Ageing, Pensions and Dependency – Introduction

Didier Blanchet*

his issue of *Economie et Statistique / Economics and Statistics* offers five articles ▲ focusing on topics surrounding retirement and pensions, and dependency. Three of these arose as a result of a symposium held in late 2021: two articles dedicated to dependency and one to the impacts of providing information to future pensioners on their knowledge of their entitlements. The two other papers are respectively devoted to an assessment of the effects of the 2010 reform on health before retirement and to a presentation of the most recent projection exercise carried out by the Conseil d'orientation des retraites (Pension Advisory Board - COR) in 2022 (COR, 2022). This collection of papers adds to a long list of past special issues addressing the consequences of ageing. In 1990, the journal contributed – not without controversy – to the launch of the debate on pensions (Insee, 1990), one year before the publication of the White Paper of the Commissariat général au plan (General Commission for Planning - Commissariat général au plan, 1991). Three articles in an issue from 1996 (Insee, 1996) on the economics of social security were also dedicated to pensions and a fourth addressed the management of the risk of dependency. A special issue in 2007 (Insee, 2007) then focused on the first results of the SHARE panel on health, ageing and retirement in Europe, which is used once again in one of the articles of this issue. Another special issue from 2011 (Insee, 2011) covered the assessment of the effects of the pension reforms (mainly those of 2003 and 2010) that had taken place since the publication of the White Paper and the series of reports that followed. The questions surrounding pensions and dependency were also the subject of the majority of the articles included in a special issue in 2015 (Insee, 2015) dedicated to the microsimulation tools used for analysing social policies, not forgetting the numerous articles that appeared separately in various editions of Varia, a list that would be too long to mention here, but some of which will be referred to below.

^{1.} International Workshop on Pensions and Ageing, held on 7 and 8 October 2021, co-organised by the Directorate of Social Policy at the Caisse des Dépôts et Consignations, the Institut des politiques publiques (IPP) and the Social Economy, Protection and Society Research Program of the University of Paris 1-Panthéon-Sorbonne.

^{*}Comité de suivi des retraites (Pension monitoring committee), researcher affiliated with the Institut des politiques publiques. Correspondance: didier.blanchet@csr-retraites.fr

Translated from French.

The views and opinions expressed by the authors are their own and do not necessarily reflect those of the institutions to which they belong or of INSEE itself.

Citation: Blanchet, D. (2023). Ageing, Pensions and Dependency – Introduction. *Economie et Statistique / Economics and Statistics*, 538, 3–12. doi: 10.24187/ecostat.2023.538.2089

In view of recent events, it will come as no surprise that, of the articles in this edition, this preface includes more detailed coverage of the COR projections. These were at the centre of the debate on the timeliness of a new reform, being used both to demonstrate its urgency and to question its necessity, depending upon the way one chose to read them. Should this be seen as a further illustration of the adage that we can make figures say whatever we want? Or is it a case of clarifying exactly what each figure is saying?

Frédérique Nortier-Ribordy's article addresses these questions. It examines two categories of difficulties encountered by the pension projection exercises. One applies to all types of projection: choosing the underlying assumptions. In the case of pensions, these mainly relate to demographics and economic growth. The other category relates to the choice of indicators to project. Which indicators are more relevant for characterising the financial viability of the pension system? Can we simply consider the ratio of pension spending to GDP? If we choose to think in terms of deficit, how can we calculate this, given the heterogeneity of the funding channels in the different schemes that make up the pension system? Any choice of indicator has its share of conventions, but are some more valid than others?

Projecting a Pension Balance: Demographic Assumptions and Sensitivity to Growth

Firstly, the question of assumptions. Currently, the demographic assumptions are not the factor of instability put forward most often as, for the next 15 years, a large part of the ageing process will continue to be driven by a major factor inscribed in the current age pyramid: the retirement of the baby boom generations. This movement started in the mid-2000s when the generation born in 1946 reached the retirement age, which was 60 at the time. From that 1946 generation onwards, the number of births remained at a high level until the mid-1970s: as a result, until around 2035-2040, that is 60 to 65 years after this, the number of people reaching retirement age will remain significantly higher than the number of deaths of older pensioners. Beyond this date, things are less clear, and there will no doubt be a need to progressively accept demographic uncertainty and find sustainable ways to adjust to this. However, at this stage, the biggest factor in the instability of the projections is, instead, the assumptions of economic growth.

So, why this sensitivity to economic assumptions? It is not inevitable. A system in which entitlements are tied to changes in wages would see its financial balance projections far less affected by economic growth assumptions: quicker growth would immediately translate into equivalent pension growth – and *vice versa* in the case of slower growth, or even decline. The change in the ratio between pension spending and GDP or the wage bill would be the same in all cases, both in the short and long term.

While this is not the case in the current system, this is because we have chosen to manage a significant proportion of the ageing shock by means of a shift towards price indexation. When entitlements are price-indexed, the benefits that pensions receive from growth accelerations are delayed and are only partial. The pensions/wages ratio converges towards a lower level as growth speeds up, to the point that it can even reduce the share of pensions in GDP. However, if growth slows significantly and lastingly, pensions fall only slightly, not enough to counterbalance the part of the demographic shock not managed by increasing the retirement age.

Should we deduce from this that we should return to full wage indexation? The problem is that there would be a need to find other ways to solve the budgetary equation as we would have a spending trajectory independent of growth, but much more dynamic than any of those that the COR is currently projecting. The problem is therefore not simple. While awaiting a potential solution, for as long as we use price indexation, the results of the projections will continue to be affected by a structural instability and the question surrounding the plausibility of growth assumptions will remain. This is a subject about which the COR has long been accused of being excessively optimistic. In 2022, it

responded to this by significantly downgrading its assumptions, with a new assumption of just 0.7% per year for long run productivity gains, after having long used 1% as the lowest assumption. The highest assumption has been changed as well, from 1.8% to 1.6%. Is this high assumption still too high? Is the low assumption low enough? It is difficult to answer these questions, but there is a need for reflection here as questions are mounting as to both the feasibility and appropriateness of sustained growth, and even as to the very nature of what the term 'growth' covers.

What Type of Indicator Should Be Prioritised: Ratio Between Pensions and GDP or Balance Indicator?

That being so, this uncertainty factor is also compounded by the other question of choosing what indicator(s) to project, as the message given by the projections depends not only on the economic growth assumptions, but also on the angle from which we choose to examine the results.

For all these points, we can, in retrospect, say that things were clearer at the very start of the pension debate. In the introduction, we recalled the first time the journal addressed the subject back in 1990. The timeline explored then ran to 2040. In that initial situation, before any reforms had taken place, what was projected for that timeline was an increase of around 15 points in the total contribution rate, in a heavily stylised representation of the pension system at the time (Vernière, 1990). As a proportion of GDP, that would have represented an increase of around 7 points. At the time, the question surrounding sensitivity to economic assumptions and that of a deficit indicator had barely arisen. The principle of price indexation rather than wage indexation had not yet been written into law and the impact of productivity assumptions was not therefore even a topic of discussion. And, with such growth prospects, there was no need to explicitly quantify the deficit to conclude on the need for rebalancing. The change in the share of pensions in GDP was sufficient to show that changes were necessary, whatever anyone may have thought to be the optimal balance between the various levers of adjustment: increase in contributions, raising of the retirement age or reduction in the relative pension level.

This situation would only have persisted if there had been no reform. With the reforms seeking to re-balance the system, partly by using the price indexation tool, the trajectories of the spending-to-GDP ratios levelled out, on average, at the same time as revealing their sensitivity to growth assumptions (Marino, 2014). As a result, there was a shift from a single, clearly upward, trajectory to a range of more or less horizontal trajectories, with some showing slight growth, and others plainly showing decline. This is why it is difficult to say whether the reforms introduced were sufficient or not, making the work of the COR more complicated. The task entrusted to the COR was to reach a shared diagnosis on the outlook of the system; it was easier to reach such a diagnosis before the first reforms had yielded their full effects. However, as the reforms gradually ramped up, the pensions/GDP ratio began to offer a more ambiguous message, once again opening up a broad space for differences in assessments of the state of the system.

Was there a greater opportunity for convergence by using balance indicators rather than the pensions/GDP ratio? Balance indicators are no more protected from the effects of growth uncertainty; however they are calculated, they show the same range of trajectories. But, we expect, at the least, more clear-cut messages with given economic assumptions. A spending trajectory that is close to horizontal does not send a very clear signal on the need for rebalancing. A balance indicator does this more clearly as it sends a binary message. Either the future balances are excesses, which means the reforms made were more than sufficient, or they are negative and further adjustments are needed.

This is what led the 2014 reform to emphasise these balance indicators, as part of the new two-stage monitoring system it had chosen to implement: balance projections and projections for a certain number of other indicators established annually by the COR and, on that basis, an opinion from the new *Comité de suivi des retraites* (Pension

monitoring committee – CSR) deciding on whether or not the balance projection called for new measures.

This system worked, but brought to light the difficulties of this notion of balance. The balance has two components: spending and revenue. For a long time, it was thought that the most difficult component was the spending projection, given the complexity in the rules for calculating entitlements, with highly variable effects from one individual to another. It was for the purposes of managing this component that dynamic microsimulation models projecting individual entitlements were developed, in order to better assess the total amount. And it is mainly here, at the level of this spending and its ratio to the GDP, that we see the sensitivity to economic growth assumptions. In comparison, it was possible to consider revenue projection much more directly: when a pension system is funded by contributions at a predetermined rate applied uniformly to an equally well-defined base, it is sufficient to carry out a macro-economic projection of that base, typically the wage bill. If it grows like GDP, revenue will grow to the same extent and the ratio between revenue and GDP will be more or less constant. This revenue then simply needs to be compared to the spending/GDP ratio.

However, projecting this "revenue" component of the balance calculation is not as simple as this, as we have never had this ideal type of system funded solely by contributions; rather we tend to move further and further away from it. We have never been in this ideal type because, for civil servants and numerous special schemes, the resources are not predetermined by a regulatory contribution rate: balancing is achieved automatically through payment of a balancing subsidy. In the case of the State Civil Service, a form of employer contribution can of course be seen, but this contribution gives no signal of imbalance due to the fact that its rate is automatically adjusted based on spending. And, for other schemes, even if the majority of funds come from contributions, this is almost always insufficient to achieve a balance and is supplemented by significant additional funding, either in the form of allocated taxes and duties, or from transfers from other schemes.

In this case, how can we aggregate projections that, on the one hand, relate to schemes for which there is no deficit indicator and for which imbalances must be considered in other terms, with those that, on the other hand, relate to schemes for which we know how to calculate the deficits, but which have resources with a funding structure that is not purely contribution-based?

Balance Indicators: Spoilt for Choice?

Historically, the COR chose to manage this problem by proposing two conventions. The first was a convention known as the "CCSS", as it was also used by the *commission des comptes de la Sécurité sociale* (social security accounts committee). It consists of aggregating, unaltered, the deficits of the schemes to which the notion of deficit applies, by projecting their income from contributions and the other transfers that they receive, and assuming that all other schemes renew their use of balancing subsidies, which places them outside the scope of the calculation. This convention offers a partial diagnosis, but has the advantage of a certain level of purity. The other convention consisted in treating the balancing subsidiary of the State (as the employer) as a form of contribution on its part, with an apparent rate obtained by reducing it to the level of its wage bill, then considering that rate to be constant in the projection rather than varying it based on spending, to give a measure of its latent imbalances. The result of this calculation has long been called the "COR convention".

The limitations of this second convention first emerged in 2017. Adopting restrictive assumptions about civil service employment and wages caused the projections of resources for that component of the pension system to plummet, giving the impression that the system was in a much worse situation than had been projected in previous exercises. This was, of course, highly paradoxical given that the employment and wage

scenarios for the public sector were chosen with a view to controlling the public deficits. Fiscal virtue had the collateral effect of tarnishing the outlook for the pension system when considered in isolation. However, the convention would not have been any less problematic if we had considered a symmetric scenario of significant increases in public wages and/or employment. This would have led to the message of an improvement in the overall financial situation of the pension system when, actually, with all other resources remaining constant, this policy would have had a negative impact on the overall balance of public finances. Despite the existence of very different opinions on the appropriateness of one civil service wage and employment policy or another, we cannot consider that simply increasing the public sector wage bill is sufficient to balance pensions, while entirely ignoring the question of how such an increase would be funded.

What this episode has ultimately revealed is that, once a significant proportion of pension funding is directly borne by the State budget, it becomes less relevant to consider the balance of the pension system independently of the overall balance of public finances. Considering these separately is only meaningful where the pension system uses only its own resources. As soon as balancing subsidies and allocated taxes and duties make the system dependent on overall budgetary resources, we can no longer think in these terms. At a push, if pension funding was fully tax-financed and was merely one of many State budget items, the only deficit issue would be the overall State deficit, and, as soon as that deficit would appear to be unsustainable, the question asked of the pension system would be of the extent to which it could contribute to the return to overall sustainability. To achieve this, we would directly ask if the share of pension spending in GDP is too high or not and whether there is a margin for reducing or limiting growth in that spending, by means of an examination that would put that spending on an equal footing with other public spending.

However, we are also not at such a level of State funding, and there is still demand for deficit indicators specific to the pension system. In 2018, to address the problem created by its indicator extending the apparent contribution rate of the State as employer, the COR chose to introduce a third convention, known at the time as the "GDP" convention, as it fixed the total State contribution to the pension system as a percentage of GDP rather than a percentage of its wage bill. Mechanically, this convention gave a balance trajectory that corresponded more or less to the spending trajectory reduced by a roughly constant percentage of GDP, on the assumption that the share of other financing bases in GDP (in particular the private sector wage bill) remained roughly constant. This convention was then renamed the "EEC" convention (effort de l'État constant, constant State support), while, at the same time, the CCSS convention was renamed "EPR" (équilibre permanent des régimes subventionnés, permanent balancing of subsidised schemes), and the former COR convention, which has since been abandoned, was renamed "TCC" (taux de cotisation constant, constant contribution rate).

If this "GDP" or "EEC" convention gives a more favourable result, it is because the projections assume, in time, a fall in the ratio between the public sector pension bill and GDP, and thus the same level of potential savings in the current balancing subsidies. Therefore, with State support set as a proportion of GDP, there is a surplus that can be implicitly assumed to be convertible into a new category of subsidies for the benefit of schemes with new deficits, primarily the general pension scheme. However, this assumes that the State does not envisage other uses for those surpluses. Clearly, we do not find ourselves in such a situation. At a push, we can even theorise that current balancing subsidies are already a sort of anomaly that hides the real overall pension deficit (Bouverin, 2022; Haut-commissariat au plan, 2022), assuming, however, that there is agreement on what a "normal" level of funding for the civil service pensions or subsidised schemes would be. We cannot consider the "normal" level to be the prevailing contribution rate in the private sector, if only due to differences in demographic structure.

All in all, what emerges from this is that there can be as many possible deficit indicators as opinions on what the State commitment in terms of pension funding, and more broadly,

the proportion of GDP that the community is willing to dedicate to this budget item, should already be or could be in future. Either we consider that we can maintain the current support by focusing it more towards schemes where the deficits are set to deepen, or we consider that this is already abnormally high and should be reduced as quickly as possible, or, finally, we consider that we should just let it fall gradually as spending for subsidised schemes falls, by allocating fiscal resources freed up in this way to other economic and social requirements. We cannot choose from among these different options without taking into consideration the importance and degree of urgency of those other requirements, and without bearing in mind the aim of achieving overall sustainability of public finances, by moving away from a silo approach that considers only pensions.

Projecting and Addressing Dependency

This observation acts as a bridge back to the first two articles of this special issue. Among the other items of public spending calling for renewed support, we of course think of the climate transition, which is also linked to the debate surrounding the COR's growth assumptions, the question being to determine a growth rate compatible with compliance with climate commitments. However, more closely associated with the subject of pensions is the question of funding dependency. In the area of dependency, the projections are far less systematic and institutionalised than in the case of pensions, although they could, from the outset, have been a systematic joint product of pension projections that would have received a similar attention. There are three explanations for this.

Firstly, when considered in the early 1990s, the problem appeared very distant, as this is a phenomenon focused on ages well beyond retirement, as it concerns those aged 80 and above rather than those in their 60s. At the time, this equivalent of the first generations of baby boomers reaching retirement age around 2005-2006 was still 20 years off (i.e., around 2025), which could have given the impression that there was plenty of time. However, that time has passed and we are now addressing this turning point. The subject is therefore more pressing, hence its inclusion in this special issue.

A second reason is the financial weighting, as this is a budget item that, although growing, is much smaller than pensions, which has often given the impression that, unlike pensions, it would be able to be managed with minimal fuss. But this was, evidently, not a reason not to take an interest, given the challenge that the subject represents in terms of living conditions of both dependent people and their carers. Furthermore, even from a financial perspective, subjects that can all be considered negligible when taken in isolation end up being much more than negligible when aggregated.

A final reason is that, in the case of dependency, we were also able to rely on a natural dampener of the demographic ageing effect, the possibility that the age at which a person becomes dependent naturally shifts upwards as total life expectancy rises. This was the morbidity compression hypothesis: if the age at which a person becomes dependent shifts in the same way as life expectancy, or even more quickly, the prevalence of the phenomenon in the total population may remain stable or even drop.

However, the problem is that there is no certainty in such an outlook. Another possibility is that the age at which a person becomes dependent could rise more slowly than life expectancy, pushing the overall prevalence upwards. This introduces an uncertainty factor into the dependency projections, which was not (or was barely) present in the case of pensions. In the case of retirement, the average age of transition to pensioner status appears to be reasonably predictable due to known rules governing entitlement to benefits. The same cannot be said of the age at which a person becomes dependent, which is a much more random phenomenon than retirement and which is also gradual, with there being various levels of dependency and even the possibility, in some cases, of reversal.

To manage all this, we must find ways of parametrising the range of conceivable scenarios in order to characterise the possible future contexts. This is the subject of the article

written by Mahdi Ben Jelloul, Antoine Bozio, Elsa Perdrix, Audrey Rain and Léa Toulemon, the aim of which is primarily methodological. It introduces into a microsimulation model flexible parameters for the likelihood of transitioning from autonomy to three successive levels of dependency, and flexible parameters for distributing the change in general mortality among autonomous individuals and those with different levels of dependency. For the latter, the authors take a central scenario in which the fall in mortality benefits the various population categories to the same extent, and consider the two polar marginal cases where this would benefit only individuals in good health or only dependent individuals, the latter scenario obviously leading to a mechanical extension of the time spent in dependence. The reference assumption for the transition probabilities between autonomy and successive states of dependency is that they retain the same structure. But this is only a rather pessimistic starting point as it leads to the stability of prevalences at a given age. It is supplemented by two variants, with a more or less marked increase in the probability of remaining autonomous, which enables us to better conform to the changes seen in recent years.

This type of modelling is of course meant to be used to help project requirements, in terms of both financing and establishments to house and care for dependent people. To achieve this, we need to know the usage behaviours of establishments providing care for elderly people. Amélie Carrère, Emmanuelle Cambois and Roméo Fontaine explore the determining factors of this usage. Age, gender and level of dependency are the baseline determining factors, for which the kind of models proposed by Ben Jelloul et al. can provide projections and have, indeed, already been used in existing projection exercises (Miron de L'Espinay & Roy, 2020). But this usage also depends on other socio-economic characteristics and the family environment of the dependent person. The joint effect of all these determining factors is explored using the *Handicap-Santé* [Health and Disability] and CARE (Capacités, Aides et REssources des seniors [Abilities, help and wealth of the elderly]) surveys. Between 2008 and 2015, the joint effect of these different factors provides a good account of the overall change in the rate of usage, without revealing any notable change in behaviour for given characteristics. This stability of behaviours suggests that, at this stage, there has not yet been a significant shift toward staying at home. If this were to remain true in the future, it would justify projections with constant behaviours, but based on projections also determining factors other than sex, age and level of dependency, in order to integrate them into a complete modelling of residential choices. However, it may also be the case that the behaviours stop being stable at given values for all these determining factors: we should, in particular, consider the sustainability of the role of relatives.

Retirement at Individual Level: How Do People React to the Rise in the Age of Entitlement to Pension Benefits? What Do they Expect of these Entitlements?

For our conclusion, we will now return to pensions. Of the arguments put forward in favour of increasing the retirement age is that of the overall increase in life expectancy. As this continues to rise from one generation to the next, there is scope for increases in the age of retirement which do not reduce the length of retirement, either in absolute terms or in proportion to an adult lifetime. Aubert & Rabaté (2014) explored what happened in this sense following the 2003 and 2010 reforms, and these indicators of absolute and relative lengths of retirement are part of the monitoring indicators planned for in the 2014 reform, updated annually by the COR and examined by the CSR. In the latest assessments to be conducted before the reform, but after incorporation of less favourable life expectancy scenarios, the average length of retirement is already projected to be just stable for the next 15 to 20 generations of people receiving their pension entitlements: it should remain comparable to that of the generation of 1940, although down by one to two years compared with that of the generations who retired just before the 2010 reform. What is now at issue is a possible further reduction of this retirement length. This may be the price to pay for keeping pensions at a sufficient level, but requires us to pay greater attention to inequalities in this retirement length within generations. This has been a key focus point in debates on raising the minimum age, which, without compensatory measures or derogations, penalises population categories who have a shorter life span more severely.

Then, beyond overall life expectancy, there is also the question of life expectancy with good health, which the article by Ben Jelloul *et al.* dealt with, and which could be a better criterion for assessing the extent to which a retirement age rise is acceptable. Here again, the question is not one of intergenerational changes but of intragenerational disparities. And to this need of documenting levels of and changes in life expectancy with good health before any new reform can be added the one of documenting the effects that such a reform can have, in turn, on health: is there a risk that it could worsen health at a given age?

On this point, the article from **Eve Caroli, Catherine Pollak and Muriel Roger** recalls that the lessons learned from the literature are ambiguous (Garrouste & Perdrix, 2021). However, this literature focuses generally on the effects of the retirement age on health after retirement. Their article examines more the question of the impact of such a shift on health before retirement, by using the discontinuities in retirement age generated by the 2010 reform. How has the health of individuals who had not yet retired and for whom the reform had postponed the prospect of receiving pension benefits changed in comparison with individuals in adjacent generations who have not or barely been affected by the reform?

The fact that this 2010 reform created marked inequalities in treatment between generations that were otherwise very comparable has already been used to assess the effects of increasing the retirement age on pre-retirement labour market position. Here, the outcome was that the effect of this postponement initially merely extends the situations in which the individuals found themselves before the shift in retirement age: senior citizens who were already not in employment await their new retirement age without any change in status, while those who were in employment remain there (Dubois & Koubi, 2017; Rabaté & Rochut, 2020). This puts into perspective the idea that raising the retirement age is entirely carried over into higher unemployment and would therefore have no financial benefit (there is indeed additional employment), but also the opposite optimistic idea of an immediate effect that would cause the entire age-based employment rate profile to shift by the same amount and at the same speed as the retirement age, which would maximise its financial benefit. If there were to be an effect (Hairault *et al.*, 2006; Aubert, 2013), it would be more long term.

To explore the effects of the 2010 reform on health before retirement rather than on employment, the authors use administrative data that enable them to measure impacts on several indicators: probability of sick leave, length of that leave, probability of seeing a GP or specialist and, lastly, health-care expenditures. The length of absences and the probability of seeing a GP are not increased, but there is an increase in the probability of these absences and of seeing a specialist, and in the expenditures involved. The interpretations highlighted are the effect on health of the disappointment created by the prospect of having to work for longer, or the fact that individuals who already had a health problem that they were managing in anticipation of their impending retirement would have to consult a medical practitioner sooner when the prospect of that retirement is pushed back.

Given the orders of magnitude, it is not clear that this type of effect on health expenditures or daily allowances would radically change the financial equation for the reforms, in the same way as the carry-over effects on unemployment are not sufficient to say that these reforms ultimately have a neutral effect on the public finances. However, this result does highlight workplace malaise as a resistance factor to these reforms, a point often raised in the debates of recent months.

To finish on a more positive note, the last article, from Luc Arrondel, Loïc Gautier, Aurélie Lemmonier and Laurent Soulat, focuses on a positive effect of one aspect of

past reforms. A section of the second COR report (COR, 2004) was dedicated to the right to information. In a system as complex as the French one, aspirations of early retirement can easily be accompanied by apprehension about pension amounts. Up until the 2003 reform, some individual information was of course provided by each regime of which the future retiree had been affiliated, but this information did not give a clear overview of his consolidated entitlements. It was this 2003 reform that initiated the provision of consolidated individual information about entitlements already accrued, which was sent to each individual every five years from the age of 35 onwards. The sending of this information began in earnest in 2007, and two waves of the PAT€R (PATrimoine et préférences vis-à-vis du TEmps et du Risque - Savings and preferences regarding time and risk) survey make it possible to assess the impact of this on knowledge of entitlements and concern regarding their amount. These two waves took place in 2012 and 2020, and each contained a module on expectations and preferences regarding retirement. Having two waves with individuals having received information to a greater or lesser extent allows to isolate the effects of that information from the effects of age and those of the period. Age and information both have a positive impact on knowledge of entitlements, which in turn reduces the level of concern. An effect based purely on the period is also observed, but we are unable to say whether this is a trend or relates to cyclical effects. The second wave took place during the COVID-19 crisis and after the structural pension reform bill had just been scrapped. It is possible that this very specific context influenced the state of mind of respondents to that 2020 wave.

Nevertheless, we are concerned here with the issue of individual entitlements. The 2004 COR report distinguished between personal information and general information on the pension system and its outlook. This brings us back to the comments on the article by Frédérique Nortier-Ribordy. Reaching a good level of collective perception regarding the state of the pension system is hindered by another form of complexity other than that relating to the calculation of individual entitlements. The fragmentation of the system and multiplicity of its funding channels, as well as the high sensitivity of the projections to economic growth assumptions, which are themselves highly uncertain, do not favour convergence towards an easily shareable diagnosis to enable a simpler debate. In addition to this, there is also the difficulty of connecting the problem of pensions with other economic and social challenges of the decades to come. This issue helps to form a connection between the issue of pensions and that of dependency, which is a first step. There are many others still to be considered.

REFERENCES

Aubert, P. (2013). L'« effet horizon » : de quoi parle-t-on ? *Revue française des affaires sociales*, 4, 41–51. https://doi.org/10.3917/rfas.124.0041

Aubert, P. & Rabaté, S. (2014). Durée passée en carrière et durée de vie en retraite : quel partage des gains d'espérance de vie ? *Économie et Statistique*, 474, 69–95. https://doi.org/10.3406/estat.2014.10511

Bouverin, S. (2022). Le système de retraites : équilibre conventionnel et déficit public. *Commentaire* N° 177, 87–96.

https://www.commentaire.fr/boutique/achat-d-articles/le-systeme-de-retraites-13659

Insee (1990). L'avenir des retraites. *Économie et Statistique* N° 233. https://www.persee.fr/issue/estat 0336-1454 1990 num 233 1

Insee (1996). Économie de la protection sociale : assurance, solidarité, gestion des risques. *Économie et Statistique*, N° 291-292. https://www.persee.fr/issue/estat 0336-1454 1996 num 291 1

Insee (2007). Santé, vieillissement en retraite en Europe. *Économie et Statistique*, N° 403-404. https://www.persee.fr/issue/estat_0336-1454_2007_num_403_1

Insee (2011). Les systèmes de retraite et leurs réformes : évaluations et projections. *Économie et Statistique*, N° 441-442.

https://www.insee.fr/fr/statistiques/fichier/1377529/717184d-001a002_ci.pdf

Insee (2015). Microsimulation appliquée aux politiques fiscales et sociales. *Économie et Statistique* N° 481-482. https://www.persee.fr/issue/estat 0336-1454 2015 num 481 1

Commissariat général au plan (1991). *Livre blanc sur les retraites : garantir dans l'équité les retraites de demain*. La Documentation française.

Conseil d'orientation des retraites – COR (2004). Retraites : les réformes en France et à l'étranger ; le droit à l'information. La Documentation française.

Conseil d'orientation des retraites – COR (2022). Évolutions et perspectives des retraites en *France*. Rapport annuel, septembre.

https://www.cor-retraites.fr/sites/default/files/2022-09/Pr%C3%A9sentation%20grand%20public%20site~0.pdf

Dubois, Y. & Koubi, M. (2017). Report de l'âge de la retraite et taux d'emploi des seniors: le cas de la réforme des retraites de 2010. *Insee Analyses* N° 30. https://www.insee.fr/fr/statistiques/2546882

Garrouste, C. & Perdrix, E. (2021). Is there a consensus on the health consequences of retirement? A literature review. *Journal of Economic Surveys*, 36(4), 851–879. https://doi.org/10.1111/joes.12466

Hairault, J.-O., Langot, F. & Sopraseuth, T. (2006). Les effets à rebours de l'âge de la retraite sur le taux d'emploi des seniors. *Économie et Statistique*, 397, 51–63. https://www.insee.fr/fr/statistiques/1376331?sommaire=1376333

Haut-commissariat au plan (2022). *Retraites : une base objective pour le débat civique*, 8 décembre. https://www.gouvernement.fr/sites/default/files/contenu/piece-jointe/2022/12/hcp_note retraites.pdf

Marino, A. (2014). Vingt ans de réforme des retraites : quelle contribution des règles d'indexation ? *Insee Analyses* N° 17. https://www.insee.fr/fr/statistiques/1521315

Miron de l'Espinay, A. & Roy, D. (2020). Perte d'autonomie : à pratiques inchangées, 108 000 seniors de plus seraient attendus en Ehpad d'ici à 2030. Projections de population âgée en perte d'autonomie selon le modèle lieux de vie et autonomie (Livia). DREES, *Études et Résultats* N° 1172. https://drees.solidarites-sante.gouv.fr/sites/default/files/2020-12/er1172.pdf

Rabaté, S. & Rochut, J. (2020). Employment and substitution effects of raising the statutory retirement age in France. *Journal of Pension Economics & Finance*, 19(3), 293–308. https://doi.org/10.1017/s1474747218000392

Vernière, L. (1990). Les retraites pourront-elles être financées après l'an 2000 ? *Économie et Statistique*, 233, 19–27. https://doi.org/10.3406/estat.1990.5461