with them, so that workers can familiarise with the system and perceive their contributions as invested funds. In Italy, little effort was made after the reform to explain the new pension rules to the public, arguably due to the long transition period.

### From 1995 to 2011

Further non-negligible changes were introduced soon after the 1995 reform. First, in 2005, the requirements for qualifying for an old-age pension were tightened. This was done for all workers irrespective of whether they entered the labour market before or after 1995 (fully NDC), de facto eliminating the significant flexibility in choosing when to retire – one of the features of the NDC reform. Second, in 2007 a third ‘channel’ for retirement was introduced (besides those based on age and on ‘seniority’, i.e. years of contribution), based on so-called ‘quotas’, i.e. the sum of age and years of contribution. The minimum quota was set at 95, to be raised to 97 in 2013.

Short- and medium-term budgetary considerations, which were left out of the 1995 reform, became paramount again, not because the pension system was on an unsustainable path (as in 1992), but owing to the need to rein in the overall general government deficit. However, the opportunity to address the weak points of the Italian NDC was not exploited.

In this period, one of the few unambiguously positive developments was the improvement of the institutional framework of the supplementary funded pillar. Since 2005, the rules have been streamlined and clarified, the guidelines for pension funds have been harmonised and a new regulatory agency (COVIP) has been created.

### The 2011 reform

The main weakness of the 1995 reform, i.e. its extremely long phase-in period, was finally tackled as the economic and financial crisis was looming. First, in 2010 the government decided that the age requirement to qualify for an old-age pension should move in line with the development of life expectancy. With the 2012 budget, this longevity link was extended to the contributory requirements for a seniority pension. Most importantly, the same law extended the NDC rules for benefit computation pro rata to all workers, starting from 2012. Furthermore, some flex-

ibility with regards to retirement was reintroduced for fully NDC workers, up to a maximum of three years before the ‘normal’ old-age requirement (provided the benefit was at least 2.8 times the social pension).

Concerning non-NDC workers, the 2011 reform eliminated the ‘quotas’ and further tightened the contributory requirements for seniority pensions.

For all workers, the age requirement for old-age pensions was raised and was fully harmonised irrespective of the activity sector (public or private) or gender. In 2019, the standard age for receiving an old-age pension was 67 years for everyone.

### Recent changes

The rapid tightening of the eligibility criteria for retirement went into effect in 2012 in a difficult macroeconomic context and brought about severe social tensions. The retirement plans of many workers were disrupted. As a reaction, once the most acute phase of the financial crisis was over, a new wave of pension changes were implemented to allow some groups of workers to retire earlier. In 2017, the so-called *Anticipo pensionistico sociale* (APE) was introduced: workers older than 62 years of age and with at least 30 years of contribution were given the opportunity to retire provided they were unemployed, in poor health or acting as a care-giver for a disabled relative. In 2019, ‘quotas’ were reintroduced for the next three years, albeit with a more stringent requirement (equal to 100).<sup>4</sup>

While it is too early to assess these recent legislative changes, some comments are in order. First, while both interventions targeted pre-1995 workers, they catered to very different constituencies: the APE supported disadvantaged workers, whereas ‘quota 100’ mostly targeted workers with relatively long and uninterrupted careers (mainly in the public sector or in large companies based in Northern Italy). Second, neither APE nor quota 100 change what is arguably the main element of the 2011 package, namely the application of the NDC computing principle (albeit pro rata) to all pensions.

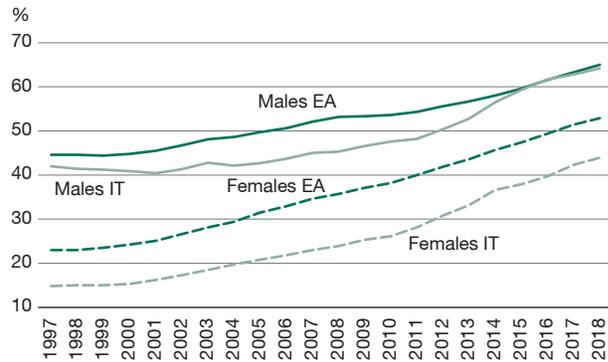
### A look at the outcomes

#### The labour market

Italy’s labour market trends appear in line with the objectives of the reforms. The employment rate for men aged 55 to 64 has increased by almost 23 percentage points in the last 20 years, reducing the gap with respect to the rest of the euro

<sup>4</sup> Individuals are required to be at least 62 years of age and have at least 38 years of contributions. The scheme applies until 2021.

**Figure 1**  
**Employment rates of workers aged 55 to 64, Italy and euro area**



Source: Eurostat, 2020.

area (Figure 1). For women, the increase was even larger – almost 29 percentage points – though the gap with the other European countries remains unchanged. Furthermore, there seems to be no negative impact on the employment rate of workers aged 20 to 54, which in the same period has increased by about four percentage points. This performance is all the more remarkable given the unsatisfactory macroeconomic performance of the country during this time.<sup>5</sup>

5 The idea that in the medium-to-long run there is a trade-off between the employment of relatively younger workers and that of older workers is not backed by the data. See e.g. Tommasino and Zizza (2015) and the literature they cite. Of course, things may be different in the short-run and/or in adverse cyclical conditions (Boeri et al., 2017). More research is needed to understand the effects of higher senior employment on the wages of the young.

Spending pressures

According to the most recent projections by the European Commission (European Commission, 2018), in Italy public pension outlays as a share of GDP will grow by about three percentage points until about 2040 and will decline steadily thereafter. They are expected to return to the 2016 level in 2060 and to be 1.7 percentage points lower than today in 2070 (Figure 2). By comparison, in the euro area pension expenditure is forecast to increase by 1.2 points by 2040 and to return to the 2016 level in 2060 and slightly below that in 2070.

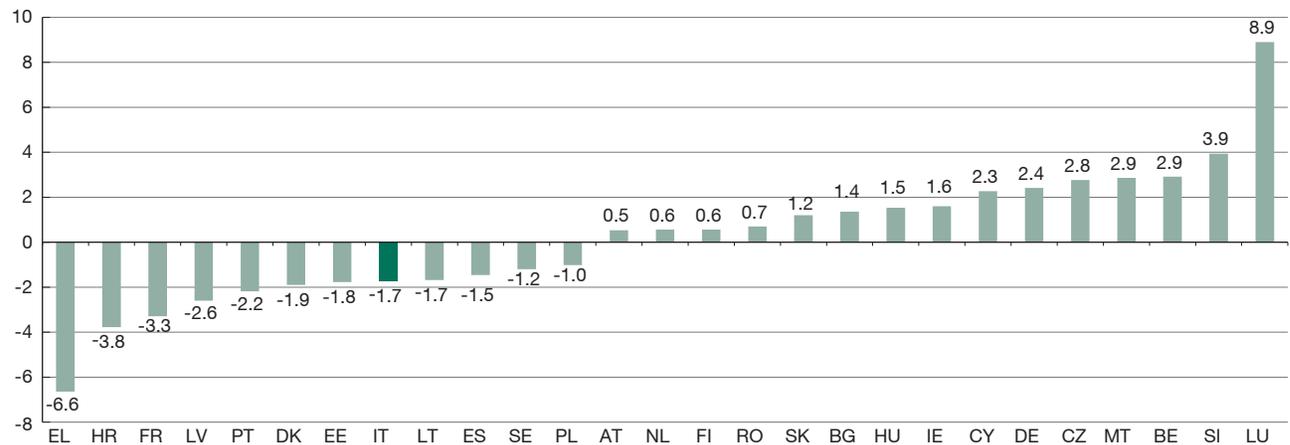
During the projection period, the Commission expects Italy’s potential GDP to grow by a yearly 0.8% on average, slower than the euro area average (1.3%). The fertility rate is expected to increase slightly, from 1.33 children per woman to 1.66, while life expectancy at birth is projected to rise from 80.7 to 86.9 years for men and from 85.3 to 90.9 for women. As a result, the old-age dependency ratio (the ratio of people over 65 to the working age population) is expected to almost double to 60.3% (Figure 3). In 2070, the only euro area countries with a dependency ratio higher than Italy’s would be Greece, Cyprus and Portugal.

Pension adequacy

The reforms did not reduce the ability of the Italian pension system to ensure decent living standards for most elderly people (Franco et al., 2008). The risk-of-poverty rate among pensioners is currently 15%, similar to the

**Figure 2**  
**Change in public pension expenditure 2016-2070, EU countries**

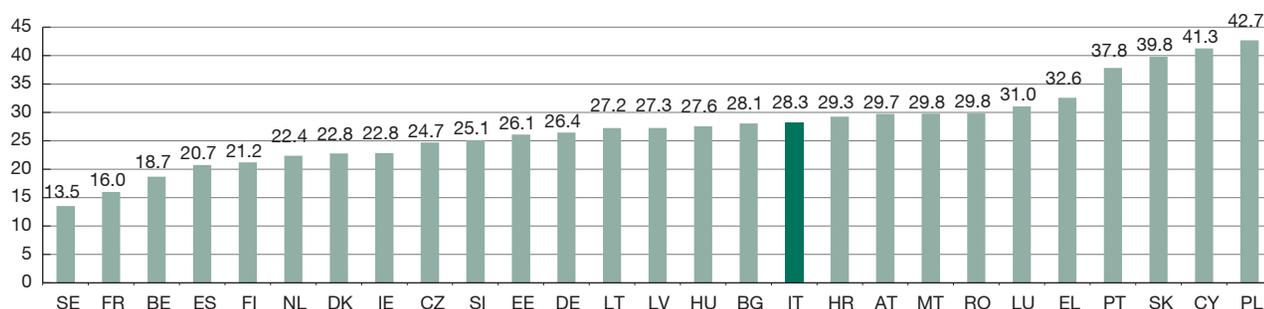
percentage points of GDP



Source: European Commission (2018), *The 2018 Ageing Report: Economic and Budgetary Projections for the EU Member States*, Brussels.

Figure 3  
Change in the old-age dependency ratio 2016-2070, EU countries

percentage points



Source: European Commission (2018), *The 2018 Ageing Report: Economic and Budgetary Projections for the EU Member States*, Brussels.

euro area average rate (16%)<sup>6</sup> and significantly lower than the risk of poverty for the total Italian population (20%). In Italy, the incidence of absolute poverty among individuals aged 65 or older is 4.6% and has been quite stable over time (it was 4.4% in 2007); the absolute poverty rate for the whole population is 8.4%, about five percentage points higher than in 2007 – the last year before the economic crisis (Figure 4).<sup>7</sup>

Furthermore, the Italian replacement rate (the ratio of the last wage to the first pension payment) remains among the highest in Europe (Figure 5).

#### Development of a multi-pillar system

One of the main aims of the reforms was the development of a significant funded pillar. The NDC scheme and the pension funds are subject to different risks and returns. PAYG schemes insure against inflation and financial market risks. However, they are vulnerable to declines in employment, as well as to political risks (governments may 'default' on their promises). Funded schemes are vulnerable to investment risk, but their returns (while more volatile) tend to exceed those of PAYG systems in the long

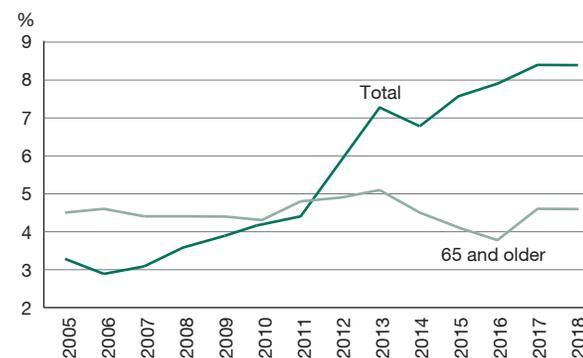
6 The risk-of-poverty threshold is set at 60% of the national median equivalised disposable income. The risk-of-poverty rate for pensioners is quite similar to that for elderly people (65+), both in Italy and in the euro area as a whole. The overall risk-of-poverty rate in the euro area is 17%.

7 The data are from the Italian National Institute of Statistics (Istat). A household is considered poor in absolute terms if its consumption expenditure is lower than the monetary value of a basket of goods and services considered "essential". The monetary value of the basket varies in turn according to household socio-demographic characteristics, geographical area and municipality size. The adverse effects of the downturn on living conditions appear milder when looking at the relative poverty indicators because, by construction, their thresholds are set in terms of the average income, which was also dented by the crisis.

term (see Feldstein and Rangelova, 2001). These different features make it advisable to opt for a mixed system, exploiting the portfolio-diversification logic (Lindbeck and Persson, 2003).

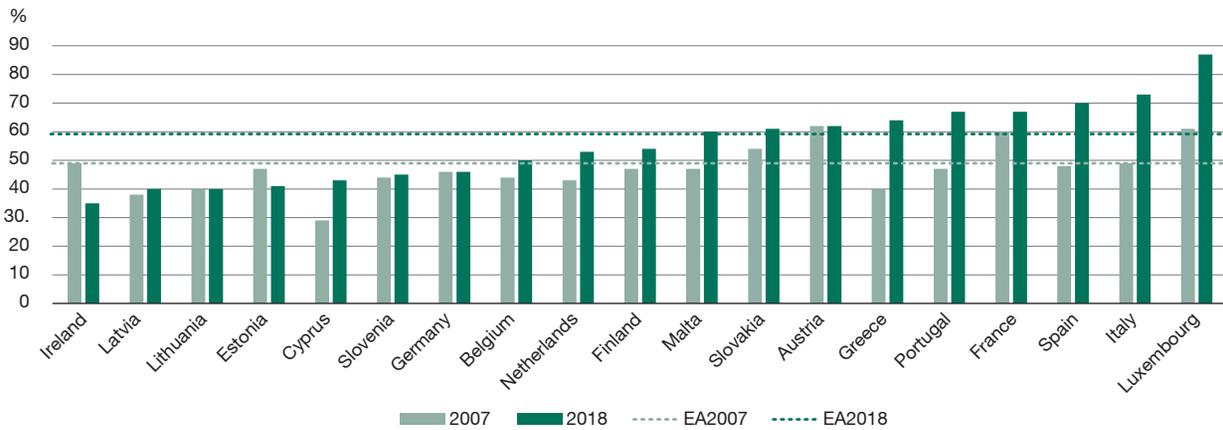
As of the end of 2018, about 7.9 million workers (30.2% of the work force) were enrolled in supplementary schemes. Pension funds' assets were equal to 9.5% of GDP, or 4% of Italian households' financial wealth (Figure 6). Enrolment rates are gradually rising but are still limited among the self-employed, women, small firms' employees, young people and people in Southern Italy. In evaluating these results, one should consider the very large size of the PAYG scheme and the unsatisfactory performance of Italian wages in recent years. There is ample room for progress.

Figure 4  
Absolute poverty rate in Italy, 2005-2018



Source: Istat, 2020.

Figure 5  
Gross replacement rates at retirement in the euro area, 2007 and 2018



Note: Gross replacement rate is calculated as the ratio of the last wage to the first pension payment.

Source: Eurostat, 2020.

### The debate on the pension system and social policy priorities

The advantages of an NDC approach appear stronger than ever. First, increasing workers' mobility across sectors and regions should be a priority in the euro area, given the currently fragmented labour markets and the lack of alternative shock absorption mechanisms. As we know, NDC systems are particularly well suited to accommodate mobile careers and ensure full portability of pension rights. Second, life expectancy and macroeconomic developments have proved very difficult to forecast. NDC systems are robust in the face of unexpected changes in these parameters thanks to their built-in stabilisation mechanisms. Third, in ageing countries there is a need to increase the employment rate significantly. As NDC

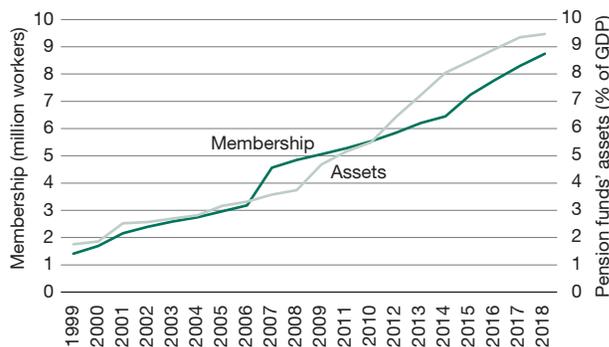
systems tightly link the size of the pension benefit to the amount of contributions paid, they minimise the incentives for early retirement, allowing at the same time some flexibility in setting minimum age requirements.

It would have been preferable to implement from the outset a full NDC regime for all groups and cohorts of workers, but in the end Italy has a sustainable and homogeneous pension system providing appropriate incentives.

This notwithstanding, the Italian NDC system currently faces some challenges. Some of the concerns raised in the policy debate can be accommodated without jeopardising the NDC logic.

The first challenge is about flexibility. In a well-designed NDC scheme, minimum and standard retirement ages have no structural impact on financial sustainability. While in the short term, solutions are constrained by the need to limit expenditure growth (and the general government deficit), flexibility in the Italian system can and should be increased, relying on the fair nature of the system. Fully NDC workers, who will start retiring in large numbers in the upcoming decade, already have a flexible retirement age requirement (starting from age 64).<sup>8</sup> Regarding pre-1995 workers, some flexibility could still be provided after the expiration of quota 100, but this should be done within the framework of old-age pension rules, as it happens for fully NDC workers.

Figure 6  
Development of the funded pillar in Italy



Source: COVIP, 2020.

<sup>8</sup> A point worth discussing is whether to modify the income limits for normal retirement (1.5 times the social pension) and for early retirement (2.8 times the social pension).

Another challenge is the differences in life expectancy at retirement. In particular, all other things being equal, if there is a correlation between longevity and lifetime income, the poorer groups of the population end up subsidising the rich. However, this is not exclusive to NDC systems. Actually, NDC systems offer the most straightforward and transparent way out of this issue, by means of group-specific transformation coefficients.<sup>9</sup>

A more fundamental criticism of NDC systems is that they do not redistribute income across pensioners. Indeed, an NDC scheme cannot guarantee a minimum pension income. The old Italian PAYG system, on the contrary, included a minimum contributory pension provision (*integrazione al minimo*). A lack of within-cohort redistribution has both fairness and efficiency consequences.

From an efficiency perspective, the existence of a means-tested non-contributory pension (such as the *assegno sociale*) implies that workers with low wages or less than full careers – and therefore with relatively poor contributory pensions – receive low (or even zero) returns on their contributions. While this problem is highly visible in NDC pension schemes, it applies to any form of earnings-related pension. This issue can be addressed by making the phase-out of the non-contributory basic pension more gradual (currently, the *assegno sociale* decreases one-to-one as a function of the pensioner's income; Marano et al., 2012). Furthermore, contribution rates for 'non-standard' workers (self-employed, part-time and temporary workers) should be aligned to those of standard workers (OECD 2019a). In Italy, the 2011 reform narrowed the gap between the contribution rate for standard employees (33%) and self-employed workers (24%), but this gap is still wide.

From a normative perspective, while there are compelling reasons to ask for a redistributive, progressive welfare state, this does not mean that every piece of the welfare state should be redistributive. The importance of looking at the welfare system as a whole is particularly relevant for Italy, which has recently introduced a generous means-tested welfare tool (*reddito di cittadinanza*).

More generally, reform efforts should focus on the social policies 'surrounding' the pension system. Most importantly, while NDC pension rules limit unwarranted incentives to early retirement, appropriate labour market policies are crucial to ensure that the increase in the labour supply of older workers is met by adequate demand. As

a matter of fact, an age mix of the labour force that is optimal at the firm level may not be optimal from a social welfare standpoint. Firms often rely on deferred-compensation schemes (such as seniority-based wage ladders; Frimmel et al., 2018) and incur non-negligible fixed costs for hiring and firm-specific training; all other things being equal, these factors make older workers relatively less attractive for employers (Allen, 2019). To address this issue, it may be advisable for governments to subsidise the cost of retaining or hiring older workers (OECD, 2019b) and to promote the inclusion of age management strategies in collective bargaining agreements.

On top of this, it may well be that the general skills and human capital of younger workers are better than those of older workers.<sup>10</sup> This clearly warrants a public effort to guarantee an adequate amount of (re)training for senior workers. This is currently far from being the case. According to the OECD (2019b), the fraction of older workers having access to training is less than 10% in Italy, whereas it is about 13% in France, 18% in Spain and almost 30% in Germany (Figure 7).

Italy should also put more effort into improving its education system, which currently lags behind those of other major advanced economies (see Sestito, 2014). A better educated work force is indeed not only less exposed to human capital obsolescence but also easier to retrain later in life.

## Conclusions

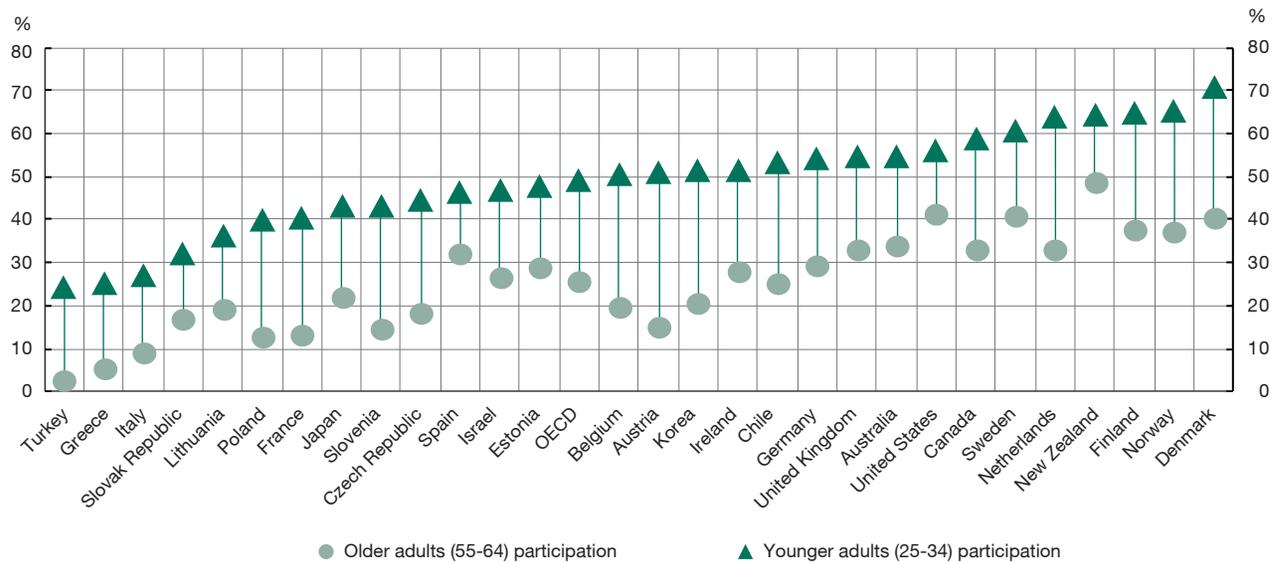
Public policies in advanced economies should target different needs. Welfare policies should focus on preventing poverty; progressive taxation and the provision of high-quality public services should concentrate on reducing inequalities; labour market policies should aim to create fair wage employment opportunities (including for older workers) and facilitating job-to-job transitions.

Contribution-based pension systems should focus on transferring workers' income across time and insuring against longevity risk in an efficient and transparent way, without the costs and the risks connected with financial markets (which, incidentally, are higher for poor people). This goal should be achieved without exacerbating existing inequalities and without distorting the incentives to work and save. In the context of an ageing population, if one wants to preserve financial stability while guaranteeing acceptable replacement ratios, a longer working life combined with more diversified income for pensioners is necessary. Along these dimensions, well-designed NDC schemes are suitable solutions.

<sup>9</sup> See Holtzmann et al. (2020) for an analysis of the several possible fixes. Incidentally, to the extent that longevity differences are due to other policy imperfections (e.g. differences in access to health care services or unsafe workplaces), it appears that the best solution is not to adjust the pension rules, but to address the original problem.

<sup>10</sup> According to recent research, this problem might be overstated (Acemoglu and Restrepo, 2019).

Figure 7  
Participation in job-related training



Source: OECD (2019), *Working better with age*, OECD Publishing.

Concerning Italy, this implies that no further broad pension reform – or counter-reform – is needed. Following the many reforms introduced since 1992, a certain degree of stability in legislation is highly desirable: as already noted, in order to reap the full benefits of the current system, people should perceive that the returns on their contributions are reasonably predictable and safe from political risk. Furthermore, one cannot ignore that in the next decade, during which the transition from the mixed system to the NDC will be de facto completed, pension expenditure is set to increase from already high levels. Given the current lack of fiscal space, this should advise against introducing more generous rules in the next few years (Andrle et al., 2018). Italy should instead improve the design of non-pension welfare benefits and the effectiveness of active labour market policies, in both cases targeting elderly workers in particular.

On the contrary, fundamental changes to the basic rules of the system are sometimes proposed in the policy debate. In part, this may be due to the circumstance that, unlike other countries, the introduction of an NDC system in Italy came without an extensive debate about its merits and usefulness; its principles are still not well understood. This is problematic because outcomes in an NDC pension system are sensitive to workers' choices before and at retirement and depend on more parameters than those included in the standard defined-benefits pension formula. In Sweden, since the year after the NDC system was approved, workers have regularly been notified by mail about their pension position (so-called 'orange envelope'). A similar programme was finally launched in

Italy in 2015. Almost all Italian private sector workers are now able – by logging on to the National Social Security Institute (INPS) website – to look at different projections of their final pension treatment based on different macro-economic scenarios, individual salary progressions and years of retirement. As of May 2018, three million users took the opportunity to use this online tool (Boeri et al., 2020). Over time, this should improve individual decision-making (Liebman and Luttmmer, 2015; Dolls et al., 2018) and increase support for the current system (Fornero and Lo Prete, 2018; Boeri and Tabellini, 2012).

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Hervé Boulhol\*

## Towards a Universal Pension Points System in France

The current French pension system offers good social protection, translating into high average relative incomes and low relative poverty among the elderly. However, it is deeply fragmented and its structure is overly complex. The objective of the planned reform is to simplify the system substantially, improve its management, reduce inequalities in the rules used to compute benefits and facilitate labour mobility. The reform aims at introducing a universal points system, thus eventually eliminating special regimes. Several OECD countries have a points system: contributions are used to purchase points, and at retirement the pension is equal to the sum of acquired pension points multiplied by the point value.

The creation of a universal pension regime in France is a major reform. Previous reforms have improved financial sustainability. As there has been suspicion that the planned measures would be used to lower pensions further, the emphasis was on budget-neutral reform. However, it quickly became apparent that such a big overhaul defining the way the old-age social protection system will work in the future could not be undertaken without addressing financial sustainability.

Ideally, two reforms were needed, but both dimensions were included in the same draft law. The first reform is the design of the universal system, in which pension rights will be included in the new system from 2022-2025 and the first generation will retire with these points as part of their pension in 2037. The second is the parametric measures aimed at ensuring the financial balance of the current system in 2027. This second component is totally distinct from the implementation of the universal system and

could have happened in the absence of systemic reform if the political will had been such.

### Current French pension system

#### Main schemes for private sector workers

A specificity of the current French system is that a private sector worker is currently covered by two mandatory public pay-as-you-go (PAYGO) schemes: a general defined benefit (DB) scheme – which is the main component – managed by the state and a points scheme (Agirc-Arrco) managed by social partners, together representing about 70% of paid benefits. The other 30% comes from special regimes, including those covering civil servants. To get a full pension in the DB component, individuals must be older than 62 years and have contributed for 41.5 years (43 by 2035) or be older than 66 (67 in 2022) years. Contribution rates are relatively high in France, the average age of labour market exit is low and pension spending is high at about 14% of GDP (OECD, 2019a). Reforms over the last decades have increased both contribution rates and retirement ages, and lowered replacement rates (OECD, 2019b).

The majority of OECD countries take into account wages throughout the whole career for pension calculation. Today, for private sector workers, only Austria, France, Slovenia, Spain and the United States take into account only part of the career (Figure 1). In Austria, lifetime earnings will apply for the generations born from 1955.

The current reference wage for private sector workers is based on the best 25 years of earnings, while for civil servants it is the wage over the last six months. Taking into account the full career is both more transparent and equitable. While taking into account only the best years protects against some forms of career breaks, it also generates perverse, regressive effects by favouring workers experiencing large wage improvements (Aubert and Duc, 2011).

In France, both replacement rates and pension financial balances are highly dependent on real-wage growth. This dependence stems from the price uprating of past wages in the general scheme – formalised by the 1993 reform – the price indexation of the cost and the value of the point, which has often been applied discretionally in the Agirc-Arrco scheme, and the price indexation of pensions in

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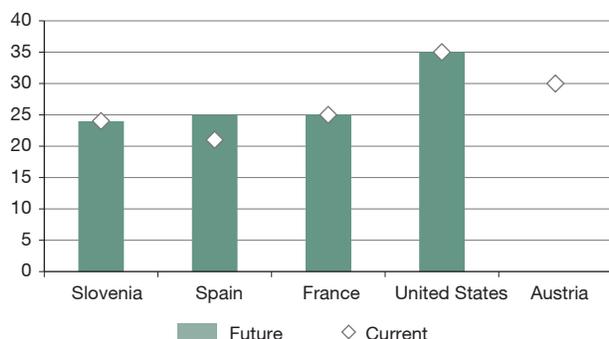
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**Figure 1**  
**Few OECD countries take into account wages for only part of the career**

number of years used to compute the reference wage



Source: OECD (2019), *Pensions at a Glance*, OECD Publishing.

payments. Price uprating was chosen in 1993 because it was socially and politically more acceptable given the lack of understanding among the population of its implications for pension benefits.

### Complexity

There are 42 mandatory pension schemes with very different rules. On average, each individual has currently contributed to more than three regimes, the benefits of which do not add up in a straightforward way. Even for private sector workers, France is unusual, as explained above.

Due to the complex interactions between the rules of the various schemes, issues raised by workers affiliated with different regimes often become serious obstacles to the needed reforms that modify some parameters in some schemes. These interactions are also a serious hurdle for the overall management of the system, as the envisaged policy measures only have partial effects. Yet, each of these partial reforms carries some political costs and their needed recurrence gives the impression that pensions require some endless adjustments. Moreover, the overall complexity makes it very difficult for contributors to correctly anticipate their retirement income, which in turn makes it hard to take adequate retirement decisions.

### Fragmentation

The fragmentation of the system implies substantial differences in the treatment of workers in the private sector, the public sector, those covered by numerous special regimes and the self-employed. Despite recent harmonisation measures, large inequalities result from differences in the rules used to compute benefits including those that

apply to survivor pensions – which alone are covered by 13 additional different regimes. These differences also create a suspicion that other workers in other sectors are better treated. In turn, this suspicion fuels the motivation to defend one's own interests and complicates the implementation of policies to improve the system and reduce unequal treatment. Strong opposition to the reform has come from workers covered by schemes that would ultimately disappear, such as those covering employees in the railway sector, energy and subway companies and some self-employed groups.

One historical reason for a preferential treatment in the public sector may be the result of the need to attract civil service workers, a need that has vanished over time. These views also refer to the career being considered a lifelong job; in the absence of mobility, civil service pensions in particular were therefore best organised in a stand-alone system and could have been considered deferred compensation. A job for life, however, is a thing of the past.

France is one of only four OECD countries, along with Belgium, Germany and Korea, that still has totally different schemes covering private and public sector workers. The differences in pension benefits between public and private sector workers with similar earnings can be significant in France – although much lower than in the other three countries (OECD, 2016). Moreover, the heterogeneity of rules in France also applies within the public sector, where there are wide differences (Conseil d'orientation des retraites [COR], 2018).

In half of the OECD countries, all employees are covered under the same mandatory schemes at least for new labour market entrants. Ten countries have a fully integrated scheme, but with a top-up component for civil servants above and beyond the mandatory schemes that exist for private sector workers. The difference of benefits between public and private sector workers with similar earnings thus depends on the level of the top-up. It is within these countries that the largest OECD differences are found: this is in particular the case in Canada, the United States and the United Kingdom (OECD, 2016).

Teachers are a case in point in France. They benefit today from a higher pension than private sector workers with similar earnings throughout the career. This might be seen as a compensation for low wages. Indeed, in international comparison, teachers' wages tend to be low in France, especially in the first part of the career. With the reform, teachers would lose in terms of pensions as a result of unifying pension rules. The reform actually reveals serious issues in the wage formation of teachers, which pension schemes are ill equipped to address. The problem thus lies in the wage setting process, and while the govern-

ment intends to increase teachers' wages, the overall effect will be seen in the long term through the combined action of future governments.

### Core of the current reform: Simpler and more equitable

The French government created the High Commission for Pension Reform in September 2017 to prepare the reform introducing a universal pension points system in France. In July 2019, the High Commission published its recommendations entitled *For a universal pension system, simpler, fairer, for all*. In January 2020, a draft law was adopted by the Council of Ministers and is being discussed in parliament as of February 2020. Pension entitlements in the new system would start to accrue gradually from 2022 for those born in 2004 and from 2025 for all individuals born from 1975.

The unified pension system aims to establish common rules for contributions and the calculation of pension entitlements for all workers, drastically simplify the current system, and ensure financial sustainability by reducing the sensitivity of financial balances to economic and demographic trends and short-term shocks.

The reform aims at introducing a universal PAYGO points system based on some key principles:

- All 42 regimes will be included based on common rules and replaced by the universal points system;
- Financial stability and sustainability should be ensured, and in particular the system should be designed such that it is resistant to economic and demographic shocks;
- Pension entitlements will accrue up to a wage ceiling of three times the social security (annual) ceiling (PASS);
- The minimum retirement age will be maintained at 62;
- Points will be allocated for each child and for career breaks (related to unemployment, maternity leave, sickness, disability, etc.), and specific situations will be accounted for (long careers, arduous and hazardous work, handicaps);
- The system will include a survivor and a minimum pension scheme.

### Points schemes and comparison with countries having a points or NDC scheme

Publicly provided earnings-related pension schemes are typically PAYGO and follow three broad types: defined

benefit (DB), points and notional (non-financial) defined contribution (NDC). The 42 mandatory public pension schemes in France mix DB and points schemes, with different rules in each broad category. With the planned reform, France made the clear choice to keep the core of the pension system as a public PAYGO. The new system would be based on a points system for the unified framework.

A generic NDC system is appealing technically because it is designed to ensure financial stability. The counterpart of this financial robustness is twofold. First, cohorts that live longer have, as a rule embedded in the system, to contribute for longer periods to maintain replacement rates at similar levels to older cohorts. Second, for given contribution rates, a generation that relies on a fast growing (declining) working-age population will benefit from higher (lower) replacement rates. This second implication is inherent in PAYGO systems whereby current workers directly finance current pensioners, but it is automatically included in generic NDC schemes. The main shortcoming of NDC might lie in the difficulty workers have to grasp the concept of notional accounts, how accounts evolve over time and what they concretely imply for the level of benefits (Sundén, 2013).

The choice of constraining rules reflecting trends in wages, employment and life expectancy is therefore critical for the good management of the system. Depending on how uprating and indexation rules are defined, there could be some equivalence between points schemes, DB schemes and NDC schemes (Boulhol, 2019). A strict equivalence in the benefit formula between a points and an NDC scheme holds if:

- There is a *static condition* for a given cohort: the indexation rate of the cost of purchasing a point is equal to the notional interest rate, which in its generic form is equal to the growth rate of total contributions.
- There is a *dynamic condition* across cohorts: the value of the point at a given (retirement or reference) age has to be indexed to the notional interest rate minus the growth rate of remaining life expectancy at retirement age. On average across OECD countries, remaining life expectancy at 65 is projected to grow by 0.47% per year on average by 2050 and by 0.42% in France.

Nine OECD countries have introduced a points or NDC system at the core of their public pensions since the early 1990s. Table 1 summarises how countries implicitly uprate past wages, index pensions in payments, account for employment trends and changes in longevity within their points or NDC scheme. Uprating past wages are embed-

Table 1  
**Rules for pension entitlements, initial benefits and indexation**

Points and NDC schemes

Country	Type	Uprating of past wages (cost of points/valorisation of notional accounts)	Initial pension (point value / life expectancy (LE) link)	Indexation of pensions in payment (point value)
(1)	(2)	(3)	(4)	(5)
Estonia	Points	Wages	Mix wage bill and prices	Same as (4)
Germany	Points	Wages	Wages + adjustment factors	Same as (4)
Italy	NDC	GDP	Link with LE	Prices
Latvia	NDC	Wage bill	Link with LE	Mix wage bill and prices
Lithuania	Points	Wages	Wage bill	Same as (4)
Norway	NDC	Wages	Link with LE	Wages - 0.75%
Poland	NDC	Mix wage bill and GDP	Link with LE	Mix wages and prices
Slovak Republic	Points	Wages	Wages	Mix wages and prices
Sweden	NDC	Wages + balancing mechanism	Link with LE	(3) - 1.6%
Agirc-Arrco	Points	Discretionary	Discretionary	Discretionary
Draft law, universal points system, France	Points	Income per capita after transition phase	Income per capita after transition phase	Price

Source: Based on Boulhol, H. (2019), Objectives and challenges in the implementation of a universal pension system in France, *OECD Economics Department Working Papers*, No. 1553.

ded in rules governing points and NDC schemes through the indexation of point cost and the chosen NDC interest rate, respectively.

On one extreme, rules can be closely related to actuarial principles and sustainable returns. On another extreme, there can be a total discretion left to the managers, such as in the Agirc-Arrco scheme, which limits transparency and perhaps confidence in the system.

Changes in life expectancy are automatically embedded in the computations of the initial pension in countries with NDC systems. Changes in the size of the labour force are not reflected in many countries covered in Table 1, which makes their system less stable (Auerbach and Lee, 2009), generating the need for another instrument to adjust benefits and/or finances. Within points schemes, Germany accounts for employment and demographic trends in the point value through the sustainability factor, which depends on the ratio of pensioners to contributors.

In France, while the minimum retirement age is maintained at 62 years, a reference age (*âge d'équilibre*) will be introduced to serve as the retirement age at which the point value is computed for a given birth cohort. People of the same cohort but retiring earlier or later would have a penalty or bonus applied to this value, respectively. According to the draft law, the reference retirement age would be linked to life expectancy, with two-thirds of changes in life expectancy being passed on. Pensions in

payments will be indexed to prices. The cost and value of the point would be indexed to the average income per capita (i.e. accounting for both wages of employees and incomes of self-employed workers) from 2045, after a transition phase starting with price indexation in 2025. It would have been preferable to follow the (long-term) rule from the start and adjust the initial point cost and point value accordingly.

### Transition

The impetus for the systemic reform in these nine countries often stemmed from the need to make pensions financially sustainable given ageing prospects. These countries already had a fairly integrated system, except Italy, which unified the system with the introduction of the NDC scheme, and Germany, which did not tackle that aspect.

In terms of transition, Germany is a special case because the system basically functioned like a points-based scheme before the reform. The reform was very fast in the Baltic countries and in the Slovak Republic. In Sweden and Norway, the implementation started about five years after being legislated with a transition of 10 to 15 years. In Italy, the new NDC system gradually applied across 20-25 yearly cohorts. In France, it will be across 30 cohorts, as the individuals born in 1975 would be the first generation accruing some entitlements in the new system, and those born in 2004 would be the first to have accrued all their pension rights in the new scheme.

Another factor influencing the length of the transition refers to the number of years until the first affected cohort retires. In Sweden, individuals who were age 60 at the time of the voted reform were affected as 20% of their pension was computed based on entitlements converted in the new scheme. In Norway, this applied to those who were 58 years of age, while in Italy it applied to those who were about 38 years old. In France, it will be 45 years old, i.e. the age of those born in 1975 at the expected time of the vote of the reform (2020).

Finally, the question of the conversion of acquired rights is critical. In Sweden and Norway, there has been a conversion of entitlements in the new scheme based on a weighting depending on the birth year, hence a mixed system for 15 years in Sweden and ten years in Norway. By contrast, Italy has been going through a very long process as there has not been any conversion, hence a very long transition of 45-50 years after the adoption of the reform. In France, the government decided in February 2020 that there will be no conversion of rights acquired in old schemes. Benefits from entitlements accrued before the implementation of the new system (2022-2025) will be computed at the time of retirement based on all the rules of each regime, implying that these rules will continue to apply, albeit with a decreasing weight, until about 2065. This means that the generations born until 2004 will not benefit from the simplified calculation of what they can expect for their total pension.

## Financial balance

### Balancing the current system

As part of the reform, the objective of ensuring the financial balance of the overall pension system by 2027 is now included. Given the complexity of the system, assessing the financial situation of the system is in itself a complex task. In November 2019, the *Conseil d'orientation des retraites* at the government's request published a report about the 2030 pensions outlook in France (COR, 2019). Depending on assumptions related to real-wage growth and, more importantly, to the chosen accounting rules, the current pension system shows a projected deficit in 2030 between 0.3% and 1% of GDP.

To eliminate the deficit by 2027, the government intended to introduce a new penalty when retiring before an 'equilibrium age' that would have gradually increased from 62 years and four months in 2022 to 64 years in 2027. However, it eventually decided to open the possibility of alternative measures based on an agreement between social partners. The latter should make proposals by the end of April 2020. Their mandate is constrained though as the

proposed measures should focus on increasing effective retirement ages given that the draft law refers to measures that will lead to neither lower pensions nor higher labour costs.

### Adjustment mechanisms in the new system

Pension systems cannot be managed on 'autopilot' as there are always unpredictable events that affect pension levels and finances. Hence, although it is important to design the rules in a way that best accounts for future trends and that is conditional on the exact (albeit initially uncertain) scope of these trends, additional adjustment mechanisms are needed.

Among the nine countries in Table 1, only Germany and Sweden have implemented additional adjustment rules (Boulhol, 2019). In Germany, the contribution rate must be increased if the pension account balance – taking the sustainability factor into consideration – deteriorates beyond a certain threshold, which in turn automatically lowers the point value (that is indexed to *net* wages), thereby sharing the burden of the adjustment between current workers and current pensioners. One significant difference from the Swedish mechanism is that the adjustment is triggered based on short-term liquidity imbalances and not on the estimated long-term solvency of the system.

Sweden directly adjusts pension entitlements and benefits to ensure solvency, based on current pension liabilities and assets made of contribution assets and (the market value of) the buffer fund. The buffer fund represents around 30% of GDP. An automatic balancing mechanism is applied when the calculations imply a potential deficit. In that case, a brake is activated, as it was initially in 2010 based on 2008 values, reducing the notional interest rate below the wage growth rate in order to both limit accumulation in notional accounts and reduce indexation of pensions in payments. By contrast, there is no balancing mechanism in Norway, and the general government budget backed by the national wealth fund remains the shock absorber.

A balancing mechanism is a valuable tool, but even Sweden experienced some difficulties in applying the brake rule. In that sense, the economic and financial turmoil provided a stress test. The adjustment implied by the rule would have amounted to a real-term reduction of 4.6% in pensions and was considered so large that policymakers decided to spread it out over a longer period (Sundén, 2009). Overall, the Swedish mechanism proved resilient, only requiring a small adjustment. As a result, its broad principles remain largely unchallenged even though the experience shows

that in periods of large volatility, interventions by politicians are still needed (Weaver and Willén, 2014).

In France, the draft law introduces a golden rule, according to which in each year  $t$  the five-year projected balance cumulated over  $t$  and  $t+4$  cannot be negative. Focusing on a cumulated indicator (stock concept) is welcome as the target is often to reach a yearly balance (flow concept), implying that past deficits are not corrected and therefore increase debt. However, the objective of this type of mechanism should be to ensure the long-term balance, and five years is not a long period to cover a full economic cycle. This might imply the need to take pro-cyclical measures to respect the golden rule, thereby amplifying the impact of short-term shocks.

It seems that the choice of a fairly short period was guided by the fear that adjustments might be deferred for too long. Even with the proposed design, there is always the risk that needed measures are deferred to year  $t+3$  or  $t+4$ . These are complex issues when there is a limited track record of fiscal discipline that would provide some initial credibility. Hence, there is no easy answer. The best option would be to focus on the real objective, a sane long-term financial management with two options. Simple rules should be designed and enforced, but it is not clear whether, even with the simpler universal points system, they can be defined to meet this objective. Otherwise, this mandate should be given to an independent institution, which would propose a menu of corrective actions as needed.

One central issue for the management of public PAYGO pension systems, and of points and NDC schemes in particular, refers to how pension accounts are clearly separated or even ring-fenced from the other components of general government balances. The credibility of a golden rule would be enhanced by ring fencing pension accounts.

## Conclusions

The OECD has long supported the principle of a universal pension system in France. The current system provides effective social protection for current retirees, but it is overly complex and generates significant differences in the treatment of various population groups. This also leads to serious complications in both the coordination of the large number of different schemes and the management of the overall system. The main goal of the reform is to simplify the system and treat everyone equally. On top of systemic changes, the reform aims at ensuring the financial balance of the current system by 2027.

This reform will eliminate or substantially reduce some significant shortcomings of the current system, including

the sensitivity of replacement rates and pension finances to long-term productivity growth, unintended forms of redistribution due to the complex interaction of rules and the fact that only parts of the career are taken into account to calculate pension entitlements. Actually, it will do this in the long term only, as France opted for a very long transition, which will delay the benefits of the reform. The long transition is due to both applying the reform to those born from 1975 on only (instead of 1963 as initially envisaged) and not converting entitlements acquired in the current schemes as Italy had done.

In this context, it is important to put in place clear indexation rules applying to the cost and the value of points as well as pensions in payments. Those rules should be completed by a balancing mechanism that focuses on fiscal discipline, i.e. in a credible way to ensure long-term cumulated financial balances, while preserving a high enough level of pensions.

Given population ageing, it is crucial to raise effective retirement ages, especially in France, where employment of older workers and the average age of the labour market exit are low. The planned reform defines an 'equilibrium' retirement age, which will be used as a reference for the point value and increase (decrease) based on two-thirds of life expectancy gains (losses).

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## They Will Definitely Need Us, When We Are 64: Old-Age Provision in Germany

For the next two decades, Germany will be among the fastest ageing countries in Europe and in the world. This is not so much due to an extraordinary level of, or increase in, life expectancy. In fact, longevity in Germany is currently close to the EU average, and it is expected to go up slightly less than elsewhere in the future (European Commission and EU Economic Policy Committee, 2017, 7). However, following a baby boom that was relatively late and small by international standards, the German total fertility rate fell from 2.5 to under 1.5 between 1965 and 1975 (Statistisches Bundesamt, 2020, 5-7). In West Germany, the rate has fluctuated around 1.4 during the four decades that followed, showing a slight increase only very recently.<sup>1</sup>

The fast and strong reduction in the number of births has triggered a long-term shift in the age composition of the population that is still ongoing and, with an eye on old-age provision, will now become acute soon. The German baby boomers will enter retirement by 2030. During this period, old-age dependency will roughly double that of its 2000 level and, thus far, there are no signs that it will go down again until 2060 (Statistisches Bundesamt, 2019) or even afterwards (Werding and Läßle, 2019). Obviously, this change in demographic fundamentals creates a huge challenge for the German Statutory Pension Scheme which is operated on a pay-as-you-go basis and is still the dominant pillar of the overall system of old-age provision in this country.

Politicians have responded to this challenge through a wave of reforms taken in the early 2000s, which have

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<sup>1</sup> Despite the differing political and economic systems, fertility trends in East-Germany were surprisingly similar to those in the West until 1975. Afterwards, the East-German fertility rate was pushed up again (to over 1.8) for a short while by strongly pro-natalist policies, but the effects subsided over the 1980s. During the economic transition, the rate dropped dramatically (to below 0.8) in the early 1990s. Since then, it has converged to the West-German level (Kreyenfeld, 2001).

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rendered the system financially viable until around 2025. While these reforms took effect, labour market performance has remarkably improved against earlier years and remained almost unaffected by the Great Recession. This has created temptations to partly undo the reforms that are already in place. Some steps in this direction have been made through amendments enacted in recent years. Untimely demands for additional and more far-reaching reversals of earlier reforms are now on the table, when plans have to be devised for how to fully adjust the pension system in light of a strong and lasting ageing process.

Currently, a government commission consisting of politicians, social partners and researchers is expected to draft a new series of pension reforms with a time horizon until 2045. After more than a year of internal discussions and only a few weeks before the scheduled release of a final report, it is unclear whether this group will be able to reach any agreements.

### Earlier reforms and recent amendments

Various figures from Deutsche Rentenversicherung (2020) can be used to demonstrate that, for the moment, the budget of the German public pension scheme has a rather favourable stance. In 2019, it spent almost 290 billion euro – close to 9% of GDP – on old-age, survivor and disability benefits. It holds reserves of 40 billion euro, exceeding the legal ceiling for the eighth year in a row. The contribution rate is currently at 18.6% of covered wages, down from a peak at 20.3% reached in 1997-1999. While this situation must be expected to change rather soon, it is the result of a series of major reforms, supported by the effects of a strong labour market performance. The reforms were enacted between 2001 and 2007, based on the recommendations of another government commission.

In 2001, German pension policy abandoned the task of providing for a constant level of benefits that had been pursued – with a few alterations of the precise definition – since the late 1950s. Instead, an *ad hoc* correction was introduced in the formula for annual benefit up-ratings which was meant to reduce the net benefit level (compared to current wages of those contributing to the system) in the long run. In 2004, this was replaced by a self-stabilisation mechanism (Börsch-Supan, 2007) by

which annual benefit up-ratings were inversely linked to changes in the system dependency ratio (number of pensioners per contributors) that was projected to increase continuously in the future, with a strong acceleration between 2020 and 2030. Another important element of the 2001 reform was the introduction of a subsidised scheme for supplementary, private provisions, where active members of the public pension scheme were expected to save up to 4% of their covered earnings, in order to make up for the gradual decline in the benefit level of the public scheme.

The most controversial issue in these reforms was an increase in the statutory age threshold for drawing full benefits. In 2007, a law was finally made prescribing an increase of this age threshold from 65 to 67, for women and men alike, which was to become effective between 2012 and 2031. In spite of persistent criticisms, the increase has been phased in as scheduled. Together, these reforms brought enormous improvements regarding the prospects of ever-rising contribution rates (Werding, 2007). The unexpected rise in employment that followed due to (among other things) strongly increasing participation rates of older workers (Werding, 2016, R14-R15) even led to temporary reductions in the contribution rate. Over time, this resulted in discussions about the ongoing decline in the benefit level which, by some observers, was considered unnecessary or even harmful.

Responding to this perception, politicians recently started to expand some categories of pension benefits for the first time in many years. Two packages passed in 2014 and 2018 were based on typical 'grand coalition' agreements, where each party got what it wanted for their voters, e.g. mothers (with children born before 1992<sup>2</sup>) or workers with extremely long careers. Given the current outlook on a pronounced and imminent wave of demographic ageing, further amendments made in order to increase benefits for disabled workers appear to be defensible, as this is clearly a vulnerable group facing enormous difficulties if working longer and saving more are basic requirements for future retirees. However, all this contributes to further increases in pension expenditure in decades to come, when financing the system will become really difficult.

It is currently projected that, in spite of a further decline in the benefit level (by about 10% by 2045), contribution rates will jump up to 20% before 2025 and to over 23% by 2045 under the existing legal framework (Werding, 2019). Together with increasing contribution rates for pub-

lic health insurance and long-term care, social insurance contributions may even total about 50% in Germany at this future stage of the ageing process (Werding and Läßle, 2019).

### Gaps in the current legal framework

A new round of reforms is thus definitely needed, adhering to the principles of earlier reforms, extending them to a longer time horizon, and addressing the main gaps involved in the current legal framework. By the simple arithmetic of a pay-as-you-go pension scheme, working longer is the only approach that can produce favourable effects for both the benefit level and the contribution rate. If this approach is ruled out, as it is in current political debates, pensioners are basically doomed to receive very small amounts of annual benefits for a retirement period that becomes longer and longer, while active workers have to pay excessive contribution rates.

Further increasing the legal retirement age after 2030 is thus urgently needed. A related gap that needs to be addressed was created through one of the recent amendments. In 2014, a new option for early retirement was established for workers with 45 years in activity. They can now enter retirement, without any deductions, two years before reaching the age threshold relating to anyone else. It was expected that this would help a minority of low-educated workers in bad health to exit jobs with physically demanding working conditions. Actually, one-third of all new retirees have used this option since 2014, receiving benefits that are substantially higher than those of average pensioners, and most of them are in rather good health (Börsch-Supan et al., 2019). This has, in fact, stopped the increase in the actual, average retirement age – from about 62 years of age in late 1990s to just over 64 years in 2013. For all other workers, early retirement is possible under deductions from their benefits (of 3.6% per year) that are relatively low by international standards (and the same applies to premiums for working beyond the legal retirement age, of 6% per year). The rules governing entries into retirement therefore need a comprehensive overhaul.

Another serious gap in the existing framework is that, following the 2001 legislation, supplementary savings for old age are highly recommended and actively subsidised (through direct subsidies for workers on low earnings and a favourable tax treatment for those on higher earnings), but not mandatory. Take-up in this scheme increased significantly in the early years after its introduction, but has come to a halt after 2010 with a coverage of about 10 million people, i.e. about one-third of the target group. The scheme involves a number of additional drawbacks. It is

<sup>2</sup> They are now treated almost as generous as mothers of children born since 1992, with a re-assessment of pensions already awarded.

mainly targeted at private, third-pillar provisions, which is a high-cost environment in general. Providers have to offer guarantees of the amounts invested, which is also costly. At the same time, the most widely used types of products are mainly invested in bonds, rather than shares, which leads to relatively low returns, certainly under current conditions on financial markets. Also, the market for certified products is perceived to be rather opaque, which makes it difficult for investors to select successful plans and often hinders them from choosing any plan at all. Thus far, all attempts at raising transparency and intensifying competition have not brought much progress in terms of broader coverage.

### What is, and what should be, discussed?

In the run-up to installing the new pension commission, the current government has defined a number of ‘stop lines’. There are now official limits with respect to a minimum benefit level and a maximum contribution rate, both valid until 2025, which may become binding shortly before they expire. A kind of unofficial limit is in place regarding the legal retirement age, which the current coalition does not want to discuss during this election period. Also, the government has created the expectation that the commission will continue to define similar – though probably not identical – stop lines for the benefit level and the contribution rate for a longer period of time. This strongly reduces the room for manoeuvre and largely ignores the strength of the ageing process that lies ahead. With an approach of this kind, channelling billions of taxes into the pension budget would be the only way out in the years from 2030 onwards (Werding, 2019), which does not seem to be a feasible solution either.

So far, the public appears to be far more concerned about any further decline in the level of pension benefits than it is with respect to rising contribution rates or taxes. However, if the benefit level were fixed at any rate that sounds adequate, annual amounts of money required to balance the pension budget in the course of the next two decades would most probably create a burden that puts the competitiveness of goods and services produced in Germany at risk and could have a negative impact on economic growth and employment. This could then easily lead to a worst-case scenario. A dynamic development of labour markets that integrates all people of employable age and also continues to attract migrants is an important pre-requisite for steering the German economy and the social protection system of this country through the upcoming period of rapid ageing. To deal with this dilemma, an open discussion about the retirement age and on suitable mechanisms for its future adjustment is simply inevitable.

Furthermore, it needs to be acknowledged that old-age provisions, which are predominantly financed on a pay-as-you-go basis, are actually not ideal for a country with the demographic situation that Germany will reach after the current transition period, with a level of old-age dependency that will be permanently increased. Yet, a majority of Germans seem to shy away from a higher share of pre-funded old-age provisions, pointing to financial-market risks and low interest rates as well as the imperfections of the scheme already in place. Therefore, other products and instruments that reduce costs, investment strategies that are suitable in the current low-return environment and alternative institutional arrangements should be discussed.

For instance, given the corporatist traditions of Germany and its welfare state, occupational, second-pillar pensions backed by collective agreements might offer a better platform for expanding coverage in supplementary schemes than third-pillar plans. An amendment of the law on occupational pensions enacted in 2017 already paved the way in this direction. But, with the current uncertainty about future directions for the public pension scheme, nobody has utilised this option so far. Alternatively, investment funds that are somewhere between public and private provisions might prove helpful as a fall-back solution for investors and as a challenge forcing existing providers of financial services to become more competitive.

### Promising examples in other European countries

Considering the increasingly ageing population in Germany, it should ideally be a forerunner among the highly developed countries, demonstrating how to organise – and cushion, to the extent that this is needed – the transition to an economy with an older population. Instead, public discussions in Germany could benefit a lot from taking notice of many examples for promising rules and approaches that have been established in other countries, especially in Europe.

For instance, to deal with their projected ageing processes, Italy (with an enormously long transition period) and Sweden (in a quick move) have first of all fixed the contribution rates for their public, pay-as-you-go pension schemes and installed a strict ‘defined contributions’ logic to assessing future benefits. Many countries followed the German example in increasing the legal retirement age, reaching the German standard envisaged for 2030 (of 67 years of age) at an earlier stage (in Ireland: 2021; the Netherlands: 2021; and Denmark: 2022) or even exceeding it (in Ireland: with 68 years, starting in 2028). A number of countries (again, Denmark and the Netherlands, plus Estonia and Italy) have now also tied their legal age

thresholds for receiving full benefits to ongoing changes in life-expectancy through automatic, rule-based links, which is helpful in avoiding repeated political discussions about this difficult topic. Early-retirement deductions from full benefits are closer to actuarial standards in many European countries (especially in Greece, Portugal and Spain, with 6% per year; in the Slovak Republic and in Switzerland, with 6.5 and 6.8%, respectively).<sup>3</sup>

European countries also provide interesting examples of how to run comprehensive systems of supplementary cover for all their employees and retirees based on capital reserves, in spite of the risks and difficulties involved in this type of old-age provisions. Some countries simply have longer traditions in this area, like the Netherlands (with a very broad-based system of occupational pensions). Others have successfully introduced new systems of this kind in recent years, such as Sweden (with their mandatory Premium Pension scheme established in 2000, where quasi-public providers have a core role as a default option for individual investors) or the United Kingdom (with their new Workplace Pension programme established in 2012, based on an automatic enrolment of all workers, combined with an opt-out clause, offering the National Employment Savings Trust (NEST) as a default option for small firms). Assessing the experiences of these and other countries could help inform the public debate about pros and cons of various elements of reforms which should now be seriously considered in Germany as well.

### The timing of reforms is the core question

Open questions regarding the future of old-age provision in Germany are thus not so much what to do, but relate to the appropriate timing of different moves. Further changes in the retirement age need to be announced in good time, to make sure that individuals – employees and employers – can adjust their plans. More importantly, expanding reserves for funded old-age provisions takes time, and too much time has already elapsed without a stringent framework. It is practically too late for helping those who are already approaching retirement and have not started to engage in supplementary savings during the early 2000s. On the other hand, fixing the benefit level for the next twenty years to support these people will leave younger workers without the resources they will need to save for their own retirement phase. Some compromise is obviously needed to define a viable time path for benefits as well as burdens, sharing the latter among all those who are involved in this delayed transition.

<sup>3</sup> Information provided in this paragraph is collected from the EU database MISSOC (2020) and from OECD (2019).

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Tarmo Valkonen

## The Finnish Pension System and Its Future Challenges

The Finnish pension system has succeeded in gaining high social, and reasonable financial sustainability. The balance between reaching the ambitious redistribution goals and minimising labour supply distortions is achieved with tax-financed, income tested basic pensions, income-tested basic pensions and a strong link between wage income and accrued pensions for middle- and high-income workers in the earnings-related schemes. These well-governed first-pillar schemes have high coverage and similar benefit rules. Second pillar occupational pensions are rare in Finland.

One of the secrets of its success has been the capacity to make extensive reforms when required. By law, the earnings-related pension scheme follows the defined benefit rule, where contribution rates adjust to shocks that weaken the contribution base or increase expenditures. In practice, however, an outlook of a strongly increasing contribution rate has often triggered a reform process. Both the negotiations and the full implementation of the reforms have taken time, but the outcomes have been largely accepted.

A specific feature in the Finnish pension system is rule-based preparation for mortality change. The earned pension capital is adjusted to life expectancy and the lowest age limit of the flexible retirement age will be adapted so that the ratio of expected years in employment and retirement is fixed after year 2030. Postponed withdrawal of pensions is rewarded in an actuarially fair way. This set of rules generates strong incentives to extend working life when life expectancy increases. Hence, the rules promote adequacy of pensions and fiscal sustainability.

Another non-standard element is the partial pre-funding of the first-pillar earnings-related benefits. The share of contributions that is pre-funded in the dominating private sector pension scheme (TyEL) is small, but the required

return on funds is low, and the amount of excess is saved to support the funding. The pension scheme is run by private pension companies and other pension institutes, which are individually liable for the pre-funded part of the pensions, but mutually responsible for financing the pay-as-you-go part. Public sector schemes have buffer funds that aim to smooth contribution rates. As an outcome, about a third of the accrued earnings-related pension rights are pre-funded.

The main challenge of the pension system is population ageing, which is escalating in Finland due to the recent large fall in fertility. If the number of children remains low and net migration does not increase markedly, there will be a growing need to increase contribution rates. Moreover, the life expectancy adjustment of pensions lowers replacement rates if mortality rates fall as expected. It will be compensated partly by longer working careers, but full compensation would require a faster-than-projected increase in employment rates. Other risks that may influence the sustainability of the pension system include lower growth in employment and wages due to technological development as well as lower pension fund yields than expected.

This review first provides a brief outlook on the various development stages of the Finnish pension system that are still visible in its basic structure and the logic of the current version. The subsequent section illustrates with some key indicators how the current system has succeeded in reaching its goals and shows its risk-sharing properties. This is followed by a discussion of how the pension system is prepared to cope with future challenges that are common to pension schemes across industrialised countries. The concluding section suggests changes that could make the Finnish system even more resilient.

### From fragmental benefits of the employed to universal and uniform social security

The history of Finnish old age pensions dates to pensions of the civil servants in 19th century, but a first scheme with substantial coverage was established in 1939, when the national pension system was introduced. This earnings-related scheme was based on fully funded individual accounts. The negative experiences of war-time inflation and political resistance led to the 1957 pension reform that included abandonment of pre-funding, equalisation of pensions, introduction of income- and wealth-tested

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supplementary allowance and tax financing. In 1996, the basic part of the pension was abolished and only the income-tested part of the national pension remained. The guarantee pension, which defines the minimum amount of pension income, was introduced in 2011. Disability pensions were part of the system from the beginning.

The general earnings-related private sector pension scheme was introduced in 1962. While based on law, it was an outcome of negotiations between labour market parties. Since then, the social partners have had a decisive role in the preparation of pension reforms and strong representation in the governing bodies of the pension funds. Different sectors prepared their own laws during the 1960s and ended up with a different set of rules. The low retirement ages and high accrual rates of the public sector schemes particularly stuck out. The private sector schemes and the national pension scheme had a retirement age of 65 years.

During the next two decades, benefits were expanded. In the 1970s, the accrual rates were raised markedly, and the initially low pensions were topped up with discretionary increases. The unemployment pension was introduced for the long-term unemployed who were at least 60 years of age. The eligibility age for these pensions was lowered to 55 years in the 1980s. Several new early retirement schemes were introduced in 1986. The popularity of early retirement surprised policy planners.

The deep recession in the beginning of the 1990s and the continuous increase in life expectancy initiated a period of retrenchments. First, the liability to pay pension contributions, previously solely on employers, was partially shifted to employees. More importantly, it was agreed that the future increases in contributions are distributed on a 50/50 basis. The true incidence of the hikes in the employers' contribution rates had always been mainly on wages because they were agreed by the central labour market parties, but this reform further strengthened the responsibilities of the labour unions. Also, a long process of limiting access to early retirement schemes started.

The investment policies of pension funds changed radically during the 1990s. In times of undeveloped financial markets, pension wealth was an important source of liquidity and investment funding for domestic firms. The real rate of return on pension funds was often negative due to a high inflation rate and the use of investment income exceeding the required return to lower contributions. The development of the financial markets and the alleviation of investment regulations of the funds promoted by striving for higher returns and more diversification rapidly in-

creased the investments in stock and foreign markets. The public sector pension institutes started buffer-type pre-funding of the contributions in the late 1990s.

An extensive and radical pension reform took place in 2005. The reformed rules form the backbone of the current pension system. Key elements were the harmonisation of the benefit rules of different earnings-related schemes, a tighter link between earned income and accruals, introduction of flexible old age retirement, gradual abolishment of several early retirement schemes and the introduction of a link between life expectancy of the retiring cohort and the pensions. Pension accrual starts from an earlier age and smaller amounts of wages are counted. A pensionable wage is determined by the whole working career. Pensions are fully portable allowing job and sector changes without losses in accrued amounts. The maximum replacement rate was abolished. The accrued pension rights are indexed to average wages and consumer prices with weights 80/20 during working years. For the pensions in payment, the ratio is 20/80. Some pensions accrue also during periods of unemployment, child care, sick leave and studies.

The possibility to withdraw the pension was separated from the decision of retiring from work. The only remaining link was that postponement of pension withdrawal was rewarded with a higher accrual rate only when working life continued. Flexible retirement allowed retirement between the ages 62 and 67, but withdrawal at age 62 caused a marked loss in the pension if the person was not unemployed long term. One of the ideas behind the flexible retirement age was that the expected future decline in pensions due to increasing longevity could be compensated by extending voluntarily working careers. It turned out, however, that old age retirement concentrated at age 63 and there was the risk of a continuously falling replacement rate.

The observed reluctance to extend voluntarily working lives and a continued rise in projected life expectancy generated the need for a new pension reform. It was understood that the low retirement age endangered both adequacy of pensions and financial sustainability of the general government. The reform, implemented in 2017, introduced a stepwise increase in the lower age limit of the flexible pension age until it reaches age 65 in 2027 and establishes a link between life expectancy and the lowest retirement age in 2030. The link is calibrated so that for each additional year of life expectancy, the lower age limit goes up by eight months. The link is also applied to basic pensions and early retirement pensions except disability pensions. The upper age limit of the flexible retirement age will be raised from 68 to 70 years.

The higher accrual rate earned from work after the lowest retirement age was replaced by a reward for postponing withdrawal of the pension. The reform also included two minor changes in early retirement schemes. The generous part-time pension scheme was replaced by the actuarially fair possibility of drawing part of the old age pension from age 61. The second new element is a years-of-service pension, which can be drawn from age 63 if a stressful working career has continued for at least 38 years and the working capacity of the individual has declined. The years-of-service pension remains unpopular because access to benefits is complicated and uncertain and it is smaller than the disability pension. The goal of higher employment periods near retirement has been supported by shortening the period of earnings-related unemployment benefits paid before reaching the lowest eligibility age for old age pensions.

Private sector pensions are financed by contributions collected from employers and employees. Contributions are deductible in income taxation, pensions are taxable, and there is no tax on the yields of the funds during the savings period (exempt-exempt-taxed principle). Entrepreneurs have similar benefit rules, but they have flexibility in declaring the amount of labour income and thereby can influence the paid contributions and accrued benefits. In addition, government supports their pensions.

The key features of the current earnings-related pension system are universality and uniformity. Policy changes are effective, because the rules apply to almost everyone, and the first-pillar benefits cover a large share of the incomes of the retired population. For those whose earnings-related pensions are small, the pensions-tested tax-financed national pension tops up the income. Guarantee pensions ensure the minimum level of income. Low-income pensioners are also eligible for a housing allowance.

### How does the Finnish pension system perform?

The assessment of the performance of the pension system requires a characterisation of its goals. In an agreement on the main features of the 2017 pension reform, the social partners set a smooth development of the contribution rates, long-term protection of the benefits and ensured financing as the targets (Social partners, 2014). This statement reflects the reality well: even though the system is based on the principle of defined benefits, the goals of constant contributions and fair burden sharing between generations have high priority.

The aims of the basic pensions are harder to clarify. National pensions and guaranteed pensions are indexed to consumer prices, which means that their development

does not capture the growth of real wages. When the gap between purchasing power of basic pensions and earnings-related pensions became large enough, political reality required discretionary increases in the level of these pensions. The importance of the income-tested basic pensions has declined strongly during recent decades because the maturing of the earnings-related pension schemes has reduced the number of eligible pensioners with sufficiently small earnings-related pensions.

Pension income represents about 85% of all incomes of pensioners. The rest comprises mainly labour and capital income. The disposable income of pensioners is also influenced by strongly progressive taxation, which leaves pension income from national pensions untaxed. The poverty rate among pensioners is 13% (when the criterion is 60% of the median disposable income), which is the same as the average rate in the total population and somewhat lower than the EU average. Living standards of pensioners are also supported by the extensive underpriced public health and long-term care services.

The Finnish Centre for Pensions provides long-term projections on pensions, total expenditure and contribution rates (Tikanmäki et al., 2019). The outlook, based on the 2019 population projection of Statistics Finland, shows that the ratio of average total pensions to average wages is expected to decline by around ten percentage points in 65 years mainly because of the life expectancy adjustment of pensions.

The outlook of the financial sustainability of the earnings-related pension system strongly depends on the time period studied. The passing of the baby boomer generation starts to bring down the ratio of expenditures to GDP in the 2030s. Low fertility and extending longevity turn the trend when approaching the middle of the century. The main private sector pension scheme can keep the contribution rates stable until the 2050s, but after that there will be a strong and continuous increase. If the scheme aims to smooth development of contributions until 2085, it should raise the contribution rate immediately by 2.6 percentage points (Tikanmäki et al., 2019). This means that the scheme is not financially sustainable. In the public sector, the current very high costs are expected to converge in the long term towards the same level as in the private sector, which allows a minor decline in the ratio of contributions to wages.

The pension reforms, together with improved education and health of the retiring cohorts have increased the employment rates of elderly persons dramatically in Finland. The gain in the 60-64 age group has been more than 20 percentage points since the 2005 pension reform, which

is almost three times higher than the improvement in the total employment rate. It is very likely that the growth will continue at a rapid pace due to the rising statutory retirement age.

The real rate of returns to pension funds has been reasonably high after the investment policies were liberalised (4% in 1997-2018). The low riskless interest rate has boosted asset values and risk premiums have grown, compensating the decline in interest income in recent years. The returns have been somewhat higher in the public sector buffer funds, where risk-taking is not restricted by solvency rules.

History shows that demographic development is difficult to project in the long term. As population projections are important for the sustainability of pay-as-you-go financed defined benefit pensions, it is useful to assess the uncertainty involved. Analysis performed using the stochastic population projections as inputs in an economic model shows that the Finnish idea of linking both pensions and the retirement age to life expectancy can manage longevity uncertainty very well. Longer working life helps to mitigate the replacement rate decline at the same time as the financial sustainability of both the pension system and the general government is improved (Lassila and Valkonen, 2018).

The other demographic and economic risks are carried by the contribution rate in Finland, at least if their realisation does not trigger pension reforms. The decreased contribution base requires that the contributions remain higher until the generations that have accrued less pension rights retire. Therefore, an observed reduction in the sum of wages and salaries is more problematic with a higher interest rate and lower future growth of contributions. Realisation of the risks related to the yield of the pension funds tend to increase contribution rates when the funds are used to pay pensions.

### Future challenges

The hottest topic of the current pension discussion in Finland is the rapid fall of the fertility rate during the past ten years. As there has been no decline in the amount of public resources used to support families by income transfers and services, and the employment rates of the young adults have improved, the reasons behind the declining number of births is not likely to be economic. Lack of information about the underlying causes means that there is also large uncertainty about the recovery of fertility and the efficiency of possible policies to promote it. The policy makers must consider the possibility that the fall in fertility weakens the finances of the pension scheme and general

government permanently. Fertility risks are less important for schemes with individual or cohort-specific pre-funding. Another, more controversial possibility would be to add a link between the number of children raised and the amount of pension accrued at the individual level (Sinn, 2005).

Another trend that possibly weakens the tax and contribution bases is the potential fall in labour income caused by technological development. Robotisation and digitalisation influence the relative use of labour and capital in production, factor income shares and possibly also unemployment (Acemoglu et al., 2020). A related trend that is already observable in the Finnish labour market is the polarisation of jobs and wages. Even though there are large uncertainties about the future development of these trends, their potential influence on wages and pensions may be significant.

An essential issue in financial sustainability of a pay-as-you-go financed pension system is the link between labour income and accrued pensions. If it is tight, a fall in the total wage bill also reduces pension accruals and finally pension expenditure. The challenge is to finance the pensions in payment during the time gap between the immediate realisation of lower contribution income and the future decline in paid pensions.

Third topic that has recently received renewed attention is the interaction of old age pensions and socio-economic differences in life expectancy. Well-educated people, who have higher wage income and larger pensions, live longer and benefit from old age pensions more. Moreover, an increase in the statutory retirement age means that the share of one's lifetime as pensioner declines more for the less educated. This is seen as unfair (Sánchez-Romero et al., 2019).

The average working careers of less-educated workers, on the other hand, end earlier, and there is often a period of disability or unemployment before old age retirement. Therefore, the realised redistribution depends strongly on the income available after early retirement compared to the old age pension. In the case of Finland, a simulation study showed that the average welfare of the less educated does not decline when the retirement age increases (Lassila et al., 2015). More generally, the main emphasis should be put on reducing the life expectancy differences instead of requiring poorly specified socio-economically adjusted retirement ages.

A fourth recent trend, which influences especially pre-funded pension schemes, is the low interest rate of low-risk government bonds. In pre-funded defined contribu-

tion schemes, the low yield means that the adequacy of pensions is at risk. In pre-funded defined benefit schemes, the contributions are increased either immediately due to solvency issues, or later when the funds are used to pay pensions. The Finnish private sector pension institutes have a unique solvency rule that allows a decline in the pre-funded share of the accrued pension liability when stock market prices fall. It has been suggested that this share should be enlarged to allow a riskier investment policy as a response to the low interest rates. This would improve the average return on the funds and mitigate potential problems because of solvency requirements (such as the forced sale of risky assets during recessions), but it increases the variation in the contribution rate, when the funds are used to pay pensions.

The COVID-19 crisis weakened the financial sustainability of the pension system markedly, but is not expected to result in an abandonment of the system's basic principles. The social partners reacted to the crisis by suggesting a temporary 2.6 percentage point cut in the employer's pension contribution rate. This was accepted by the government. The reduction will be compensated during the 2022-2025 period by higher contributions.

### Concluding remarks

The Finnish pension system has yet to solve some issues related to efficiency and risk sharing, yet it has many features that serve as an example of a well-defined and robust way to ensure old age security at reasonable costs.

The most urgent challenge is to share the fiscal consequences of lower fertility fairly between generations. The current pre-funding alleviates the problems somewhat, but the risk of a large jump in contribution rates is too high. A rules-based way of improving intergenerational fairness would be to establish a link between the pre-funding rate and the fertility rate. A more precise instrument would be a link between the accrual of pensions and the fertility rate of a cohort.

There is some room for diminishing pension expenditure by removing poorly justified elements. Accrual of earnings-related old age pensions from periods when the individual does not pay contributions is one of them. It is the manifestation of a tendency to introduce redistribution in all parts of the tax and benefit system, also benefitting those who are well-off in terms of lifetime income. Another discretionary policy that would support overall financial sustainability would be to increase the lowest retirement age before implementing the link to longevity.

The main lesson to be learned from the history and the performance of the Finnish pension system is that resiliency can be achieved in two ways. One is a preparedness to make pension reforms, whenever financial or social sustainability are at risk. Another is to agree beforehand on rules that redistribute the outcomes of the risks in a way that is acceptable.

In Finland, the increased weight on financial sustainability and intergenerational fairness in the decision-making of the social partners has enabled implementation of balanced reforms, where excessively generous early retirement schemes have been abolished and the link between the wages earned and pensions accrued is strengthened. A key feature is also the new rules that promote longer working lives as a response to increased life expectancy.

In general, optimal risk sharing between generations is difficult to define. We observe the outcome of the interaction of current pension rules and realised demographic and economic risks but know little about the alternatives. One way of investigating risk sharing is to use stochastic simulations, which describe the outcomes of the current and alternative rules in hundreds of demographic and economic futures. This method provides a set of choices for policymakers.

If the pension system is reformed when required instead of investing in risk sharing rules, the system would benefit from a practice that triggers automatic adjustments to benefits and contributions until a reformed scheme takes effect. Such a rule would speed up the adjustments processes.

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Matteo Lucchese and Mario Pianta\*

# The Coming Coronavirus Crisis: What Can We Learn?

The coronavirus pandemic is bringing with it the prospect of severe financial and economic crises. The article investigates its economic consequences in terms of financial instability, economic recession, lower incomes and policy challenges at the national and European levels. What are some of the lessons that can be learned? This article argues that health is a global public good. Public health and welfare systems are crucial alternatives to the market and universal public health is a key element of an egalitarian policy.

The coronavirus pandemic is a major health emergency.<sup>1</sup> As of 27 March, the World Health Organization (WHO) reported over 500,000 cases and more than 24,000 deaths worldwide. In China, where the virus started, the infection seems to have stopped after reaching 81,000 cases; in Italy – the second most affected country with over 80,000 confirmed cases on 26 March – the pandemic has not yet slowed. In many of the other 196 territories infected, the virus is spreading at a sustained pace and several countries, including the United States, are introducing drastic measures to address the spread of the virus.

The pandemic is bringing with it a major economic and financial crisis. Facing the economic consequences of coronavirus is a major challenge for national governments, European institutions and the international system. There is an urgent need to understand the extent of the crisis

and the nature of the health, social and economic problems we face as well as to update the policies that have led to this crisis.

## The financial crisis has arrived

With fears of a harsh credit crisis and a major collapse in economic activity, the spreading of the pandemic crashed financial markets all over the world. Between 19 February and 20 March 2020, the S&P500 index at the Wall Street Stock Exchange lost 32%. In London, the fall of the FTSE100 index was in the same range. In Italy – the first European country to be infested by the pandemic – the Milan FTSE MIB index lost 38%.

This is close to a financial crash. Until now, there has not been a specific factor that could replicate the role that the collapse of ‘subprime’ mortgages and the bankruptcy of Lehman Brothers played in 2007 and 2008 leading to a 50% fall of the US Stock Exchange. This time, the slowdown of the economy could simply make the mass of private debt unpayable; according to the OECD, world private corporations have an outstanding debt of 13.5 trillion US dollars (Goodman, 2020), after a decade of huge debt expansion, made easier by interest rates close to zero. Or the crisis could erupt in some unexpected point – for instance, the dysfunctionality of the US health system, a bankruptcy of US private health insurance companies or a new public debt crisis in Europe (Kerry, 2020).

In response to the crisis, the US Federal Reserve has announced drastic measures, including an extensive programme of quantitative easing and several emergency actions to support the flow of credit to consumers, businesses and municipalities. The European Central Bank (ECB) unveiled a 750 billion euro emergency bond plan to strengthen banks’ capital and support companies’ li-

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<sup>1</sup> For an earlier article on the economic consequences of the pandemic, see Lucchese and Pianta (2020).

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quidity demand. The ECB is ready to offer over 1.1 trillion euro to the financial markets. “There are no limits to our commitment to the euro. We are determined to use the full potential of our tools, within our mandate”, ECB President Christine Lagarde said (ECB, 2020).

### The United States

The epicentre of the financial crisis is likely to be in the United States. In February 2020, Wall Street stock indices were double their 2007 values, a level which is barely justified by the conditions of the real economy. Extreme financial speculation has been fuelled above all by the belief that, with Donald Trump in the White House, policies to support finance and business and tax breaks for the rich would allow Wall Street to continue its expansion. The recent expansionary measures taken by the US Federal Reserve in order to stabilise the financial markets, shocked by the spreading of the virus and the drop in oil prices, were still going in that direction.

Before the coronavirus pandemic, the most likely scenario for the US was a continuation of financial expansion – artificially supported by fiscal and monetary policies – until the presidential elections in November 2020. Typically, there is never a recession on the eve of a US presidential election; adjustments and crises usually occur the following year. If that were the case, Trump would likely win again, riding on the wave of a growing economy with low unemployment, and relying on the right-oriented radicalisation of his core electorate.

Now the scenario has completely changed. The ability of the United States to control the pandemic is difficult to assess; government actions are now catching up after the early denial of the severity of coronavirus infections. Pressed by the spreading of the pandemic and a risk of a severe recession in the US, the Trump administration has planned to launch with dangerous delays and strong divisions in Congress – a nearly 2 trillion dollar plan to shore up the economy. It includes supporting the costs of an underfunded and highly unequal healthcare system, helping firms, extending unemployment benefits and family leave, and even sending money directly to US citizens. With a 2019 US GDP of 21.2 trillion dollars, the US emergency plan amounts to about 9.5% of GDP. Still, Trump may prove to be an inadequate leader in the face of this emergency (Krugman, 2020). There is a possibility that everything might collapse: starting with a severe drop in US and world economic growth, a financial crash, Trump losing the election and the likely Democratic candidate former Vice President Joe Biden being left to restore some order in 2021. In terms of world order, a continuation of ‘systemic chaos’ could be expected, with the fur-

ther decline of US leadership and the rising influence of Asia and China.<sup>2</sup>

### Europe

Economies on this side of the Atlantic are facing severe difficulties – many of them of their own making. The ECB’s new plan to overcome the crisis came after days of a lack of clarity and divisions within the board. On 12 March, the first ECB decision to provide new liquidity was accompanied by a disastrous statement by Lagarde: “[W]e are not here to close spreads”, taken from a phrase by a German Member of the Executive Board of the ECB (Lagarde and de Guindos, 2020). A major worsening of the spread in interest rates between Italian and German government bonds and a stock market fall immediately followed the statement. The President of the Italian Republic Sergio Mattarella, with an unprecedented intervention, immediately replied that “initiatives of solidarity and not moves that can hinder Italy’s actions” (2020) are expected from Europe, leading to a slight correction of Lagarde’s view: “I am fully committed to avoid any fragmentation in a difficult moment for the euro area” (Lagarde and de Guindos, 2020).

A few days later, the Board of Directors decided to launch a massive injection of liquidity into the economic system. However, this unprecedented clash between Italy and the European Central Bank reveals the deep divisions in the ECB governing council and how far German and French strategies are from the interests of Italy and Southern Europe. European institutions appear unable to handle an economic emergency. Without a radical change, the ‘fragmentation’ of the euro area could become one of the effects of the pandemic.

### The coming economic recession

The coronavirus pandemic is bringing on a major economic crisis. In the last OECD Economic Outlook (OECD, 2020), annual global GDP growth was projected to fall to 2.4% in 2020, from an already weak 2.9% in 2019, with a possible contraction of GDP in the first quarter of 2020. GDP growth in China could be below 5% this year, with a marked downward correction. In fact, there is evidence that things will get worse. The most recent data on China show that the industrial production index fell by 13.5% in the first two months of 2020, the most dramatic fall since the early 1990s. The spread of the pandemic in Europe and the US could make the fall in GDP much larger, with stagnation or recession in all of Europe, and a significant

<sup>2</sup> On the instability of the world system, see Arrighi (1994) and Arrighi and Silver (1999).

fall – maybe in the range of 5% – for the most fragile economies of Southern Europe.

The drivers of the crisis are the stoppages in production and consumption in the months of most acute diffusion of the pandemic (the first quarter in China and in Italy, the months from March onwards in the rest of Europe and in the US). Whole sectors, such as air travel, transportation, tourism and restaurants, have completely stopped. As European economies are closely integrated in global value chains, they will probably suffer from a ‘supply-chain contagion’ (Baldwin and Weder di Mauro, 2020). Major negative economic effects are associated with the loss of employment and wages, which can only be compensated to a limited extent by the much-needed income support measures introduced by governments (guaranteed incomes, tax relief, etc.). The resulting fall in demand will further slow down production, while the increase in health expenditure is unlikely to have significant expansionary effects on the economy as a whole.

Data on Italy may provide some indication of what could happen in Europe as a whole. According to Confindustria, the main Italian business association, 20% of companies have experienced strong negative effects; some sectors, such as tourism, will be affected far beyond the most acute moments of the pandemic. Furthermore, income support measures may not translate into increased domestic production, but may lead to greater imports (as it has happened in the case of face masks and respiratory machinery). After the 2008 crisis, Italy and Southern Europe experienced a 20% fall in industrial production that later became permanent. A similar, further weakening of the economies of the European periphery could result from the coming crisis.

Traditional economic policy tools could be ineffective in combating the consequences of the coronavirus. European monetary policy will not make a big impact on the real economy. The indirect stimulus of expansive fiscal policies or tax relief could have a modest impact in the short term. The most effective tool for containing the crisis could be a large increase in public spending for the provision of public services, the purchase of domestically produced goods and investment in new production activities in the context of a green industrial policy.

### The coming crisis of Europe

The 2008 crash and the succeeding European debt crisis in 2011 have made apparent the inadequacy of European institutions and policies. These crises have turned into a decade of recession and stagnation for Southern Europe-

an countries. A major legitimization crisis has infested the European Union, contributing to the eventual exit of the UK from the Union. This is a scenario that could happen again, as Europe lacks the ability to quickly intervene and address the economic consequences of the coronavirus pandemic.

In the unfolding of the coronavirus crisis, the European Commission (EC) decided to temporarily weaken two of the most criticised pillars of European economic policies in the past 30 years. First, the EC launched a temporary revision of state aid measures to ensure support for workers’ incomes and the necessary liquidity for businesses – even rescue them with partial nationalisation if necessary; then the EC activated the ‘general escape clause’, which temporarily suspended the Stability and Growth Pact, providing governments with greater fiscal space to “pump as much money as it takes into the system” (EC, 2020). This radical change in fiscal policy has allowed the launch of massive national plans to fight the coronavirus epidemic. Germany has already announced a fiscal expansion of over 150 billion euro, 4.3% of GDP, overcoming the maximum debt limit included in the constitution. France unveiled a 45 billion euro plan, while Italy’s rescue plan – until now – amounts to 25 billion euro. Thus, actions have been left to national governments and European institutions have not been able to provide leadership in this emergency.

The lack of a coordinated action on fiscal policy in order to share the policies needed to confront the pandemic is a strong shortcoming of current EU action. Without a radical change, there could be strong asymmetries in the economic policy response and hard consequences for economy and well-being of those damaged countries whose policies will be constrained by a stricter path of adjustment of public expenditure.

Calls are mounting in Europe for much more decisive action. Facing the coronavirus pandemic, a strong European financial commitment and a change of its institutional set-up has been proposed by the former president of the European Commission Romano Prodi and Alberto Quadrio Curzio: “[T]he European Union has the tools to implement a project for the next decade which is able to mobilise, without any risks and with very limited costs, an increase in investment of at least 500 billion euros per year” (2020). The authors renewed the proposal to introduce Euro Union Bonds, based on the experience of the European Stability Mechanism (which may already issue European securities) and on the activities of the European Investment Bank. According to Quadrio Curzio, “[A] system with a central bank and a single currency must also have an adequate federal or confederal budget, be-

tween 10% and 20% of GDP, which can be financed with capital market issues” (2020a). Quadrio Curzio also proposed the issue of a ‘Euro Rescue Bond’ (ERB): “[W]ith appropriate guarantees, the ECB itself could purchase the ERBs as it has purchased government bonds of individual countries” (2020b). Such measures – a significant expansion of the European budget, the issuance of Eurobonds that the ECB can buy directly, a rethinking of the role of the European Stability Mechanism and the European Investment Bank to finance European public investment – are essential for turning the European Union into a political institution capable of facing the pandemic and its economic consequences, avoiding the current paralysis and the fragmentation of national responses.

On 25 March, an official letter by nine EU governments – Italy, France, Spain, Portugal, Slovenia, Greece, Ireland, Belgium and Luxembourg – demanded the creation of ‘coronabonds’, “a common debt instrument issued by a European institution to raise funds on the market on the same basis and to the benefits of all member states” (Dombey et al., 2020). The aim is to finance the necessary investment in health systems. Moreover, Italy’s Prime Minister Giuseppe Conte demanded that Europe’s response be “massive, cohesive, and timely” (ANSA, 2020).

If such proposal becomes official EU policy, a key step for changing European policies would be introduced. In a longer-term perspective, European fiscal policy should be based on a large common budget and a greater autonomy for national governments, starting with a ‘golden rule’ excluding public investment and all emergency-related expenditure from spending limits. European policies on expenditure, taxation and deficits must allow the development of the welfare state that is typical of Europe’s model, favouring the convergence of member countries to high performance levels. In parallel, European policy must promote and finance efforts of all countries for restructuring their economy to prevent and adapt to climate change. Along these lines, Europe could become an international model, setting international standards on health, welfare and environmental issues, assuming a leadership in international organisations, identifying the most effective ways to face today’s pandemic and tomorrow’s climate emergency.

Unfortunately, there are no signals of change from the European Council, the European Commission and national governments; there is no political vision and capacity for action adequate to the severity of the current emergency. The coronavirus crisis may indeed become a crisis of European integration.

## What can we learn?

The economic consequences of the coronavirus pandemic are wide-ranging, affecting the way the world economy works. A number of lessons can be learned, starting with our views on health and the public good, on the possible changes in the relationships between health, economics and politics.

### Health is a global public good

The necessary starting point is a conception of health as a fundamental right. The Universal Declaration of Human Rights of the United Nations (UN) states that “[e]veryone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services” (1948). From an economic and public policy perspective, health is a global public good. It cannot be produced as a commodity and sold on the market to individual consumers, and is highly vulnerable to the lack of health – or, in fact, to the emergence of epidemics – in any part of the planet.

The importance of global public goods has been recognised in the late nineties in the context of the debate on globalisation:

The United Nations Development Programme defines a global public good as ‘a public good with benefits that are strongly universal in terms of countries (covering more than one group of countries), people (accruing to several, preferably all, population groups) and generations (extending to both current and future generations, or at least meeting the needs of current generations without foreclosing development options for future generations) (Kaul et al., 1999).

The specificity of health as a global public good has been at the centre of several studies (e.g. Smith et al., 2003), including its link to climate change (McMichael, 2013), and is now acknowledged even in World Bank policies for the prevention of pandemics (Stein and Sridhar, 2017). But the trajectory of the global economy has disregarded the need for global public goods. Neoliberal globalisation has prevailed, creating rules and institutions to protect the free movement of capitals and commodities only. New inter-governmental organisations were born – such as the World Trade Organization – and new global private powers ruled – the financial centres of Wall Street and the City, rating agencies, multinational corporations.

In those years, progressive European governments, trade unions, the International Labour Organization (ILO) and

social movements had proposed to combine economic globalisation with new global protections for labour and social rights and the environment, as shown by the documents of the movements against the WTO summit in Seattle in 1999 and the Millennium Forum of civil society at the UN in 2000 (International Progress Organization, 2000).<sup>3</sup> They were ignored. No global rules and resources were introduced for welfare and health policies, for labour rights and environmental standards. These aspects were simply considered a ‘cost’ for the economy, left to fragmented national policies and put under pressure by privatisations and cuts in public resources.

The coronavirus pandemic has exposed the economic and social costs caused by the lack of adequate health and welfare systems in all countries and by the absence of global rules and coordination on the protection of health, from the markets of live animals in China to the ability to quickly identify and address an epidemic. The same holds for many environmental disasters – present and future ones – caused by climate change.

In order to address these global issues, we need to radically rewrite the rules of globalisation. Health, welfare, labour rights and the environment must be protected by international standards, which should be binding for the international movement of capitals and goods. The policy proposals put forward by the WHO, the ILO and the Climate Change conferences must acquire a new political priority and obtain the much-needed resources. The Sustainable Development Goals, endorsed by all UN member states, offer an additional framework in which to place these priorities (United Nations, 2015).

### The welfare state is an effective alternative to the market

Public health systems play a fundamental role in responding to the coronavirus pandemic. As Stiglitz (2020) argued, “when we face a crisis like an epidemic or a hurricane, we turn to government, because we know that such events demand collective action”. Public health systems are based on a vision of health as a fundamental right that must be guaranteed by the government through the provision of universal public services designed to meet individual and social needs, outside the logic of the market. In Europe, this model has inspired the construction of the welfare state since the radical reforms introduced after World War II by the Labour Party in the UK. The welfare state, with its national varieties, remains at the core of the European ‘social model’. Health, education, universities, pensions, social assistance and other key activities are provided and financed mainly by public action.

3 Several civil society documents are collected in Pianta (2001).

Three decades of neoliberal policies have seriously reduced the welfare state: privatisations and cuts in public budgets have forced public agencies to downsize their activities, sometimes losing universality, effectiveness and quality of services. Private companies have entered these activities, starting from the most profitable fields – pensions, health-care and universities. Reduced funding, lack of turnover of personnel and pressure to make ‘clients’ pay for services have pushed welfare services to become more similar to market goods. The market system has been presented as the only way to effectively supply goods and services.

The pandemic has dramatically shown the price of such a neoliberal turn. Market globalisation creates health threats and is completely unable to respond to emergencies. Private health care is turning out to be largely irrelevant in facing the pandemic. The welfare state should not be considered a ‘cost’ for the private economic system. It is a parallel system that produces public goods and services and ensures the reproduction of society based on the rights and needs of citizens, rather than on the ability of customers to spend. The welfare state produces well-being and social quality, dimensions that the GDP, based on the market value of goods, cannot measure. The same arguments apply to environmental quality and the need for public intervention in this area; it is now urgently necessary to build accounting systems that seriously take into account social and environmental externalities produced by the economic systems.<sup>4</sup>

The obvious consequence of this analysis is that we should massively refinance – through a more progressive taxation of income and wealth and through deficit spending – a whole range of public activities: health, education, universities, research, pensions, social assistance and environmental protection.<sup>5</sup>

The welfare state could become the engine of a new model of development with high social quality and environmental sustainability. However, public policy should not be limited to the provision of welfare services. It must guide the development trajectories of the economy as a whole, ensuring consistency between business behaviour and the social, health and environmental goals mentioned above. In this regard, the debates on the return of industrial policy and on the ‘European Green Deal’ have

4 A novel measure of sustainable welfare for Italy is developed in Armiento (2018).

5 In Italy public spending has declined over time, slowly recovering in the last few years only. In terms of per capita healthcare expenditure the gap with the other major European countries has increased; the emphasis put on fiscal consolidation has left little room for social objectives. Italy is also characterised by a large divide on spending between Northern and Southern regions.

opened up a new space for public action at the national and European levels. There is growing consensus on expanding the role of the state and on the need for public action in the economy and society. An important example is provided by Mazzucato's proposals on the 'entrepreneurial state' and on the nationalisation of the pharmaceutical industry (2013; Mazzucato et al., 2020).

It would be a mistake to believe that, once the pandemic has passed, the economy could go back to 'normal'. We need to rethink production and consumption in light of health and environmental needs. There are other health crises that receive much less attention: occupational health and safety have been disregarded, and work-related accidents and deaths continue to be a dramatic issue. Pollution-related illnesses and deaths related to low environmental quality are a rising challenge in all countries. The 'deaths of despair' are a major social problem in the US and other countries, with a booming number of deaths, mainly of poor white men, related to suicide, alcohol, the use of opioids and drugs (Deaton and Case, 2020; Baldwin, 2020).

To confront such challenges, we have to move towards an economic system of greater quality, one which is able to cause less damage to the health of workers and citizens. Indeed, health and welfare could become a key engine of a novel development. In the current debate on the return of industrial policies, the report *What is to be produced?* proposes to identify three priority areas where public and private research and investment could be concentrated in order to develop a 'good' economy: environment and sustainability, knowledge and information and communication technologies, and health and welfare activities (Pianta et al., 2016). For the latter, as we argue in Pianta et al. (2019):

Europe is an ageing continent with the best health systems in the world, rooted in their nature as a public service outside the market. Advances in care systems, instrumentation, biotechnologies, genetics and drug research have to be supported and regulated, considering their ethical and social consequences (as in the cases of GMOs, cloning, access to drugs in developing countries, etc.). Social innovation may spread in welfare services with a greater role of citizens, users and non-profit organisations, renewed public provision and new forms of self-organisation of communities. (279)

Such a policy can be built in Europe using existing institutions, policy tools and resources, pushing economic activities towards the protection of health and welfare and putting Europe on a sustainable path of long-term environmental transition on the basis of a green industrial policy. (Pianta et al., 2020; Lucchese and Pianta, 2020)

### The welfare state and public health reduce inequalities

Inequality is a major concern in this context. Since the 1980s, as a result of neoliberal policies, advanced countries have experienced sharp increases in income and wealth disparities. Because of its nature as a supplier of goods and services based on individual and social needs, the welfare state has been a key factor in reducing inequalities after the Second World War. As argued in our book *Explaining inequality* (Franzini and Pianta, 2015), the reduction of the policy space, the privatisation of public services and the extension of the market in areas previously protected by public action have introduced new mechanisms that generated economic and social disparities. In Europe a report from the European Commission recalled that "[i]n all countries with available data, significant differences in health exist between socioeconomic groups, in the sense that people with lower levels of education, occupation and/or income tend to have systematically higher morbidity and mortality rate" (2007). And, considering the economic effects of disparities in health conditions, the EU report calculated that the number of deaths that can be attributed to health inequalities in the European Union (EU25) as a whole is estimated to be 707,000 per year and the number of life years lost due to these death is about 11.4 million. Health inequalities also affect the average life expectancy at birth of men and women, decreasing it by 1.84 years. The total costs due to health inequalities – obtained from the combination of data relating to mortality and morbidity – is close to 980 billion euros, 9.38% of EU25 GDP in 2004. In other words, the loss of health due to socio-economic inequalities represents 15% of the costs of social security systems and 20% of the costs of health care systems in the European Union as a whole (Mackenbach, 2007).<sup>6</sup>

The relationship between inequalities and health has been analysed in several countries by considering different social and professional conditions (Wilkinson and Pickett, 2009; Costa et al., 2004), showing that mortality rates increase in proportion to economic and social hardship, lower incomes, education and social class. Thus, reducing economic inequalities would make it possible to reduce health disparities; at the same time, greater universal and egalitarian health protection would significantly reduce the costs of public health and welfare.

It is a paradox that the spreading of the pandemic today creates a condition of (almost) equality in the probability of contagion: in this situation, income levels matter relatively little and there is (almost) no way to 'buy' individual pro-

<sup>6</sup> For a synthesis of the report, see [https://www.epicentro.iss.it/politiche\\_sanitarie/diseg\\_economiche](https://www.epicentro.iss.it/politiche_sanitarie/diseg_economiche).

tection on the market. Equality in behaviours and health treatments becomes essential to fight the pandemic. But such equality can only be the result of universal public health, a fundamental outcome of the welfare state. As such, equality should be recognised as a key priority for the economic, social and health care policies of the post-coronavirus age.

The coronavirus pandemic is rapidly changing health conditions, daily life, social relationships and economic prospects around the world. It is important to learn the key lessons of its economic consequences and open up a debate on the possible actions that can set our societies on a more stable, healthy, egalitarian and sustainable trajectory of development.

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Ronald Schettkat

# Micro-Foundations of Diverging Economic Policies: Keynesian, Behavioural, Neoclassic

Germany's austerity-oriented economic policy is the wrong approach. Markets need demand stimulation to achieve full use of resources, argues Krugman, a Keynesian economist. Neoclassical economists have been warning that expansionary macroeconomic policies are not only useless but can even be harmful (e.g. Phelps). These stark differences in the evaluation of economic policy proposals are deeply rooted in their underlying microeconomic reasoning, in the theories of the motivation and behaviour of economic agents as investors, workers, consumers and speculators as well as their interactions. The claim of missing micro-foundations in Keynes's theory is false. In contrast, recent findings of behavioural economics have strongly confirmed Keynes's micro-foundations that lead to his macroeconomic conclusions.

In Germany, austerity-oriented policy is regarded as a virtue and a condition for stable long-term growth. Even in the midst of the coronavirus crisis, Peter Altmaier, the Minister for Economic Affairs, promised to return to the 'black zero' soon. German economic policymakers believe that balanced budgets, the 'black zero' and huge net export surpluses are sacrifices made today that will pay off tomorrow (Brunnermeier et al., 2016). This is the wrong approach, argues Krugman (2019): slow growth is due to Germany's over-saving and austerity policies, creating not only problems for the German economy but also for other countries. Germany must increase its spending on consumption, education, public infrastructure, etc.<sup>1</sup> This will not help to overcome slow growth, counters Phelps (2019): structural reforms, increases in productivity growth and entrepreneurship are needed to revive growth in Germany and other industrialised economies. Microeconomics rather than macroeconomics is the solution.

## Diverging microeconomic foundations

Why do the propositions of the two Nobel-prize winning economists, Krugman and Phelps, deviate so much? Is

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<sup>1</sup> A joint initiative of employers and unions argued in favor of higher investments in Germany, see Bardt et al. (2019)

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it just the difference between macro- and microeconomics? Lucas and Sargent (1979) famously alleged that Keynes's theory was *intellectually flawed* because it misses micro-foundations. This allegation is *intellectually flawed*. Instead, Keynes's microeconomic foundations are the key to understanding his macroeconomics (Hahn, 1997). Keynes induced his micro-foundations from observed actual behaviour of entrepreneurs, speculators, workers and consumers in a monetary economy in which precautionary savings, speculations and investments are pursued in a dynamic environment under uncertainty. Behavioural economics is also based on this inductive methodological approach aimed at describing actual human behaviour. This approach contrasts sharply with the fictitious world deduced from neoclassical axioms.

The diverging micro-foundations and the concept of the economic environment are leading to fundamentally different equilibrium concepts – merely the balance between demand and supply in Keynes's theory, and the optimal equilibrium in neoclassical economics when individuals maximised utility and profits. In the equilibrium of the latter, all resources are fully used (full-employment equilibrium); no one can improve in the existing institutional framework through voluntary trade. There is no need for macroeconomic stimulation since the economy is already in the optimum (full-employment equilibrium); on the contrary, stimulation will destroy this optimal full-employment equilibrium, resulting in inflation only (Keynes 1936, 294). If the economy is assumed to be in full-employment equilibrium, improvements in growth and employment require shifts in the optimal equilibrium itself through, e.g. institutional reforms and the enhancement of productivity growth – just as Phelps suggested. However, the optimal equilibrium is an unverified assumption (Blinder and Solow, 1973).

Keynes's theory does not exclude the optimal equilibrium, but the economy may balance very well below the optimum,<sup>2</sup> without any automatic forces to the full-employment equilibrium. To stimulate economic activity and overcome the stalemate, Keynes suggested expansionary macroeconomic policies (fiscal and/or monetary) to achieve full-employment equilibrium. The nature of the economic environment in which individuals operate as well as their behaviour distinguishes Keynes's theory from the axiomatic neoclassical model and results in the fundamentally different macroeconomic policy approaches.

This paper discusses the major commonalities between behavioural economics and Keynes's microeconomics as well as their distinction from neoclassical assumptions. The following sections discuss the analytical basis for the diverging views on the motivation of agents deduced from neoclassical axioms versus induced microeconomic theory. The research in behavioural economics impressively confirms Keynes's observations but contradicts neoclassical axioms.

### Motivation in economics

"All theory depends on assumptions which are not quite true. That is what makes it theory" (Solow, 1956, 65). Theoretical models stripped of irrelevant aspects should simplify the real world and help to better understand economic behaviour. Theories should work like glasses, but oversimplification may lead them to function instead like blinders. Does economic theory need to relate to the real world, or can theory be totally abstract from actual human behaviour? This is the fundamental methodological issue that distinguishes behavioural economics and Keynes's theory from the neoclassical model with far-reaching consequences. Both behavioural economics and Keynes regard economics as a real science such as physics or biology, where only assumptions that do not conflict with reality describe *the world we live in* (Kornai, 1971). Neoclassical economics is based on an axiomatic approach as applied in mathematical, logical sciences, in which *truth* is established through formal deductions from the axioms, which are not necessarily related to reality (Kornai, 1971). It assumes selfish, independent and socially isolated individuals who maximise their utility derived from real values (goods) along well-ordered and stable preferences using all available information (*rational choice*), subject to budget constraints. The interaction among individuals is limited to market exchange, i.e. choices made by other individuals leave their preferences unaffected; there are no trends, no fashions, no ostentation, no positional goods. Do individual motivation and decision-making follow the neoclassical axioms?

2 Keynes's theory includes the optimal equilibrium as a special case. Therefore, he labelled his 1936 book, *The General Theory*.

Doubts that actual decision-making processes are performed as required to maximise utility were expressed with an astounding *as-if* reply in the past (Friedman, 1953) and in the present (Pesendorfer, 2006). Axioms, Friedman (1953) argued, are instrumental,<sup>3</sup> and therefore theories cannot be judged by the validity of their axioms. On the contrary, he claimed, "Truly important and significant hypotheses will be found to have 'assumptions' that are wildly inaccurate descriptive representations of reality" (Friedman 1953, 8).<sup>4</sup> The only way to prove a theory is to determine whether its predictions are in accordance with the observed outcomes, but Friedman simply declared observed outcomes as optimal (utility- or profit-maxima), which is not the same as providing evidence. "When verification is demanded, they [neoclassical economists] tend to look for evidence that the theory makes correct predictions and resist advice that they should look instead directly at the decision mechanisms and processes" (Simon 1986, 38). Analysing the motivation and decisions of economic agents is precisely the research program of behavioural economics, aiming to develop a deeper and descriptive understanding of individual economic behaviour.

Everyone – including almost all economists – will admit to behaving irrationally<sup>5</sup> from time to time. However, most people regard their economic decisions as purposeful behaviour and have evaluated some pros and cons in order to reach the decision (at least if a more significant amount is spent). But *rational choice* means choosing the utility or profit-maximising alternative, which requires the intention to maximise as well as the ability to evaluate alternatives. *Rational expectations* require knowledge of all possible future events and their probabilities to calculate expected outcomes, which is a stochastic version of perfect foresight (Arrow, 1987). At best, rational expectations may apply to a steady-state economy where only external shocks can disturb the assumed smooth market process. The economy is treated like roulette, where the number of the next draw is unknown but where the probability distribution is known, i.e. while playing roulette is risky, one of the 37 possibilities must occur. However, is the economy actually moving along a smooth equilibrium path only disturbed by external shocks? Are expectations formed as mechanically as as-

3 Popper: Instrumentalism forces scientists to abandon the search for truth (cited according to Caldwell, 1980, 370).

4 The worse the assumptions, the better the theory? (F-twist, Samuelson, 1963).

5 Because *homo economicus* has dominated economics, many economists refer to other concepts of decision-making as irrational (e.g. Akerlof and Shiller, 2011). Giegerenser and Selten (2001) distinguish rational theories based on known probabilities from non-rational theories, which are not about irrational decision-making. "Indeed, non-rational theories are concerned with psychological plausibility, that is, the capacities and limitations of actual humans, whereas rational theories have little concern for descriptive validity and tend to assume omniscience" (Giegerenser, 2001, 3).

sumed under rational expectations? Or are there interdependencies among the actions of economic agents? Lucas (1986) was prepared to narrow economics to the optimal equilibrium, to steady states, where expansionary macro-economic impulses can only push the economy out of the optimum. Such policies can only be inflationary and ineffective because economic agents will anticipate (or learn to anticipate)<sup>6</sup> the outcomes within the Lucas model.

### Decisions under uncertainty: Animal spirits

*The economy we live in* differs sharply from roulette: the probabilities of future events are unknown and the future is not risky but uncertain as its growth path, its production potential, develops endogenously depending on expectations which cannot be *rational expectations*. How can consumers, workers and entrepreneurs decide under uncertainty? In the *real world*, as in Keynes's theory, expectations are radically different from *rational expectations* because the economic future is not a stochastic of perfect foresight but rather uncertain, i.e. even intended rational choices cannot be made.

Today, neoclassical economics simply builds models for variations of risk and ignores uncertainty as it did when Keynes was writing (Keynes, 1937, 212-213). Academic economists can ignore uncertainty and construct theories for an assumed certain or risky world (Arthur, 1994). But entrepreneurs make decisions in *the world we live in*, where uncertainty cannot be ignored, interdependencies are relevant as in financial markets, and where expectations are about the expectations of others (Keynesian beauty contest; Arrow, 1987)

The entrepreneur's production decisions depend on the expected demand, which in turn affects employment, labour income and demand; i.e. economic developments are endogenous – tomorrow's events depend on today's actions (Robinson, 1980; Howitt, 1986). Also, preferences may not be formed in isolation and are not fixed but may change under the influence of the decision of others. Economic agents, including businesspeople, must apply other guesswork, conventions, intuitions, emotions and *animal spirits* in order to decide. Clearly, the pros and cons will be evaluated before deciding on purchases and investments involving significant amounts. Possibly some probabilities may be assigned to certain outcomes, but uncertainty will remain and cannot be eliminated. Individuals can ascribe a certain probability to future events, but in an open, dynamic environment, these are bets (Dow, 2012). Keynes emphasises conventional behaviour (routines, heuristics) as an essential decision rule under uncertainty. Conventional behaviour or a conventional method of calculation assumes "that the

existing state of affairs will continue indefinitely, except in so far as we have a specific reason to expect a change" (Keynes, 1936, 152). Economic agents rely on a limited number of heuristic principles (such as representativeness, availability, anchoring), intended to reduce complexity (Kahnemann, 2002, 465).

Under uncertainty, expectations are necessarily influenced by emotions, intuition, moods (optimism, pessimism) and *animal spirits*. Expectations and the following decisions also affect the present aggregate demand in the economy. Therefore, "a mere change in expectation is capable of producing an oscillation of the same kind of shape as a cyclical movement in the course of working itself out" (Keynes, 1936, 49). Furthermore, the instability of the economy becomes endogenous, as opposed to an assumed stable market system, in which only external shocks can disturb the optimal equilibrium. One feels more confident in estimating next year's sales than those ten or 20 years in the future for which investments are necessary. Although sales expectations for the next period are uncertain, the entrepreneur's confidence in these expectations is higher than in the long term. For decisions affecting the long term, confidence in the expected trends will be weaker, and the reasoning will be more elaborate, especially if investments are necessary, although uncertainty will remain. It cannot be eliminated.

Keynes's term *animal spirits* refers to the necessity to take action under uncertainty because *cold calculations* cannot bring about decisions.

Most, probably, of our decisions to do something positive, the full consequences of which will be drawn out over many days to come, can only be taken as a result of animal spirits – of the spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities (Keynes, 1936, 161).

If human nature felt no temptation to take a chance, no satisfaction (profit apart) in constructing a factory, a railway, a mine, or a farm, there might not be much investment merely as a result of cold calculation (Keynes, 1936, 150).

Keynes's *animal spirits* are the basis for economic decisions under uncertainty but regarded with scepticism even among some Keynesian economists. "[I]f the animal spirits are dimmed and the spontaneous optimism falters, leaving us to depend on nothing but a mathematical expectation, enterprise will fade and die, though fears of loss may have a basis no more reasonable than hopes of profit had before" (Keynes, 1936, 162). Rationality is deeply ingrained in economists' thinking, but the work of neurolo-

<sup>6</sup> See Schettkat and Jovicic (2017) for a discussion.

gist Damásio (1994) reveals that without emotions, without *animal spirits*, people are unable to decide. Damásio's discovery is based on the behaviour of a patient with brain damage in the prefrontal cortex where emotions are located, who functioned very well but could not make decisions. He would continuously collect information and evaluate alternatives, but would not use the information to make decisions.

The findings of behavioural economics reveal that humans often make systematic mistakes, even in predicting their own future utility. Sometimes humans make the wrong choices because they do not fully understand the situation or because they are not smart enough.<sup>7</sup> However, it is not simply an error or a misunderstanding of situations, which results in decisions deviating from rational choice. Even when misunderstandings are clarified, they stick to non-rational choices. It is not merely the *money illusion* that arises when nominal values are recognised in decisions; they can even overrule real values concerning utility.

### Non-rational economic decisions

Are we smart enough to choose rationally? Are our preferences as consistent as assumed in the neoclassical model? In an early experiment, Allais (1953) observed that the decision criterion under risk changes from expected payments to higher probability, resulting in contradictory choices between two lotteries (known as the Allais paradox). Participants in Allais's experiment had to choose between lotteries and voted (rationally) for the one with the highest expected value. When Allais changed the probabilities to one lottery with a guaranteed but lower gain compared to the other with a much higher expected value but also a minor chance of a zero gain, participants switched to the former. Obviously, certainty is preferred over higher gains with a slight probability of no gain.<sup>8</sup> Participants did not adhere to the axiom of rationality, and therefore the person's choices cannot be attributed to maximising the utility functions. Was it just a lack of understanding that caused the inconsistency of the participants' choices? Allais repeated his experiment at a conference with distinguished economics professors (among them Friedman, Samuelson, Savage and Arrow, according to Kahneman, 2011, 312-314). Even these distinguished fellows switched

preferences as laypersons did, not noticing that their expressed preferences violated rational choice.<sup>9</sup>

A necessary condition for utility-maximising choices is accurate and unbiased forecasts of the hedonic outcomes of potential choices (Kahneman and Thaler, 2006). Many findings of behavioural economics suggest that the stable preferences assumption underlying the neoclassical model does not hold. To maximise utility requires correct knowledge of the utility that a specific product will provide. However, expected utility today and the utility experienced in the future might deviate substantially. People's (expected) utility seems to be strongly affected by the situation, their moods, the environment and time. "However, people do not always know what they will like, and they are likely to err most severely when the temporal gap is long and when the agent's state and circumstances vary between  $t_1$  and  $t_0$ " (Kahneman and Thaler, 2006, 223). To choose rationally economic agents must not only rank all possible choices, but they must also discount the future utility into present values, i.e. the measurement of utility needs to be cardinal. Furthermore, the future (expected) utility must be independent of current choices, but utility ascribed to a product may differ once a person owns the product (i.e. endowment effect, habituation, change of preferences, path dependence). Humans seem to value gains less than losses (prospect theory; Kahneman and Tversky, 1979). Participants in financial markets, presumably closest to the perfect market model (Schettkat, 2010), illustrate this behaviour: investors tend to keep shares even though the prices of which are falling.

A summary of 42 empirical studies on discount rates (Wilkinson, 2008, 314-317) found that discount rates do not rise with time as diminishing marginal utility would suggest but conversely decline with time. Humans seem not to apply exponential discounting (i.e. discounting with a constant discount rate), but rather apply hyperbolic discounting (Ainslie, 1991). A common finding in behavioural economics is that higher amounts are discounted at lower rates than smaller amounts (Kahneman and Tversky, 2000). Magnitudes influence the same person's discount rates but in the reverse order of the *rational choice* assumption: the higher the amounts, the lower the discount rate (Thaler, 1981).

### Socially embedded individuals

#### Consumption

What determines consumption? Are the individual preferences influenced by the consumption and behaviour of others (i.e. positional goods, trends and fashion) or are prefer-

7 Thaler (2015) offers several examples in which humans simply make mistakes because the situation is too complex to be understood immediately.

8 Kahneman (2011) explains the switch with the certainty effect, under which the utility of a certain gain is substantially higher than the probability effect of a tiny deviation from certainty lowers the utility, which may make decisions sensitive to the presentation.

9 Kahneman (2011) mentions that Allais paradox was forgotten and became an anomaly with rationality remaining the standard assumption in economics.

ences formed in isolation and stable over time? The desires and needs of *homo oeconomicus* are not affected by trends, fashion and ostentation because one determines their preferences in isolation; only real income (the number of goods) counts and social interaction is excluded from the model. Neoclassical economics restricts the interaction among individuals to market exchange. For example, consumption of other individuals may affect relative prices (and via this mechanism, the choices), but the utility functions will remain unaffected.<sup>10</sup> This assumption is obviously not descriptive of the behaviour of social beings, but it is still alive and well in economics. “To many economists, the notion of consumers being strongly influenced by demonstration effects must have seemed probably inconsistent with the reasoned pursuit of self-interests, if not completely irrational” (Frank, 1985, 146).

Nevertheless, several economists took relative positions and social interactions into account: an early example can be found in the work of Veblen (1899).<sup>11</sup> For “any particular consumer will be more influenced by the consumption of people with whom he has social contacts” (Duesenberry, 1949, 48). Thus, signaling social status and demonstrating one’s lifestyle through consumption is vital for socially embedded individuals (Leibenstein, 1975; Hirsch, 1976). Ostentation and extravagance are explicitly listed by Keynes (1936, 108) among the subjective factors influencing individual consumption. They are irrelevant for the socially isolated *homo oeconomicus*, who gains utility exclusively from real values (goods) and cannot place importance on the relative position of the income and consumption of others. Interdependent preference formation would destroy the basis for maximisation in the neoclassical model.

*Homo oeconomicus* is not influenced by her own history. She knows her preferences in advance, i.e. past consumption/income can serve as a reference point, leading to path dependence (habituation). Habitual standards of living involve judging situations by reference points, which depend on experience and the observed patterns of the reference groups (Baxter, 1988). These patterns themselves are affected by cultural influences, thus making preferences endogenous (Drakopoulos, 2011). Of course, within society, savings and consumption will be affected by the distribution of income.

### Real and nominal wages

Keynes observed that workers resist nominal wage reductions but accept similar real wage reductions through

inflation. *Money illusion*, a lack of understanding, was and still is the common interpretation among economists who are used to thinking in models in which socially isolated individuals are solely stimulated by real wages (goods) and money is a veil covering the real values. This interpretation of Keynesian nominal wage resistance is totally ignorant of Keynes’s reasoning that for social individuals, the position in society matters.

[A]ny individual or group of individuals who consent to a reduction of money-wages *relative* to others will suffer a relative reduction in real wages, which is a sufficient justification for them to resist it. On the other hand, it would be impracticable to resist every reduction of real wages, due to a change in the purchasing power of money which affects all workers (Keynes, 1936, 14).<sup>12</sup>

Do workers care about relative wages? Probably the most robust evidence for the importance of relative pay comes from experiments using magnetic resonance imaging (MRT medical scanners): controlled for income levels, relative income is important and activates certain brain areas (Fliebsbach et al., 2007). Labour contracts are stipulated in nominal terms, and these serve as a reference point. Reference levels (e.g. minimum wages) even serve as a reference point after they have been removed (Falk et al., 2006).

Strong evidence that money illusion is not the most relevant interpretation for nominal wage orientation is impressively revealed in a study by Shafir et al. (1997). Participants were presented with the cases of two individuals, A and B, who graduated simultaneously from the same college, got the same starting salary, but faced different pay increases and inflation. Participants were then asked to indicate which of the two is better off economically (in terms of real income), is happier and would be more likely to quit upon receiving an alternative job offer. Figure 1 shows the outcome of this experiment. Assuming a rational individual, person A should be happier because she got a higher real income, and consequently, she should be less likely to quit. However, the majority of respondents in the study understood very well that person A is better off economically; i.e. participants do not suffer from money illusion, but they nevertheless believe that person B is happier and less likely to quit.

Nominal values, money wages and their changes are obviously regarded as important by most people, even if the real wage is lower than in the alternative. This result sheds

<sup>10</sup> Elsner (2012) enhances the traditional microeconomic analysis to complex interactions.

<sup>11</sup> Frank (1999) argued that the consumption of the neighbours, the Joneses, as a reference was substituted by the consumption of the very wealthy through mass media, which arguably leads to overconsumption.

<sup>12</sup> Workers usually cannot afford to withdraw their labour in response to nominal wage cuts, but they can reduce their effort (Bewley, 1999).

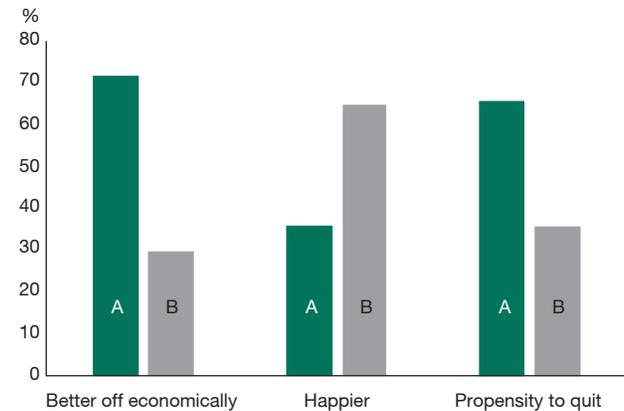
light on a conundrum in labour economics, where it was found that upward-sloping wage profiles are not necessarily related to productivity improvements (Medoff and Abraham, 1981). When workers are offered the choice between a rising wage profile with a lower starting income and a declining wage profile with a higher starting income, the majority chose the former, even if the advantage of declining wage profiles is explained to them (Loewenstein and Sichermann, 1991).

### The impact of endogenous preferences

The valuation of situations related to reference points is arguably the most crucial finding in behavioural economics, especially in the context of methodological concerns. The endowment effect (Kahneman et al., 1991) refers to changes in the valuation of products, depending on the possession of a product. When buying a product, its utility should be equal to the utility derived from the money that was paid for it (respectively to the alternative products the money could have bought). However, it turns out that, once a product is possessed, it is only sold at a significantly higher price (although the owner would not have paid the potential selling price). Such behaviour has been observed for football and concert tickets (Krueger, 2001), bottles of wine and even coffee mugs. The utility derived from the possession of the product rose after the consumer possessed it. In other words, preferences are endogenous and are evaluated asymmetrically, as summarised by prospect theory (Kahneman and Tversky, 1979). Kahneman and Tversky found that the utility gain of adding an additional unit of a certain product is less than the utility loss of subtracting a unit of the very same product would be. The orientation on reference points implies changes in the utility function, i.e. the neoclassical assumption of stable preferences is violated.

Komlos (2014) translated the impact of prospect theory into conventional indifference curves and shows that, after initial maximisation (in which the budget constraint is tangential to an indifference curve), kinks will arise at the reference point because of the differing valuation of the gains and losses. The marginal rate of substitution between two goods X and Y ( $m = -dY_i/dX_i$ ) changes, because the loss in Y weighs greater than the gain in X. In other words, the slope of the indifference curve changed, even if the maximisation procedure was initially performed. In a new situation, however, asymmetric evaluation will repeat. Therefore, neoclassical theorist Pesendorfer (2006) concludes that a rational economic agent, knowing that a decision changes her preferences, will refrain from maximisation. In other words, a rational economic agent does not follow rational decision-making because the basis for it does not exist – *super rationality*.

**Figure 1**  
Orientation on nominal versus real salaries: Money illusion?



Note: Both persons started after graduation, simultaneously, with the same income. Person A receives a pay rise of 2% in times of no inflation, while person B receives a 5% pay rise in times of 4% inflation.

Source: Compilation from Shafir, E., P. Diamond and A. Tversky (1997), Money illusion, *The Quarterly Journal of Economics*, 112(2), 341-374, cited in Wilkinson, N. (2008), *An introduction to behavioral economics*, Palgrave Macmillan.

### Conclusions

The allegation that Keynes's theory is flawed because it misses micro-foundations is itself flawed. On the contrary, Keynesian micro-foundations are induced from observed economic behaviour in *the world we live in* and are strongly confirmed by the findings of behavioural economics. Keynes and behavioural economics share an inductive methodological approach that refers to *the economy we live in*, and that allows for socially embedded individuals. The experiments and tests in behavioural economics extend far beyond Keynes's *casual* observations, providing rigorous evidence for regularities in economic human behaviour which contradict neoclassical axioms and should not be ignored. Furthermore, *the world we live in* is not a risky move along a steady state path, but it is uncertain with the consequence that expectations cannot be based on cold calculations, they cannot be calculated rational expectations; instead, they are endogenous and made under uncertainty. Today's expectations and decisions affect tomorrow's outcomes. Since behavioural economic findings contradict the neoclassical axioms, it may provide the seeds of a scientific revolution in the Kuhnian sense (Kuhn, 1970).<sup>13</sup> These seeds, within broader, more realistic economics, were already underlying Keynes's micro-foundations of his macroeconomics.

<sup>13</sup> For a discussion of whether behavioural economics is an extension or an alternative to the neoclassical approach, see Schettkat (2018).

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## New CAP Delivery Model, Old Issues

The proposed Common Agricultural Policy (CAP) for the period 2021-2027 will be more flexible and, presumably, more effective. To provide for sufficient ambition and prevent a race to the bottom, national strategic plans will be introduced with quantitative targets covering both policy pillars. This article argues that since formal requirements and the evaluation model are weak on actual long-term impact, substantial improvements are unlikely. To test this, programming rules are experimentally evaluated on the implementation of CAP 2014-2020 in Slovenia. The experiment shows that while measures and resources broadly correspond to policy objectives, the specific relevance of measures is generally weak and has potential effects dispersed among several objectives, resulting in high costs for individual objectives at best. Without the effective inclusion of an impact assessment, the outcome will rely on the capacity and benevolence of national governance systems.

In the last two decades, CAP implementation at the member state level has become more flexible in order to be closer to different situations in the growing EU membership. The legislative proposals for the CAP 2021-2027 aim to make a further step in this direction by switching from a compliance-based to a performance-based framework. While objectives and measures will still be defined at the community level, member states will be able to – based on their specific needs – set national priorities and accommodate measures. The critical role will be played by the strategic plans, which will explain those changes and will involve quantified targets based on a common list of indicators (European Commission, 2018, 12-15). The plans will have to be approved by the Commission before payments will be granted to assure the proper level of

ambition and budgetary responsibility as well as respect for community principles such as a common market and World Trade Organization rules (European Commission, 2018, 11).

This article aims to test the new ‘delivery model’ of the CAP. Specifically, it aims to explore whether the overall requirements and incentives are sufficient for the member states to take actions that will result in a more effective policy. Since national strategic plans are not yet available, the new rules are tested on the 2015-2020 data for the case of Slovenia, a country that demonstrated substantial flexibility in maximising its objectives, which is inter alia reflected in its high share (52%) of rural development funds in the given period (OECD, 2017). Since these are already subject to programming rules, this makes Slovenia a good example to test the impact of the new delivery model.

The article first deals with the specifics and novelties of the new delivery model and what implications these might have. Subsequently, the experimental case study is elaborated and the main results are presented. Finally, the relevance of the results for the CAP post-2020 and EU governance are discussed, taking into account other relevant research.

### What difference does the new model make?

#### Policy cycle as a prescriptive tool

The new CAP delivery model is based on the programme logic (McLaughlin and Jordan, 1999) and prescriptive use of the policy cycle (Cairney, 2012), which should ensure

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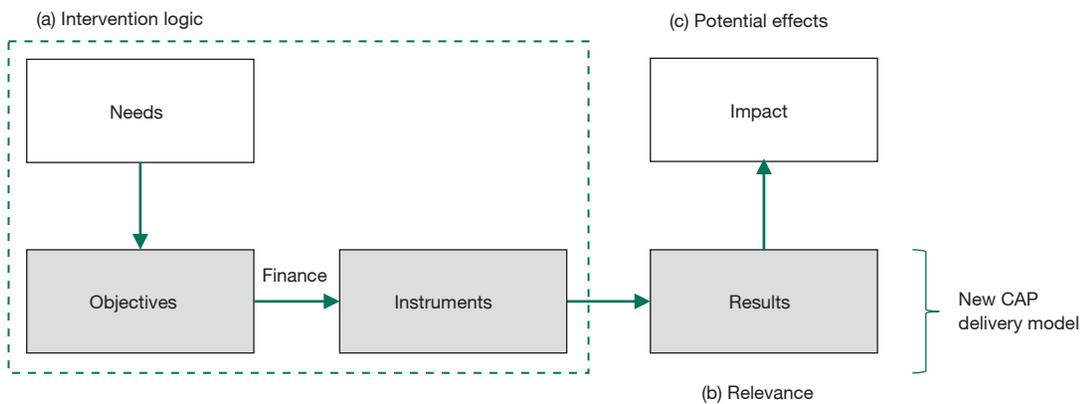
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Figure 1  
CAP evaluation structure



Source: Authors' own elaboration.

(a) a proper definition of objectives of policy intervention based on public needs, (b) a logical linkage between objectives and means (measures and resources available in the given contexts) and (c) an evaluation of intervention effects, as shown in Figure 1. The latter then also enables the backward loop to inform the next policy cycle. This system is used to make sure that decisions are in line with principles of responsible public intervention when financing is approved. Additionally, elements, such as a common list of indicators and quantitative targets, serve as a tool to ensure that each step of the implementation can be easily checked against the facts, i.e. is evidence-based. This is specifically important in the context of decentralised decision-making and dispersed responsibility (Cairney, 2016), which are typical in EU governance.

Until now, programme logic has been systematically applied in the Pillar II of the CAP, i.e. through the Rural Development Programmes (RDPs). National strategic plans, which are in the centre of the new performance-based delivery model, are envisaged to cover both pillars (income support, market-related instruments and rural development policy) as well as (to a certain extent) national measures. The plans will include assessment of needs, intervention strategy with quantitative targets and milestones based on the common EU indicators for each specific objective, financial plan, description of common elements, and monitoring and evaluation (European Commission, 2018, 95-102).

Member states will be required to report annually on the output and results of the intervention. In the case of more than 25% deviation from a milestone, the Commission is entitled to ask for a specific action plan and could, should a member state fail to respond appropriately, even with-

hold payments. Member states that meet at least 90% of their target values are also entitled to draw on the remaining 5% of the annual Pillar II allocation (the so-called performance bonus).

#### New model, old policy

There are some elements which indicate that the new model will not deliver on the high promises. The more general issue is the level playing field. The proposal differentiates nine specific objectives, divided into three groups (economic, environmental and social), plus a horizontal objective with a different level of community engagement instruments and funds that indicate a level playing field (European Commission, 41). Still, it remains open to what extent individual objectives treated as commodities or as goods should be pursued on the EU level and how to do so in order to balance responsibility and solidarity. Many researchers are very restrictive on this; Tangermann proposed a community level approach towards common market-related issues (Horseman, 2018), whereas environmental objectives would be (co)financed nationally or regionally.<sup>1</sup>

Furthermore, policy instruments (Title III of the proposed regulation) more or less stay the same along with existing problems of public intervention such as weak targeting, which results in weak transparency and distribution logic (Swinnen, 2015). For example, Pillar I direct payments have controversial effects on income due to allocation to landowners and capitalisation in land prices (Ciaian et al., 2016) as well as on other objectives, addressing,

<sup>1</sup> Cofinancing of main instruments was involved in some of the earlier versions of Commission's proposal but was later removed.

e.g. environmental issues (de facto support for production including certain intensive practices) and generation renewal (raising costs of entering farm business).

### Specifics and novelties of the new delivery model

There are also more specific issues related to the delivery model, such as measuring the actual impact. The proposal involves three types of common indicators: impact (actual change), result (effects) and output indicators (implementation of instruments, finance). However, assessment of needs (i.e. context indicators), which is essential for the proper definition of objectives, is not part of the Commission's evaluation framework. This also holds for impact since an *ex post* evaluation is planned for 2031, whereas the mid-term evaluation will only cover some objectives, which means that it will affect neither the present nor the future policy cycle. Meanwhile, most of the result indicators are in fact output or short-term outcome indicators (McLaughlin and Jordan, 1999) since they are mostly based on the number of beneficiaries and areas of agricultural land involved in measures. As shown by the evaluation of the current RDP system (European Court of Auditors, 2017), such an indicator framework increases the risk that the policy will lead to the maximisation of instruments as opposed to promoting efficiency and effectiveness and will prevent making trade-offs between objectives.

In recognition of these constraints, many specific objectives, such as environmental and generational renewal, are based on specific strategies and analyses. Article 92 thus refers to the principle of 'no backsliding' on the environment. However, this principle is defined quite vaguely, stating that the overall contribution to the achievement of the environmental objectives should be higher than in the 2014-2020 period. However, precise definition and quantification of environmental objectives is missing<sup>2</sup> as well as explicit linkages with environmental laws (Hart et al., 2018). Furthermore, a strategic environmental assessment will not be part of the evaluation framework.

In general, the experience has shown that loosening the CAP framework has led to a less ambitious approach by the member states, potentially leading to a so-called race to the bottom (Erjavec et al., 2018a). The proposed new CAP model does not change the incentives but rather

promotes less ambition to satisfy result-based targets. Even the system of awards could, due to a weak evaluation framework, lead to a less ambitious approach to reduce the risk of not being granted a performance bonus (Ibid).

### Administrative capacity

An important governance element is the issue of administrative capacity. Member states have little experience with the programming of Pillar I. The 'greening' of the direct payment system, introduced in 2014-2020, which involved certain flexibility and required some planning at the national level, was deemed too complicated by some member states and later largely failed in terms of the environmental objectives it aimed to pursue (Gocht et al., 2016). Eco-schemes, which will upgrade the 'greening' component in Pillar I, are more flexible but, potentially, also more complex. Thus, the programming of Pillar I will be a substantial administrative challenge for many member states.

Moreover, stakeholder involvement commitments are rather weak (e.g. strategic plans will only involve a summary of the stakeholder consultation process as per Article 94), which means possible issues with transparency, lobby groups and accountability. Finally, the proposal does not explicitly explain how simplification, which is one of the key ambitions of the new framework, will be achieved. In fact, simplification only appears in strategic plan evaluation criteria (Article 106), which is strange given the fact that this should be in the interest of member states.

### An *ex ante* test of programming

Our research approach was based on an *ex ante* test of the new CAP delivery model using the case of Slovenia. Because strategic plans for the new period are not yet available, we used data from 2015-2020, a period during which similar overall policy objectives and measures as well as programming principles were applied in Slovenia.<sup>3</sup>

Based on the analysis of the national strategic and programme documents (Official Gazette of the Republic of Slovenia, 2011), 49 national operational objectives were

2 An example is a methodology of measuring contribution to climate objectives (Article 87), according to which this criteria is met by 40% of basic income support and complementary income schemes, 100% of new eco-schemes, all environmental RDP measures and 40% of measures on LFAs in spite of weak and even controversial contribution of these to climate and environment (European Commission, 2018, 91-92).

3 At the start of implementation of CAP instruments in 2014-2015, the Commission published technical guidelines to define intervention logic in terms of objectives, trends and measures. It made a clear difference between monitoring and evaluation and linked the latter with what works, in what conditions and why not. It argued that expected versus actual results in all phases are key for strategic and practical planning. Document also provided a list of impact, result and context indicators (European Commission 2015, 9-10, 56). This laid grounds for CAP 2021-2027.

**Table 1**  
**Specific objectives (1-9) of CAP after 2020**

	Objectives / funds	Level of priority →		
		Economic	Environmental	Social
EU vs. national level playing field ↓	Mostly Pillar I (EU funds)	(1) Sustainable income for food security	(4) Mitigation and adaptation to climate change	(7) Generation renewal, business initiatives
	Mostly Pillar II (co-funding)	(2) Market orientation, competitiveness	(5) Sustainable and efficient management of natural resources (soil, water, air)	(8) Rural employment, growth, inclusion, including forestry
	Mostly Pillar III (strongest role of member states)	(3) Position of farmers in the value chain	(6) Biodiversity, ecosystem services, landscapes	(9) Food safety and quality, animal welfare
	Horizontal	Knowledge and information		

Source: Authors' own elaboration based on European Commission (2018).

identified and grouped into 18 specific<sup>4</sup> and four general objectives (broadly consistent with nine specific objectives set in the CAP post-2020 legislative proposals, see Table 1) to enable further analyses. Furthermore, 46 EU and nationally funded agricultural policy measures were implemented in 2016 and 2017, including some measures related to forestry (see Erjavec et al., 2018b).

Using the methodology for public policy evaluation (Rossi et al., 1999), we first (a) evaluated the intervention logic of each of the identified specific objectives. In the second part, a Delphi method (Linstone and Turoff, 2002) was used for a qualitative group evaluation, following the ap-

4 Food security, Income situation, Stable incomes, Efficient use of resources, Accessibility of resources, Value chains, Food safety, Climate change, Biodiversity conservation, Soil protection, Water protection, Animal welfare, Employment in rural areas, Quality of life, Social inclusion, Knowledge generation, Knowledge transfer, Information and awareness.

proach used by the Commission in similar cases (Chartier and Cronin, 2016).<sup>5</sup> We asked participants to answer two questions: (b) what is the relevance and (c) what are the potential effects of each instrument for each specific objective? These questions specifically referred to the instrument design and implementation phase. Additionally, we asked participants to evaluate the cross-effects of instruments to evaluate coherence between the measures (see Table 2 and Figure 1).

Finally, budget weights, based on average annual expenditures for nationally funded measures in the period 2014-2016, and budgetary allocations to EU (co)funded measures in the period 2014-2020 were used to identify the priority of individual policy objectives. Budgetary allocation to the cross compliance was calculated as a 20% share of the budget for the direct payment schemes (minimum sanction in case of violation), whereas 12% of technical assistance expenditure in RDP 2014-2020 was used for the National Rural Network measure. To estimate the 'allocation' of the budget to individual objectives and their consequent priorities within the agricultural policy, the assessment of the relevance of each measure was multiplied with the quotient of the measure's annual budget and the sum of all assessments of the measure's relevance.

## Key results

### Intervention logic

The average grade for the elaboration of the intervention logic of each objective was 2.22, which means that substantial gaps were identified. These mainly referred to un-

5 Group evaluation involved 18 individuals: 10 from academia and expert organisations (8 with background in agricultural economics, 1 in forestry and 1 in social sciences), 6 from ministry of agriculture and 2 from chamber of agriculture. Two rounds of evaluation were held: evaluation in sub-groups (15 and 16 February 2018) and consolidation of grades (1 March 2018).

**Table 2**  
**Evaluation methods and scale**

Method	1. Document analysis		2. Group evaluation	
Question	(a) Intervention logic	(b) Relevance of measures	(c) Potential effects of measures	Coherence (b and c)
	1 – In traces	0 – Not relevant	0 – No	-2 – Contradictory
	2 – Substantial gaps	1 – Indirect	1 – Weak indirect	-1 – Competition
Scale	3 – Minor gaps	2 – Weak	2 – Weak direct	0 – Neutral
	4 – Comprehensive and detailed	3 – Important	3 – Important direct	1 – Complementary
		4 – Comprehensive	4 – Very strong direct	2 – Synergy

Source: Erjavec et al. (2018b).

Table 3  
Relevance

Scale → Objectives ↓	0 – Not relevant		1 – Indirect		2 – Weak		3 – Important		4 – Comprehen.	
	No.	%	No.	%	No.	%	No.	%	No.	%
Economic	44	13.7	99	30.7	74	23.0	80	24.8	25	7.8
Environmental	117	50.9	42	18.3	16	7.0	43	18.7	12	5.2
Social	70	50.7	21	15.2	30	21.7	13	9.4	4	2.9
Knowledge	54	39.3	38	27.5	18	13.0	18	13.0	10	7.2
Sum	285	34.4	200	24.2	138	16.7	154	18.6	51	6.2

Source: Erjavec et al. (2018b).

Table 4  
Potential effects

Scale → Objectives ↓	0 – None		1 – Weak indirect		2 – Weak direct		3 – Important direct		4 – Very strong indirect	
	No.	%	No.	%	No.	%	No.	%	No.	%
Economic	47	14.6	121	37.6	120	37.3	34	10.6	0	0.0
Environmental	105	45.7	58	25.2	56	24.3	11	4.8	0	0.0
Social	47	34.1	50	36.2	35	25.4	6	4.3	0	0.0
Knowledge	46	33.3	45	32.6	31	22.5	15	10.9	1	0.7
Sum	245	29.6	274	33.1	242	29.2	66	8.0	1	0.1

Source: Erjavec et al. (2018b).

sound argumentation stemming from a lack of reference to robust analyses and indicators. Indicators – where they were present – were mostly linked to results and outputs as opposed to impact, whereas limited reference to the past policy cycles (programming periods) and evaluations in particular were present.

The overall grade was the lowest in the economic group (1.86), largely due to poor substantiation of how income-related objectives were linked to the Pillar I measures, which comprise the most important financial support mechanisms of the CAP. In the environmental group, argumentation was somewhat better (2.4), mainly due to the inclusion of environmental policy requirements. Within the group of social objectives (2.0), there was substantial fluctuation of grades, with the biggest issue being the lack of data. In the area of knowledge and communication, the average elaboration grade (3.0) was a bit higher due to some well-designed national measures.

#### Relevance and potential effects

Only 6.2% of the Slovenian agricultural policy measures were estimated to comprehensively address specific objectives (Table 3). Examples include direct payments in

the field of income-related objectives, investment support in terms of boosting competitiveness, quality schemes for agricultural products supporting value chains, agri-environment measures' environmental objectives and advisory service knowledge transfer. A further 18.6% addressed specific objectives importantly, 16.7% weakly and 24.2% indirectly.

The economic group was addressed by the largest number of instruments (86.3%), especially the objective of income situation. However, targeting was mostly indirect or weak (53.7%). Environmental and social objectives were addressed by about half of all measures, where the share of measures that importantly or comprehensively address these objectives were higher in the case of the environment. Knowledge and communication were addressed by 60.7% of the measures, of which most only indirectly, though several were also comprehensive.

On the other hand, as shown in Table 4, 29.6% of instruments were considered to have no notable effect on particular specific objectives, while the potential effects of 8% of instruments were estimated to be important, of 29.2% weak and of 33.1% weak indirect. In the group of

Table 5  
Aggregated grades

	Relevance (R)	Potential effects (PE)	R-PE	PE/R (%)	100-PE/R (%)
Economic	587	463	124	78.9	21.1
Environmental	251	203	48	80.9	19.1
Social	136	138	-2	101.5	-1.5
Knowledge	168	156	12	92.9	7.1

Source: Erjavec et al. (2018b).

economic objectives, 10.6% of measures were expected to have an important impact, especially on the income situation, e.g. direct payment schemes, investment support as well as Less Favoured Area (LFA) measures, agri-environmental measures, animal welfare and organic farming support, which might indicate the problem of the distributive logic behind those measures. In the group of environmental and social objectives, on average, potential effects were expected to be weak since no more than 4.8% and 4.3% of the measures were estimated to have important direct effects on achieving objectives in these fields.

#### Relevance versus potential effects

As shown in Table 5, the difference between the relevance and potential effects of particular measures was found to be the strongest in the economic group (21.1%), which is mostly due to non-income objectives and structural measures, especially those of Pillar II. With regards to the environment, the difference was only slightly lower (19.1%) due to biodiversity and climate objectives and agri-environmental and organic farming measures. In the social group, the difference was negative due to the strong indirect measures, while the effect of specific measures, such as LEADER, were considered relatively weak. A positive difference in the case of knowledge and communication objectives was due to the role of measures like FADN (farm accountancy data network).

Adding financial weights demonstrated that of all resources, economic objectives were addressed by 60% and 53.9% (targeting versus impact), with income ranked highest, environmental by 22.3% and 23.3%, social by 10.9% and 14.6% and knowledge and information by 6.6% and 8.2% (see Table 6).

In general terms, there was a linkage between objectives and policy instruments since finances were broadly aligned with relevance and expected effects. However,

Table 6  
Financially weighted aggregated grades

	Relevance		Potential effects	
	Euro	%	Euro	%
Economic	214,595,630	60.1	192,298,014	53.9
Environmental	79,696,308	22.3	83,228,644	23.3
Social	39,072,089	10.9	52,223,037	14.6
Knowledge	23,546,733	6.6	29,161,065	8.2
Sum	356,910,760	100	356,910,760	100

Source: Erjavec et al. (2018b).

at the same time, the gap between the relevance and expected effects of the measures was strongest in the group of (economic) objectives, which played a key role in terms of formal objectives and funding. This was a result of many weak relevant measures and weak potential effects of key measures. Effects were reversed with environmental and social objectives, where the scope of funds, allocated via weakly targeted measures primarily addressing other objectives, brought certain effects; the efficiency, however, was called into question since more specific measures had weak effects.

#### Coherence

The share of measures with complementary or synergy effects is highest (51.6%) in the economic group (see Table 7). The smallest share of instruments with positive effects (17.3%) and the highest share of those with negative effects can be found in the environmental group (especially Pillar I). In the social group, there is comparably more complementarity and synergies. In the group of knowledge and communication, the share of synergies is, given the nature of these measures, rather low.

#### Discussion: Dispersed effects and weak efficiency

Results of our study demonstrate that the programming framework behind the CAP 2014-2020 in the case of Slovenia provided for only general linkage between the objectives and policy instruments. Moreover, the potential effects in non-economic groups were, paradoxically, even higher than the overall instrument relevance, which could imply that in the implementation phase, national authorities took advantage of flexibility such as setting particular criteria to align measures with specific environmental, social, etc. objectives. This would support the idea behind the new CAP delivery model.

The detailed view of results, however, demonstrates that potential relevance of most of the instruments is one aver-

Table 7  
Coherence

Scale →	-2 – Contradictory		-1 – Competition		0 – Neutral		1 – Complementary		2 – Synergy	
	No.	%	No.	%	No.	%	No.	%	No.	%
Economic	0	0.0	14	0.7	988	47.7	877	42.4	191	9.2
Environmental	6	0.3	10	0.5	1,695	81.9	326	15.7	33	1.6
Social	0	0.0	4	0.2	1,605	77.5	379	18.3	82	4.0
Knowledge	0	0.0	0	0.0	1,279	61.8	634	30.6	157	7.6

Source: Erjavec et al. (2018b).

age weak, especially in the economic group. Moreover, the potential effects of key measures in all four groups are also weak. This results in the relatively strong dispersion or 'secondary' effects, which in the areas addressed by relatively few measures, such as social objectives, produces a higher score on potential effects compared to their relevance. This is exacerbated further by adding financial weights, demonstrating poor targeting vis-à-vis dispersed potential effects of financially strong (economic) measures. While formally this means that some objectives are reached, the efficiency is highly questionable. It also shows negative effects, especially in the area of environment, and a lack of synergies, e.g. regarding the role of knowledge.

How applicable are these findings outside of Slovenia and for CAP post-2020? When evaluating the CAP 2014-2020 programming period, the European court of auditors argued that interventions target too many objectives that were too general (European Court of Auditors, 2017, 21) and highlighted a weak linkage between the objectives and interventions (European Court of Auditors, 2018). This problem was not only evident for the Pillar I instruments, but also for the Pillar II (Ibid). Consistency between the document-based evaluation and the group evaluation confirm the importance of formal intervention logic for actual quality of intervention. *Ex ante* studies of the CAP 2014-2020 argued that the reform would not bring any major changes (Gocht et al., 2016), and even indicated that intervention logic was reversed, i.e. that objectives were set to legitimise an existing intervention based on distribution logic (Erjavec et al., 2015), whereas *ex post* impact assessments of CAP 2014-2020 confirm the main arguments of this research, including the positive but costly 'secondary' effects, e.g. of environmental measures on employment (Garrone et al., 2019).

The programme logic of the new CAP will resemble the current RDPs, which means that most of the shortcomings of the current planning system will probably remain.

This was specifically demonstrated in the case of Slovenia, which had one of the highest shares of the Pillar II budget. Moreover, a document-based evaluation specifically emphasised the role of formal environmental policy-based commitments as well as the absence of impact indicators and impact assessments. It also showed an overall lack of quality data and competences of the policy planners and indicated a lack of transparency and interest logic, questioning the overall stakeholder consultation process. All of these elements directly refer to the specific issues of the proposed new delivery model as was pointed out in the analysis of the proposed legislation.

### Conclusion: Decentralising responsibility

Results show that in the absence of a strong policy impact evaluation and its inclusion into the programming of future policy programmes, substantial improvements in policy effectiveness cannot be expected and will at best rely on the benevolence and administrative capacity of governance systems within member states. Thus, the intention of proposed CAP post-2020 remains questionable. For Matthews, the proposed new CAP delivery model should be interpreted in the context of the criticism of centralised decision-making (Erjavec et al., 2018a), Brexit and less funds available as well as the need to bring responsibility for policymaking closer to member states in order to prevent scapegoating. Thus, while the new CAP will not change much in terms of overall policy efficiency, the strategic plans will at least help the Commission to share the responsibility more equally with member states.

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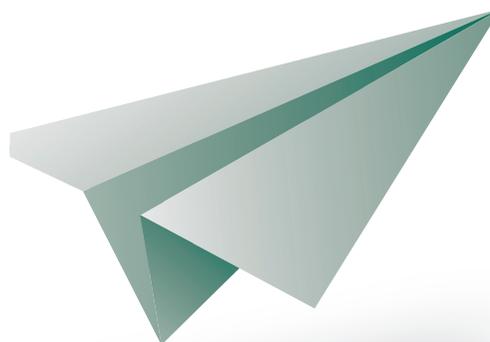
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Christian Beyer, Elke Kottmann and Korbinian von Blanckenburg

# The Welfare Implications of the European Trucks Cartel

This paper presents a pragmatic approach to calculating the total economic loss induced by a cartel, focusing on the European trucks cartel (1997-2011). This comprehensible and transparent approach builds on the theory of monopoly pricing and uses the publicly available data of the infringing companies. Overall, a net welfare loss of up to 15.5 billion euro and an overcharge to the amount of up to 7.6% are estimated. This loss to society cannot be offset by fines or private damage claims and should raise awareness for antitrust policy. The findings presented are relevant for both practitioners and policymakers.

With the enforcement of Directive 2014/104/EU (2014), the facilitation of private damage claims against cartels has spread throughout the European Economic Area (EEA). Cartel overcharge, the basis for private damage claims, is highly topical.<sup>1</sup> In fact, the number of cartel damage claims in European courts rose from a mere 18 in January 2009 to over 70 in October 2016 (Laborde, 2017, 36). From a legal perspective, private damage claims are second only to public damage claims (fines) – the second pillar for calling competition law offenders to account. While fines primarily aim to deter undertakings from future violations of antitrust law, private damage claims enforce the redistribution of cartel profits to the customer. Cartel profit is

the excess profit (cartel overcharge multiplied by the total quantity sold) that the cartel was able to reap during the period of infringement. In short, public claims aim at deterrence, while private claims aim at compensation (corrective justice).

However, the economic loss induced by a cartel is more than just the redistribution of rent from consumers to producers.<sup>2</sup> Economists have long agreed that cartels induce an additional, allocative, deadweight loss to society: a loss to the consumer that is not balanced by any gain reaped by the monopolist. The allocative damage refers to the misallocation of resources and originates from potential transactions. This is the overall net loss of the cartel. The magnitude of the deadweight loss is particularly relevant for governments (re)considering their antitrust policies and for societal perceptions of cartels and public antitrust enforcement. We provide a pragmatic approach to calculating the total loss caused by a cartel, focusing on the prominent case of the trucks cartel. The results enable us, firstly, to adopt a societal perspective, i.e. to compare total damage (deadweight loss and overcharge) to total fines (public and private), and secondly, to calculate cartel overcharge based on profit data. The latter is of particular importance in cases of list price collusion such as the trucks cartel.

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<sup>1</sup> The EU defines cartel overcharge as the difference between the price actually paid and the price that would otherwise have prevailed in the absence of an infringement of competition law (Directive 2014/104/EU, 2014, 11).

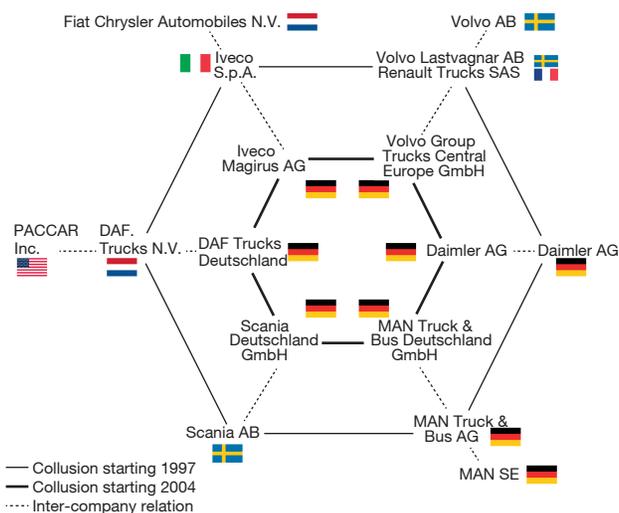
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<sup>2</sup> From the viewpoint of the society as a whole, this redistribution is not a real loss, since wealth is merely shifted between different agents and not lost. Nevertheless, from a normative point of view, it is a distributive loss.

Figure 1  
The structure of the European trucks cartel



Source: Authors' own illustration.

### The European trucks cartel: Price collusion for 14 years

On 17 January 1997, a meeting of senior-level managers of the six European truck producers, namely DAF, Daimler, Iveco, MAN, Scania and Volvo marked the starting point of the trucks cartel. In that meeting, the defendants exchanged information on gross list prices for medium and heavy trucks in the EEA.<sup>3</sup> This practice continued, in varying degrees, for 14 years, until the cartel was finally dissolved after MAN had applied for immunity under the European Commission's (henceforth the Commission) leniency programme. The price collusion included the coordination of gross list prices for medium and heavy trucks and the coordination of the pricing and timing of technologies, so as to comply with the impending emission standards Euro 3-6. Further attempts to limit competition by increasing market transparency included the exchange of truck configurators (sales software to customise firm-specific truck offers) and the exchange of information on delivery times. In total, 17 legal entities were involved in the trucks cartel. They are charged with different degrees of collusion and varying periods of infringement (see Figure 1).

3 The truck market consists of three segments, defined according to the gross vehicle weight measured in tonnes: I lights trucks (<6 tonnes); II medium trucks (6-16 tonnes); III heavy trucks (>16 tonnes).

Table 1  
Summary of fines imposed on the trucks cartel

	Reduction under the Leniency Notice (%)	Reduction under the Settlement Notice (%)	Fine (thousand euro)
MAN	100	10	0
Volvo/Renault	40	10	670,448
Daimler	30	10	1,008,766
Iveco	10	10	494,606
DAF	0	10	752,679
Scania	0	0	880,523
Total			3,807,022

Source: Commission Decision C(2016) 4673, 19.7.2016, CASE AT.39824 Trucks; European Commission Press Release IP/17/3502 and European Commission Statement/17/3509.

### Layers of collusion

Three layers of collusion can be identified: the parent level, comprising the parent companies of the respective group; the headquarter level, comprising the national headquarters of the group's truck division; and the German level, comprising the groups' German subsidiaries. The parent companies have been involved in the cartel only in an indirect manner via their subsidiaries.<sup>4</sup> The headquarter level held collusive talks beginning on 17 January 1997. These were gradually replaced by agreements at the German level until 2004. That is, at least since 2004, the cartel used German subsidiaries as its vehicle of operation. After the Commission opened the inspections, Daimler, Iveco and Volvo/Renault applied for immunity from fines in accordance with Point 14 of the Leniency Notice (Commission Notice C298, 2006, 17). Scania did not settle with the Commission and was fined 880 million euro in September 2017. Table 1 lists the total fines imposed on the defendants.

### Dominance on the European truck market

The sales process in the truck market is based on individual transactions. Gross list prices (GLP) for each truck model are the starting point of truck pricing. Reductions of the GLPs are then usually negotiated with individual customers, either by independent dealers or by the producers' sales personnel. Truck offers are thus specific to customer requirements of the vehicle and to the individual

4 The only exception in this regard is Daimler, for which, due to the legal structure of the group, Daimler AG is responsible for infringements in all three layers of the cartel.

net price negotiations (rebates). Trucks are manufactured in a modular production system such that the degree of vehicle customisation is limited and customers are able to compare modules from different producers. Third-degree price discrimination (individual prices) is an obstacle to price collusion, which is why the trucks cartel was able to coordinate prices at the GLP level only. In the relevant product market, segments II and III of the truck market in the EEA from 1997 to 2011, the six defendants were the only suppliers. Within this group, Daimler is the clear market leader, followed by Volvo and MAN.<sup>5</sup> Truck registrations in Europe averaged 340,000 units during the cartel phase, out of which 240,000 units have been heavy trucks above 16 tonnes (segment III).<sup>6</sup>

### Impact on the global truck industry

At the end of the cartel phase, the European truck producers directly controlled more than 20% of the global production of medium and heavy trucks. Thus, besides their dominance in Europe, the European truck producers' competitive conduct is of considerable international relevance. The global truck industry can be divided into four regions, namely Europe, North America, Japan (together referred to as the triad) and China. Regions outside these four major markets have only limited influence on the structure of competition in the global truck industry (Nilsson and Dernroth, 1995). Even within the triad, the Japanese market differs significantly from those of Europe and North America. Japanese legislation concerning the size and capacity of trucks is different from standards in Europe and North America, such that Japanese producers have historically refrained from building and exporting (heavy) trucks aligned with the standards in other markets. In both North America and China, the European truck producers have acquired substantial production capacities, or formed strategic alliances with foreign producers, with whom they jointly control more than 50% of global production.

The structure of the global truck industry has two main implications for the political and economic analysis of the trucks cartel. First, anticompetitive conduct in Europe might well spill over to other regions, since the decisive companies are more or less the same. Second, the European producers have the market power to prevent for-

eign competition in their home market. In addition, truck production abroad generally requires substantial foreign direct investment, and imports/exports of trucks induce considerable shipment and homologation costs. These represent effective entrance barriers to producers outside Europe (Popper et al., 2004). Foreign competition in the EEA is thus unlikely.

### Calculating the deadweight loss

The economic damage linked to the existence of a cartel is usually expressed in terms of inefficiencies. The economic literature identifies three types of inefficiency: allocative, productive and dynamic. We focus on allocative inefficiency, i.e. the misallocation of resources resulting from distorted prices. The concept of allocative inefficiency extends to work on the theory of monopoly and welfare, starting with Cournot (1838) and Dupuit (1844), complemented by Pigou (1910), Lerner (1934) and Harberger (1954). The latter himself estimated the deadweight loss to be less than 0.1% of gross national product in the United States; subsequent empirical studies on monopolies based on Harberger's model largely confirm this result. The (at the time of publication) surprising result that the deadweight loss of a monopoly is almost negligible still prevails among economists. Even though Harberger's methodology has triggered criticism regarding its assumptions, it remains the workhorse model in partial equilibrium analysis of monopolies.<sup>7</sup>

Due to their collective action, cartels enable monopolistic pricing. Their welfare implications are thus analysed similarly to those of a monopoly. Since all six European truck producers have participated actively in the trucks cartel, the entire European truck production in its respective segments has been under the supervision of the cartel between 1997 and 2011. This allows us to treat the six truck manufacturers as one monopolist and apply the methodology used to calculate the welfare loss of a monopoly. To the best of our knowledge, this is the first time that deadweight losses à la Harberger are calculated for a real-world cartel case. The methodology we apply builds upon the very simple and familiar model shown in Figure 2.

### Methodology of the model

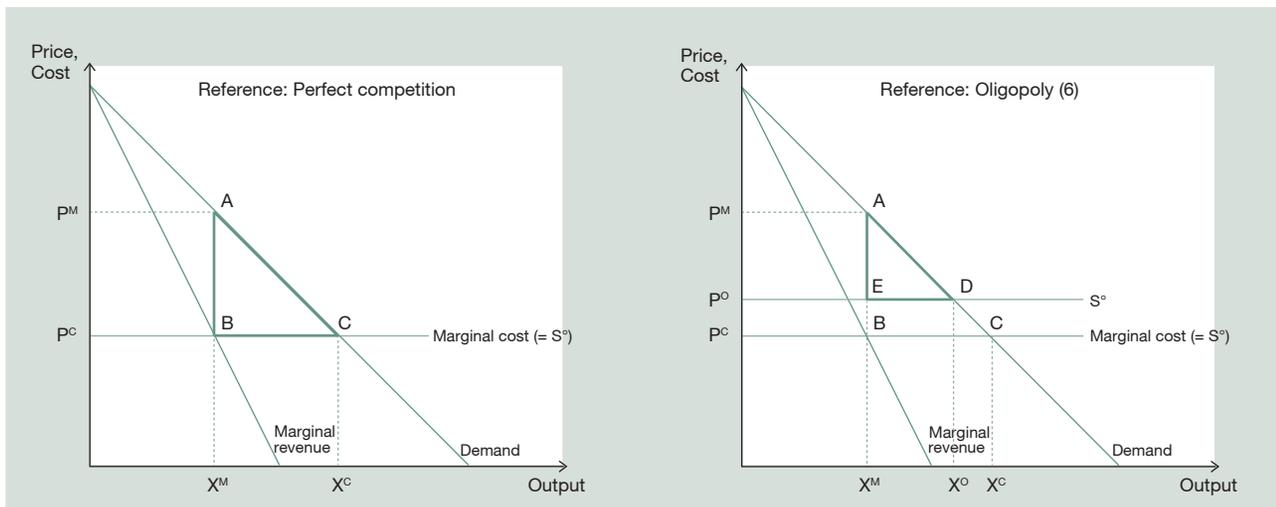
The underlying assumptions of this textbook model include a linear demand curve and constant average (mar-

5 Our data for the year 2016 imply the following market shares: Daimler (26.1%), Volvo (23.8%), MAN (19.4%), Scania (11.6%), DAF (10.6%), Iveco (8.5%).

6 Segment II is, however, slightly smaller than the remaining 100,000 units, since the threshold for counting medium trucks (segment II) differs registration figures that are based on a threshold of 3.5 tonnes, the Commission's market segmentation is based on a threshold of 6 tonnes.

7 The assumptions of the model are strong but conventional. See the general critique of Stigler (1956) and Bergson (1973) on unitary price elasticity. If the price elasticity of demand is  $> 1$  in reality, our results should be interpreted as a lower bound of the damage.

Figure 2  
Welfare effects of a monopoly



Source: Authors' own elaboration.

ginal) cost. The cartel is able to establish a market price  $P^M$  above the competitive price and thus realises cartel-induced profits amounting to the rectangle  $P^M A B P^c$  (cartel overcharge multiplied by total quantity). In addition, triangle  $A B C$  captures the deadweight welfare loss, referred to as allocative loss (AL). We estimate this social damage, following the approach of Shinjo and Doi (1989). The area of triangle  $A B C$ , henceforth  $\Delta AL$ , is represented by

$$AL = 1/2 * (AB) * (BC) = 1/2 * (P^M - P^c) * (X^C - X^M). \quad (1)$$

Since  $P^c$  and  $X^C$  are counterfactuals by nature and thus unobservable, we reformulate  $\Delta AL$  as follows:  $\Delta AL = \Delta P * \Delta X = 1/2 e t^2 S$ , where  $t$  is the profit margin ( $t = \Delta P / P^M$ ),  $S$  is sales and  $e = (\Delta X / X^M) * (P^M / \Delta P)$  is the price elasticity of demand.<sup>8</sup>

The results of the model crucially depend on the value of  $e$ . We approach this issue by calculating the model with two distinct values for  $e$ , which we regard as the upper and lower limit. First, as Shinjo and Doi (1989), we assume an elasticity of one, referring to studies showing that industry specific elasticities tend to cluster around 1.0. However, given their (and our) model specification, an elasticity of one implies that the marginal costs of truck production are zero. As the Cournot optimum, by definition, falls into the more elastic part of the demand function, we regard our results based on an elasticity of one as the lower bound of potential allocative loss. If

8 Substituting  $t = \Delta P / P^M$  and  $\Delta X = e X^M t$  into  $\Delta AL$  yields  $\Delta AL = P^M e X^M t^2$ , from which follows  $\Delta AL = 1/2 e t^2 S$ .

we instead assume that the cartel members behave as strict profit maximisers, the elasticity would be  $1/t$ . This is the case of perfect collusion and the results under this condition represent the upper bound of potential damage. In both approaches, we do not need to calculate the counterfactual quantity  $X^C$  and have thus rewritten  $\Delta AL$  in terms of observable variables.

The remaining variables are identified as follows.  $S$ , the current sales figure, is observable in the annual reports of the cartel members. The cartel profit margin  $t$ , defined as the rate of cartel profits ( $\Pi^M$ ) on sales ( $S$ ), where the latter is observed as before and  $\Pi^M$  is calculated by subtracting a counterfactual, competitive, profit from observed profits in the annual reports ( $\Pi^o$ ). Counterfactual profits are approximated by  $r * A$ , with  $r$  being the competitive profit rate and  $A$  being total assets, and thus  $t = (\Pi^o - rA) / S$ .

#### The dataset: Availability and difficulties

The data at hand provide us the variable  $S$  on a disaggregated level;  $t$  is calculated with data at the business unit level. The time series for the competitive profit rate  $r$  originates from the Bank for the Accounts of Companies Harmonized (BACH) database, maintained by the Bank of France. It represents the ratio of net operating profit on total assets for large companies in the automotive industry of the participating European countries. We collected the data on the truck market from the annual reports of the affected companies. Table 2 gives a detailed overview about the variables used. We collected data for the entire duration of the infringement (1997-2011). However, these

**Table 2**  
**Summary statistics of main variables in the dataset**

in billions of euros

	Sales (mean)	Sales (sd)	EBIT (mean)	EBIT (sd)	Total assets (mean)
Total industry	31.56	8.22	4.03	3.04	59.60
DAF	3.82	2.31	0.96	0.70	6.06
Daimler	8.70	2.25	0.98	0.94	26.90
MAN	5.94	1.66	0.40	0.32	6.03
Iveco	2.86	0.46	0.34	0.24	10.50
Scania	2.61	0.58	0.70	0.39	5.51
Volvo	8.16	1.50	0.66	0.77	4.69

Source: Authors' own calculation.

data are not directly available in an ideal fashion for economic analysis, i.e. we do not observe perfectly disaggregated data, neither at the product, nor at the regional level.

Some practical difficulties and specifics associated with our dataset prevail. First, participants in the trucks cartel are multiproduct firms. Data representation at the segment or business unit level is state of the art in the latest annual reports, but not for the entire period under consideration. That is, for some years, there is data at a higher level of aggregation only. This can introduce a product-mix bias and a geographical bias, since some levels of aggregation cover operations in a larger region than the cartel's area of influence. Moreover, firms have adjusted their group structure from time to time. The most prominent example during the infringement period is the merger of Daimler-Benz and Chrysler in 1998 and their dissolution in 2007. Beyond the structural challenges, firms have an incentive not to report disaggregated data (due to competitive intelligence considerations) and to disguise the reported data wherever possible. We provide firm-level details on these caveats in Table 3. However, the data available are, to a large extent, satisfactory with regard to our methodological approach and are the only data avail-

**Table 3**  
**Firm-level details on data availability**

Defendant	Company reporting	Unit of account	Calculation of t	Calculation of S
Daimler	Daimler AG (2006-2011)	Daimler Trucks incl. medium and heavy trucks, specialty vehicles (global)	BU-level: Net assets, EBIT and sales	European truck sales are reported directly (disaggregated reporting)
	DaimlerChrysler AG (1997-2005)	Nutzfahrzeuge incl. trucks, buses and vans (global)	BU-level: Net assets, EBIT and sales	Sales in Europe, adjusted for vans and buses, using data on the composition of sales quantities.
DAF	Paccar Inc. (1997-2011)	Trucks incl. trucks of all segments (global)	BU-level: Total assets, EBIT and sales	European truck sales are reported directly (disaggregated reporting)
Iveco	Fiat Industrial S.p.A. (2011)	Commercial Vehicles (Iveco) incl. trucks of all segments, buses and specialty vehicles (mostly Europe)	BU-level: Operating assets**, EBIT and sales	Truck sales in Europe, debugged from operations outside Europe (≈30%) and vehicles type other than medium and heavy trucks (≈50%)
	Fiat Group (1997-2010)	Commercial Vehicles (Iveco) incl. trucks of all segments, buses and specialty vehicles (mostly Europe)	BU-level: Operating assets*, EBIT and sales	Truck sales in Europe, debugged from operations outside Europe (≈30%) and vehicles type other than medium and heavy trucks (≈50%)
MAN	MAN SE (2009-2011)	MAN Truck & Bus incl. medium and heavy trucks, buses (mostly Europe)	BU-level: Total assets, EBIT and sales	European truck sales are reported directly (disaggregated reporting); data for 1997-2000 estimated
	MAN AG (1997-2008)	MAN Nutzfahrzeuge incl. medium and heavy trucks, buses (mostly Europe)	BU-level: Total assets, EBIT and sales	European truck sales are reported directly (disaggregated reporting); data for 1997-2000 estimated
Scania	Scania AB (1997-2011)	Vehicles and Services incl. heavy trucks, buses and services (global)	BU-level: Total assets**, EBIT and sales	European truck sales are calculated by adjusting the reported global truck sales for the share of units sold in Europe
Volvo	AB Volvo (1997-2011)***	Volvo Trucks incl. trucks of all segments and buses (global)	BU-level: Total assets****, EBIT and sales	European truck sales are reported directly (disaggregated reporting)

Note: BU-Level stands for business unit level.

\* Data prior to 2004 had to be calculated using group-level data. \*\* Data for the years 1997-2000 are missing. We inserted the value for 2001 instead. \*\*\* From 2001 onwards: incl. Renault V.I.; older data have been adjusted so as to implicitly include RVI. \*\*\*\* Total assets of Volvo Trucks are estimated using the reported total assets of Volvo Lastvagnar AB and Renault Trucks SAS. Since data prior to 2007 are missing, we calculated the missing values based on the aforementioned, combined with group-level data.

Source: Authors' own elaboration.

**Table 4**  
**Model results**

Scenario	e = 1	e = 1/t
ΔAL Deadweight welfare loss (million euro)	658.32	15,484.69
ΔAL as % of GDP (2011)	0.01	0.33
Distributive loss (million euro)	1,843.51	43,362.35
Overcharge (distributive loss per vehicle in euro)	358.60	8,404.67

Source: Authors' own calculations.

able to the public at the end. We believe that under the guideline of Article 17 of the damages directive (pragmatism), the published accounting data provide a promising basis for cartel damage calculation.

#### Determining a bandwidth of the cartel damage

The two distinct scenarios with regard to the price elasticity of demand enable us to provide a bandwidth of the damage. We estimate the deadweight welfare loss attributable to the trucks cartel at approximately 0.7-15.5 billion euro. If the counterfactual market is perfectly competitive, ΔAL comprises 50% of cartel-induced profits.<sup>9</sup> By contrast, in the absence of a cartel, the truck market can be best characterised as a Cournot-type oligopoly with six firms. In this scenario, it can be shown that ΔAL comprises 35.7% of cartel-induced profits (i.e. of rectangle P<sup>MAEP</sup><sup>0</sup>; right side of Figure 2). Considering this, the resulting distributive loss is between 1.8 and 43.4 billion euro. The total number of registered medium and heavy trucks during the cartel phase is 4.8 million, so that the distributive loss is between 360 and 8,400 euro per vehicle. This is an average overcharge of 0.3-7.6%. Table 4 sums up the results.

#### Other types of damage caused by cartels

However, the welfare-analytical treatment of cartels as monopolies relies on the assumptions mentioned above and is, by definition, a static model. In that sense, it disregards two other types of damage. First, the cost of maintaining the cartel and coordinating its organisation adds to the deadweight loss. These costs represent wasted resources that would otherwise have been used efficiently. In the trucks cartel, for example resources were shifted to the collection, aggregation and communication of planned list-price increases. These resources could

<sup>9</sup> Because, with linear demand and symmetric, constant marginal cost, marginal revenue has the same intercept, but twice the slope of the demand curve.

have been used efficiently. Leibenstein introduced this kind of deviation from optimal behaviour and labeled it X-inefficiency (1966). Empirical evidence confirms a robust impact of competition on productivity (Schiffbauer and Ospina, 2010; Okada, 2005).

Second, the dynamic efficiency of the cartelised industry is affected. Dynamic inefficiencies are deviations from the optimal path of future innovations, caused by the elimination of competitive pressure. The dynamic damage is difficult to measure. Moreover, the relation between competition and innovation is vague. Theoretical arguments vary from clearly negative relations (profitability-driven) to clearly positive ones (incentive-driven). In recent empirical work, an inverted-U relationship between competition and innovation prevails (Aghion et al., 2005; Peneder, 2012; Lambertini et al., 2017). That is, comparing the oligopoly to a quasi-monopoly (cartel) there is a clear positive relationship between competition and innovation.

These dynamic effects of delayed technological advancement are not included in our results. In our case, the reduced incentives for the cartel members to innovate have been accompanied by explicit collusion on the pricing of future innovations. To contextualise our results, we use two points of reference, namely the overcharge observed in past cartel cases and the welfare loss calculated for other monopolised markets. Compared to the welfare losses estimated by Harberger (0.1% of GNP), the loss caused by the trucks cartel fits the picture: 0.01-0.33%. Monopolistic pricing behaviour, whether conducted by one (monopoly) or several (cartel) companies, induces similar dead weight losses to society. The magnitude of overcharges in cartel cases has been examined in a number of meta-studies. The hypothetical overcharge for EU-wide cartels is commonly assumed to be 20% (Renda et al., 2006, 99).<sup>10</sup> This benchmark is, however, a comparison to the competitive price. Instead, our point of reference is the equilibrium price in a six-firm oligopoly. Theoretically, the overcharge in this setting should be smaller. Our calculations suggest an overcharge of 0.3-7.6%. This is the cartel overcharge on individual net prices paid by truck buyers. Collusion had, however, initially taken place on the level of gross list prices, where the agreed price increase might have been higher.

In essence, the overcharge that the truck producers were able to reap during the infringement was half that of the average cartel cases – at most. This might be due to the pricing scheme (gross and net prices) and the already elevated market prices for trucks because of the oligopolistic

<sup>10</sup> In addition, the authors provide a survey of empirical studies on cartel overcharges.

market structure. Potentially, the truck producers focused more on coordination and facilitating transparency as to (partially) enjoy the quiet life of the monopolist (Hicks 1935, 8). The exchange of truck configurators, delivery-time data and the exchange (rather than mutual elevation) of gross list prices provide circumstantial evidence for this.

### Public and private damage claims to deter cartel formation

Recalling that overcharges, depending on the price elasticity, varied between 1.8 and 43.4 billion euro and fines as imposed by the Commission were 3.8 billion euro, it becomes clear that potential gains outweigh potential losses. The deterrence effect in this scenario is limited.

Since 2014, private damage claims can be enforced as well. Ideally, these private damage claims cover the entire overcharge, such that public fines represent an additional net loss to the defendants. Private damage claims can thus help to deter cartel formation. Both fines and private damage claims are needed to ensure that the net present value of cartel participation turns out to be negative.<sup>11</sup>

### Assessing the deadweight welfare loss of the trucks cartel

To our knowledge, this study provides the first estimate of a deadweight welfare loss for a modern cartel case. The main outcomes can be summarised as follows:

- We estimate 0.7-15.5 billion euro of deadweight welfare loss;
- We estimate 1.8-43.4 billion euro cartel overcharges in total;
- That is, we find a 0.3-7.6% mark-up on the reference price.

The deadweight welfare loss is similar to that in other scenarios of monopolistic market power. The cartel overcharge is slightly lower than the average, albeit still substantial. Our simple approach has very modest data requirements. It is therefore suitable for cartel cases, for which the but-for price is difficult to calculate due to opaque pricing processes, the structure of the market or simply data availability. One caveat is, however, that it can be used to analyse markets with an entirely cartelised supply side, but not in cases of partial cartels.

The demonstrated case of the trucks cartel yields two practical implications: first, we provide a benchmark for the overcharge per truck; and second, we show that the deadweight welfare loss is substantial. This loss to society cannot be offset by fines or private damage claims and should raise awareness for antitrust policy.

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<sup>11</sup> It should, however, be acknowledged that private damage claims interact with other policy tools, such as the leniency programme, which might become less effective (Beschorner and Hüscherlath, 2010).

# Public Pension Reform in the U.S. Presidential Campaign

The U.S. public pension system, known as Social Security, has a big problem. Within the next 15 years, it is expected to use up all its financial reserves. The looming revenue shortfall is hardly surprising. In fact, it has been predicted for more than a quarter of a century. A combination of below-replacement birth rates and rising longevity is boosting the share of Americans who have reached the pensionable age. Under current law, when Social Security reserves are depleted, monthly benefits will have to be financed solely by the dedicated payroll and income tax revenues flowing into the system. The Social Security actuary expects that in 2035 these dedicated revenues will cover just 80% of the pension payments promised under today's benefit formula. In other words, if future Congresses and Presidents do not change the law, pensioners' monthly benefits will have to be cut one-fifth in the next 15 years. One implication of this forecast is that workers who file claims for Social Security today can plausibly expect to see their monthly pensions cut before they reach advanced old age.

Aged Americans tend to have high rates of voter participation, and the opinions of today's elderly carry particular weight because there are so many of them. Under these circumstances, it seems reasonable to think Social Security's funding shortfall would be near the top of voter concerns. Yet the issue arouses little interest among U.S. voters. I doubt this situation will change before the November election. Voters' apparent unconcern has not deterred Democrats from trying to drum up interest in this topic. With only a couple of exceptions, all the Democratic presidential contenders offered plans to reform the Social Security program.

Benefit payments are currently financed out of four main sources:

- a payroll tax of 12.4% on annual earnings up to \$137,700 (€124,000)
- part of the revenue from the income tax imposed on Social Security benefits
- interest income earned on the Social Security reserves
- withdrawals from Social Security reserves if the other three revenue sources are insufficient.

Most of the Democratic candidates agreed it would be a good idea to lift the ceiling on earnings that are subject to the payroll tax. This would boost payroll tax revenues in a politically acceptable way. Only 6% of American workers have earnings above the taxable earnings cap, meaning that the tax hike would boost taxes on only a small minority of workers. Increased wage inequality in the U.S. has meant that a growing percentage of labor earnings are now above the taxable wage ceiling, and hence go untaxed.

To be sure, under current law a higher tax cap would also boost future benefit payments to high-wage earners. Under the present pension formula, workers collect a pension that is calculated as a function of average indexed earnings in the best 35 years of a worker's career. The trade-off between extra revenues from a higher taxable wage ceiling and higher future benefit payouts is very favorable for Social Security finances, however. The reason is that the monthly benefit formula is quite generous for low-wage workers and far less generous for workers with earned incomes near the taxable wage ceiling. A higher taxable wage ceiling would lift high-wage workers' future tax liabilities far more than it raises their future benefits. If the taxable earnings cap is raised so that 90% of all earnings are below the cap, the Social Security actuary estimates

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that more than one-quarter of the long-run deficit in Social Security would be eliminated. Not surprisingly, Republican lawmakers are not enthusiastic about raising the taxable earnings cap.

Some Democratic candidates are more ambitious in their plans for raising taxes on high-income contributors. Senator Bernie Sanders proposed to leave the current taxable wage ceiling unchanged, but to introduce a new payroll tax bracket on annual earnings above \$250,000 (€226,000). In addition, he would impose a new 6.2% tax on a family's investment income over \$250,000 a year. However, benefits for high-income contributors would not be changed, severing the historical link between workers' taxed incomes and the pensions they receive. Former Vice President Joe Biden also proposed a new payroll tax bracket on earnings. In his plan, the tax would begin on annual earnings above \$400,000 (€361,000). As in the Sanders plan, the extra taxes collected would not trigger higher benefits for the affected workers.

Both Sanders and Biden need a lot of new revenue because they wish to increase the generosity of the present system. Thus, in addition to finding revenues to close a huge funding gap, they must also cover at least part of the cost of their proposed benefit increases. Sanders recommends the biggest benefit hikes. Not only does he propose a major liberalization of the minimum pension, he also wants to change the basic pension formula so as to boost benefits for nearly all current and future pensioners. Biden joins Sanders in recommending a more generous minimum benefit, but he does not back a general pension increase. Both candidates agree that cost-of-living adjustments should be linked to a price index that produces faster annual benefit increases. Despite the benefit liberalizations, both candidates propose tax hikes that are big enough to postpone the depletion of Social Security's reserves.

Where does Donald Trump stand? Since winning the White House in 2016, he has had remarkably little to say on the subject. In the 2016 campaign, he distanced himself from the traditional Republican view that Social Security must be overhauled as part of a broader effort to trim entitlement spending. "People signed up for Social Security; it's kind of like a pledge," Trump told a television interviewer in December 2015. "The people who have their Social Security, with me, are going to keep their Social Security." With the exception of some modest tightening of the disability component of Social Security, he has honored this pledge. One result is that the U.S. has made no progress toward reducing the long-term deficit in Social Security during his term in office.

Voters do not seem bothered by the Administration's inaction. Older Americans have heard about Social Security's funding problems for several decades. Optimists may assume that the program will be tweaked by future lawmakers in ways that will ensure its survival (and their benefits) after 2035. There is considerable evidence to support this optimism. Social Security came close to exhausting its largest reserve in the early 1980s. Congress quickly devised stop-gap measures to keep benefits flowing. A little later, lawmakers agreed on a package of long-term reforms that kept the program functioning for the next four decades. The 1983 reform boosted revenues by including part of Social Security benefits in the income tax base, and it reduced future pensions by gradually raising the age for full pension eligibility from 65 to 67.

The 1983 reform represented a painful but necessary compromise between a conservative Republican President and a politically divided Congress. Politicians reached a compromise for a simple reason. Social Security is the main pillar of old-age security for an overwhelming majority of low- and middle-income families. Along with Medicare, it is also the most popular entitlement program in the US. Nine out of ten Americans over the age of 65 collect a monthly check from the program, as do millions of disabled workers, their dependents and the child survivors of deceased workers. Opinion polls suggest that sizeable majorities of Americans, even those under 35, favor tax increases over benefit cuts to restore the long-term solvency of Social Security. Raising payroll taxes in a politically acceptable way, while shoring up benefits for indigent retirees and gradually scaling back pensions for the high-income elderly, is not an impossible task. Most voters recognize this. Most voters expect lawmakers will act, and well before big pension cuts are needed.