Remaking retirement investors:

Behavioural economics and defined-contribution occupational pensions

Paul Langley*
Department of Geography
Durham University
Science Laboratories
South Road
Durham
DH1 3LE
United Kingdom
paul.langley@durham.ac.uk

Adam Leaver
PMO Division
6.04 Harold Hankins Building
Manchester Business School
University of Manchester
M15 6PB
United Kingdom

* Corresponding author

Remaking retirement investors:

Behavioural economics and defined-contribution occupational pensions

Abstract

Summoned-up within the defined-contribution (DC) plans that now predominate in the UK and USA, the financial subject of the retirement investor is identified by behavioural economics as the crucial problem to be solved in present-day occupational pension provision. Interventions are being made that: promote individual participation in plans through auto-enrolment techniques; increase the rate at which individuals make tax-favoured payments into plans through contribution escalator schemes; and cater for the decision-making and risk management deficiencies of individuals by providing default option funds with in-built 'life-style' and 'target-date' investment strategies. After Deleuze and Foucault, we argue that this 'behavioural revolution' is a rearticulation of the heterogeneous elements which, in relation, produce the *dispositif* (apparatus) of DC plans as a distributed form of agency that places the retirement investor at its centre. Behavioural economics is shown to continue the inherently incomplete remaking of retirement investors within DC plans, necessarily precarious financial subjects who face the highly uncertain prospect that returns on investment after fees will be sufficient to meet their expectations of security in old age.

Key words: retirement investors; behavioural economics; defined-contribution pensions; life-style and target-date funds; apparatus of security.

Introduction: investing NEST eggs

In May 2009, the Personal Accounts Delivery Authority (PADA 2009a) began a consultation exercise on the form that investment could take in what, since January 2010, has become known as NEST (the National Employment Savings Trust). NEST is the outcome of reforms in United Kingdom (UK) occupational pensions which, given shape by the Pension Commission's wide-ranging review, target around seven million low-to-moderate income and typically female workers who are not enrolled in a plan and do not presently make dedicated retirement investments (DWP 2006a). While the Pension Act of 2008 requires that employers must provide and contribute to an occupational pension for their employees - thereby addressing 'under-enrolment' by 'retirement undersavers' (DWP 2006b) - since October 2012 NEST has provided employers with an auto-enrolment defined-contribution (DC) plan which is guaranteed to meet legal standards. The PADA's (2009a) consultation on NEST's investment approach was concerned, then, with the decision-making and so-called 'risk appetites' of the would-be investors that NEST explicitly targets.

Under DC occupational pension plans, the individual worker as retirement investor is expected to choose from a menu of mutual funds tailored for different risk appetites. But retirement investors have become known by policy-makers and industry practitioners versed in behavioural economics as individuals who, eschewing choice and the embrace of risk/return calculations, favour the default option mutual fund products that are usually on offer within DC plans (OECD 2009a). While proponents claim that its antecedents can be found in classical economics (e.g. Angner & Loewenstein 2012), behavioural economics consolidated from the late 1950s and especially during the 1980s and 1990s through an embrace of the theories and experimental scientific methods of psychology. Emerging as a

bona fide sub-discipline and increasingly infiltrating policy-making communities on both sides of the Atlantic, behavioural economics is characterised by a series of corrective and systematic claims about cognition in decision-making that challenge the utility maximizing assumptions made by neoclassical theories about *homo oeconomicus* (Heukelom & Sent 2010; Rabin 1998). Retirement investors are thus 'reluctant investors' for behavioural economists (Byrne, Harrison & Blake 2008), the consequence of certain psychological traits which are held to be especially pressing in long-term decision-making and under conditions of uncertainty (Benartzi & Thaler 2005; Kahneman, Slovic & Tvesrsky 1982). And, for the PADA (2009a), the reluctant investor problem is held to be particularly acute given the socio-demographic characteristics of those targeted by NEST (cf. Clark, Strauss and Knox-Hayes 2012).

Because NEST investors could be predicted to take the default fund option, the design of that fund's investment approach was of specific concern to the PADA. In setting out the alternatives, the PADA (2009a) concentrated on current debates over 'life-style' and 'target-date' funds. Although differing in ways that we discuss in detail below, these funds are characterised by asset allocations that become 'less risky' as investors near retirement in order to 'lock-in' previous returns. While not explicitly siding with a target-date fund strategy for NEST, the PADA (2009a, 2009b) erred towards it. This inclination was confirmed by the results of the consultation in November 2009 and, in early 2011, NEST adopted an investment approach structured across 45 separate funds that each target a single annual retirement date over the coming years. Yet, and during the very period of the PADA's consultation, target-date funds were the focus for a joint-hearing of the Securities and Exchange Commission (SEC) and the Department of Labor (DoL) in the United States of America (US) (SEC & DoL 2009). What provoked the joint-hearing was the across-the-board

poor investment performance of target-date funds in the financial crisis, and especially the sharp disparities between what were supposed to be very similar funds. For example, a survey of 30 different funds with a common retirement target-date of 2012 found that their negative performance during the first quarter of 2009 ranged from -1.7% to -12.2% (Glover 2009). Such disparities reflected different asset allocation strategies as funds neared their shared target-date. Those participating in the joint-hearing worried that retirement investors in target-date funds may be misled into thinking that their pension pot is necessarily safe. In turn, the joint-hearing debated whether common investment standards are necessary to preserve what is known in popular parlance as the 'invest it and forget it' status of target-date funds.

This coincidence in recent UK and US policy-making on investment in DC plans provides us with an illuminating starting point from which to consider a particular financial subject: the retirement investor who, called-up within DC occupational plans and through wider transformations that serve to individualise responsibility and risk in pension provision, confronts considerable uncertainties (Langley 2006; 2008). As DC plans have replaced the collective insurance of defined-benefit (DB) schemes as the predominant form taken by occupational pension provision over the last two decades or so, private-sector employers typically no longer provide a 'final salary' or similar pay-and-service related guarantee regarding retirement benefits (Cutler & Waine 2001; Langley 2004; Munnell 2006). Individuals thus appear as responsible for their own pension provision within DC plans, deciding whether to join (or to opt-out if auto-enrolment is in place), choosing their tax-deductible contribution rates, matching their risk appetites with mutual fund investment options, and ultimately facing the uncertain prospect that their investment returns minus fees (and the annuity rates that prevail at the point of their retirement) will be sufficient to meet

their expectations of well-being and security (Clark & Knox-Hayes 2007). But, as the above coincidence in recent policy-making on both sides of the Atlantic illustrates, what we want to critically scrutinise is the present 'behavioural revolution' that renders the retirement investor subject of DC plans as the explicit problem to be solved. Through technical interventions such as default fund design, behavioural economics seemingly overcomes the difficulties of DC plans. It thereby serves to depoliticise the dilemmas of occupational pension provision, as alternative problematizations are rendered invisible.

What follows is divided into three sections. To begin, we outline how behavioural economics has forged the reluctant investor problem by questioning assumptions about *homo oeconomicus* which are traditionally hard-wired into DC plans. Behavioural economics stresses that individual economic decision-making is shot-through with apathy, inertia and miscalculation, and offers a range of solutions for DC plans that work with, rather than against, these tendencies. For those who celebrate or commentate on the behavioural revolution, these solutions amount to a 'new paternalism' on the part of governments, sponsoring employers, plan providers, consultants and so on which is said to be partially reversing the individualisation of responsibility and risk that has been carried forward by DC occupational pensions (e.g. Thaler & Sunstein 2009; Clark & Knox-Hayes 2009). The second section of the paper, in contrast, draws on the broadly allied concepts of '*dispositif'* and 'apparatus of security' from Deleuze (2006) and Foucault (2007, 2008) to provide a critical mapping of the behavioural revolution which challenges established models of action and agency in DC plans. We argue that the behavioural revolution is a rearticulation of the heterogeneous elements which, in relation, produce DC plans as a distributed form of agency within which the financial subject of the retirement investor is being remade. As the final section of the paper then shows, the on-going precariousness of the retirement investor arises

in large part from the inherent incapacity of commercial risk devices in DC plans to successfully manage the highly uncertain financial future, and therefore to deliver returns on investment after fees which are consistently sufficient to meet individuals' expectations of security in old age. We address the implications of our analysis for the politicisation of behavioural economics and occupational pensions in our concluding remarks.

In a DC world, reluctant investors need a nudge

What is often referred to as today's 'DC world' initially emerged in the US during the 1980s, as a drift away from DB schemes began and accelerated thereafter (Mitchell & Schieber 1998). Successive governments were initially slow to recognise the potential significance of the 401(k) code of 1978 which establishes the taxation benefits that continue to apply to the majority of DC plans. Once this became apparent, however, Republican and Democrat administrations alike stimulated the take-up of DC plans by increasing limits on tax-deductible contributions under the code (Munnel & Sundén 2004: 4-5). With the individualisation of responsibility and risk in occupational pensions that this move to DC plans carried forward, the retirement investor subject was called-up as a calculative, self-disciplined and masculine figure who responded rationally to the 'free money' of matching employer contributions, tax incentives and the investment opportunities of risk/reward (Langley 2006). It became apparent, however, that large numbers were not enrolling in DC plans, and that those already enrolled often made poor investment choices which were likely to generate 'sub-optimal' outcomes (Munnel & Sundén 2004: 53-94; Choi, Laibson & Madrian 2005). In turn, policy and guidance produced by government agencies, consumer groups, providers and consultants came to focus on improving information, transparency and the 'financial literacy' of the retirement investor to enable individual decision-making and risk management.

The DC world and its attendant financial literacy initiatives emerged relatively suddenly in the UK, as a crisis of final salary schemes was seemingly produced by the collapse of the so-called 'new economy'. While successive stock market bubbles had indeed and with hindsight been crucial to sustaining the growing obligations of DB schemes across a number of decades (Pensions Commission 2004), the bursting of the new economy bubble at the turn of the millennium provided an opportunity for the financialising and individualising rationalities of DC pensions to be rapidly embraced in the private sector (Langley 2004). What has marked the Anglo-American DC world more recently, however, is a set of common changes that, in effect, render the retirement investor subject as the explicit problem to be solved. Advocates and commentators herald these changes as a 'behavioural revolution' and 'new paternalism' in occupational pensions (e.g. Thaler & Sunstein 2009; Clark & Knox-Hayes 2009). Attempts to expand the number of workers enrolled in DC schemes no longer turn solely on tax incentives and financial literacy campaigns, but are increasingly grounded in insights from behavioural economics into 'present-biased preferences' which produce 'procrastination' and 'inertia' in retirement investors (Benartzi & Thaler 2005). So, when the Pension Protection Act of 2006 made the future development of DC plans which cover 38% of the workforce in the US an explicit public policy concern for the first time, it gave increased legal and regulatory support to employer-sponsored 401(k) plans in which employees were automatically enrolled (with the choice of opting-out) (Darlin 2006). This move from opting-in to opting-out of the DC world is also now apparent in the UK. In seeking to increase individual enrolment in DC plans and recommending the establishment of the National Pension Savings Scheme (NPSS) that became NEST, for example, the Pension Commission (2004: 208; 2005: 68-9) drew on behavioural economics in order to show that financial literacy initiatives were largely ineffective.

The analysis and agenda of behavioural economics in the DC world highlights that the inertia of what Byrne, Harrison and Blake (2008) call 'reluctant investors' extends beyond enrolment and into decision-making over contribution rates. Benartzi and Thaler's (2005) *Save More Tomorrow* solution is lauded by behavioural economists as a way of addressing insufficient payments into plans, especially when plans are of the auto-enrolment variety and where the default contribution rate is low at 2-3% of wages. *Save More Tomorrow* is a response to 'present-biased preferences', and to the unwillingness that these are said to generate for corrective increases in contribution rates. It invites DC plan participants to commit themselves in advance to a series of increases in their contribution rate that, escalating up to the tax-preferred maximum, are synchronized with future pay rises. The take-home-pay of workers in DC plans with a *Save More Tomorrow* element therefore appears not to be eroded by increased retirement investment, and they are deemed likely to continue to make a relatively high-level of contributions. Adopted first in the US in 1998, the *Save More Tomorrow* technique now features in DC plans provided and administered by some of the industry's leading companies, including Vanguard, T. Rowe Price, Fidelity, and Hewitt Associates.

In terms of investment decision-making, meanwhile, members of DC plans are held by behavioural economists to 'fear … making the wrong decision' in an uncertain environment which 'further implies that additional information and communications, although very important, will not by themselves convert the reluctant investor into an active one' (Byrne, Harrison & Blake 2008: 209). When confronted by a menu of mutual fund options in a DC plan, investors typically eschew choice and instead plump for the default fund option when one is available. In the UK, for instance, where 84% of DC plans include a default fund, it is

the investment choice of 91% of all members (NAPF 2008). To return to Byrne, Harrison and Blake (2008: 209), what retirement investors are said to want is not more information, but 'to have an expert make the investment decision for them'. And, as investment decisions are made on behalf of those who take the default option, the 'expert' debate over the most appropriate life-style and target-date asset allocation strategies for these funds has become a key feature in what Ezra, Collie and Smith (2009) call 'DC Version 2.0'.

For one of the key architects of the behavioural revolution and DC Version 2.0, Richard H. Thaler, solutions to the problem of the retirement investor are cast, more broadly, as a series of 'nudges' by 'choice architects' infused with a 'libertarian paternalism' (Thaler & Sunstein 2009). While liberal paternalism implies a programmatic application of behavioural economics – 'self-conscious efforts, by institutions in the private sector and also by government, to steer peoples choices in directions that will improve their lives ' (p. 5) – it is in occupational pensions that it has gained most traction to-date.[1] As Clark and Knox-Hayes (2009: 59) have it, the impact of behavioural revolution and the evolving agenda that goes under the banner of "new" paternalism' now needs to be recognised in academic accounts of occupational pensions, not least because it is said to produce a partial reversal in the individualisation of responsibility and risk which the advent of a DC world is widely understood to have produced.

[1] For a recent example of this wider application of behavioural economics to address issues such as tackling crime and reducing obesity in UK public policy, see the 'mindspace' work of the Institute for Government and the Cabinet Office (2010) and the subsequent Department of Health (2010) whitepaper. We would like to thank Will Davies for drawing our attention to this.

If the behavioural revolution is cast in these terms, employers, trustees, providers, consultants, fund managers and government agencies do appear to be becoming 'choice architects' who share new responsibilities with retirement investors. Indeed, behavioural research suggests ways in which legal barriers to the paternalistic acceptance of new responsibilities might be overcome (Byrne, Harrison & Blake 2008). But, claims that behavioural economics is having a revolutionary impact that partially reverses the individualisation of responsibility and risk in occupational pensions remain over-blown at best. This is primarily because the actions and outcomes of DC plans are explained as necessarily arising from the decisions and interactions of clearly identifiable and pre-formed individual and collective agents. To borrow terms from Deleuze and Guattari (2004: 5, 13), then, a critical understanding of the behavioural revolution and the remaking of retirement investors requires 'a map' rather than 'a tracing', as the latter would merely reproduce established models of action and agency in DC plans.

The distributed agency of DC pensions

Behavioural economics' rendering of the retirement investor as the explicit problem to be 'nudged' by newly paternalistic institutions follows from a deeply engrained model of economic agency that has recently been rounded on by the interdisciplinary literature known as 'the cultural economy of finance' (Pryke & du Gay 2007). Although encompassing a variety of perspectives, a uniting feature of this literature is 'a shared focus on the heterogeneous ways in which objects and persons (firms, markets, consumers) are "made up" or assembled by the discourses and *dispositifs* of which they are supposedly the cause' (p. 340). This 'shared focus' has tended to be taken forward through insights drawn from the pragmatist philosophy of Deleuze and Guattari (2004) and their concept of 'assemblages',

and the actor-network theory of Latour and Callon. The result, particularly following Callon's ground-breaking contributions to economic sociology, is an emphasis on the materiality of composite market agencies and the performativity of a wide range of 'market devices' in the constitution of 'socio-technical *agencements'* (Callon 2008; Muniesa, Millo & Callon 2007).

From the perspective offered by the cultural economy of finance, what is needed to critically understand the move to DC Version 2.0 which turns on the remaking of retirement investors is 'to take into consideration the modes of distribution of individual action … and to give up the study of individual agents' (Callon 2008: 33). Behavioural economics' denial of the retirement investor as a rational and calculative agent only serves to reinforce an understanding of action in DC pensions which is firmly centred on that same individual agent, albeit one who is now recast as psychologically-flawed and in need of assistance. By way of radical alternative, what Callon has in mind is 'distributed agency' that is 'collective, in the precise sense of mobilizing a large number of (human and non-human) entities taking part in the action' (p. 36). And, as Callon acknowledges, the concepts of distributed agency and socio-technical *agencement* are grounded in Deleuze's (2006) discussion of Foucault's notion of *dispositif*, something that Foucault (2007, 2008) later developed to explore what he termed 'apparatuses of security'.

Foucault first used the concept of *dispositif* to refer to 'tools and devices', thereafter elaborating it 'to mean a device orientated to produce something – a machinic contraption whose purpose in this case is control and management of certain characteristics of a population' (Rabinow & Rose 2003: xv-xvi). This 'contraption' is formed through 'a kind of strategic bricolage' (xvi), bringing together, in Foucault's own terms:

> a resolutely heterogeneous grouping composing discourses, institutions, architectural arrangements, policy decisions, laws, administrative measures, scientific statements, philosophic, moral and philanthropic propositions; in sum, the said and the not-said, these are the elements of the apparatus (in Rabinow & Rose 2003: xvi).

Deleuze (2006) similarly stresses the heterogeneity of the elements or 'lines of different natures' that, in relation, 'compose … and pass through' a *dispositif* as 'a multilinear whole'. And, in this regard, there are clear parallels between Deleuze's diagrammatic-style conception of a *dispositif* and what he and Guattari term a 'machinic assemblage' (Deleuze & Guattari 2004: 98). As Deleuze (2006) suggests, however, while the concept of *dispositif* later comes to be central to Foucault's analysis of power and order, his own *dispositif* and assemblages are marked by a fluidity, dynamism and relative openness that always to some degree escapes the 'lines of force' that are present within them (p. 340). Furthermore, for Deleuze, it is not only the case that 'a production of subjectivity in an apparatus … must be made to the extent that the apparatus allows it or makes it possible', but that the resulting 'line of subjectivation' is also 'a line of flight' that 'escapes the previous lines' (p. 341).

The concepts of *dispositif* and apparatus of security are, for us, crucial in two related respects. Critical inquiry comes to entail mapping how the relations of heterogeneous elements give DC plans their specific form and ordering power, and how the distributed agency of this apparatus seeks but can never completely secure the retirement of the individualised population of responsible and risk-taking investor subjects which it calls-up and places at its centre. If we begin this mapping with how behavioural economics now provides the 'regime of utterances' (Deleuze 2006: 339) in the dynamic distributed agency of the DC apparatus, and thereby renders the retirement investor as the problem to be solved in occupational

pensions, it quickly becomes apparent that this closes-down alternatives to the DC world. For example, even when the relative benefits of the collective insurance of the apparatus of DB schemes are acknowledged - most notably their capacity to deliver guaranteed retirement incomes rather than potentially accumulate asset-based wealth - this is taken as an invitation to redesign DC plans (e.g. DWP 2008).

Moreover, in the lines of economic theory that compose and pass through and the distributed agency of DC plans, it is apparent that behavioural economics builds upon a previous questioning of rational market action. When neo-classical theory rose to pre-eminence in economics, the bracketing-out of economy from society served to position psychology at the margins of the discipline (Bruni & Sugden 2007). But the disciplinary terrain to which psychology-infused behavioural economics has recently returned – not least by providing a seemingly adequate explanation of the problems and crises of financial markets since the turn of the millennium (Akerlof & Shiller 2009; Shiller 2001) – is quite different. This is because what Foucault (2008) term's the 'American neo-liberalism' of the likes of George J. Stigler, Gary Becker and Theodore Schultz has come to be influential since the 1960s (cf. Davies 2010; Fourcade 2009: 152-60). Focusing on Becker and Schultz's work on 'human capital', what is significant about American neo-liberalism for Foucault (2008) is that it holds that

> the starting point and general frame of reference for economic analysis … must be to try to bring to light the calculation – which, moreover, may be unreasonable, blind, or inadequate – through which one or more individuals decided to allot given scarce resources to this end rather than another (p. 222).

Thus, in the wake of American neo-liberalism, behavioural economics furthers the psychological analysis of problems of individual rational action which have been acknowledged by orthodox economics for several decades, but appears to provide more effective and scientific explanations of, and responses to, those problems. For American neo-liberalism, *homo oeconomicus* is not 'the partner of exchange' but 'an entrepreneur of himself' armed with the innate and acquired 'abilities-machines' of human capital (Foucault 2008: 225-9). In a DC world, behavioural economics thus provides a psychological analysis of the 'genetics' of retirement investors, and prescribes nudges as 'the more or less voluntary formation of human capital in the course of individuals' lives' (pp. 228-9). Put slightly differently, in Deleuzean (2006) terms, behavioural economics is a 'derivation' of the line of subjectivation within the DC plan apparatus that previously sought to further information flows and financial literacy to advance human capital. It is not a 'change in direction', 'bifurcation' or 'fork'.

Auto-enrolment, contribution escalators and default fund investment strategies have emerged as expert and machinic elements in the *dispositif* of DC plans. And, across these devices, it is perhaps default funds, replete with life-style and target-date investment strategies, which have 'some extra nudging power' (Thaler & Sunstein's 2009: 38) and come to be what Deleuze and Guattari (2004) call 'operators'. Operators are the efficacious machinic elements within an apparatus which, to borrow from Jane Bennett t(2007), express their own 'agentic capacity' as intelligent machines seemingly capable of providing for the retirement security of individuals. Common to UK DC plans from their outset, life-style funds comprise a portfolio of assets (usually a fund-of-funds structure) which, on an individual basis, progressively becomes 'less risky' as an investor nears retirement. This strategic shift is typically from equities into bonds and cash, taking place 'automatically via a predefined

formula or algorithm' which usually operates between 10 or 5 years prior to an individual's retirement date (PADA 2009a: 11). In theory, this protects the annuity purchasing power of an individual's DC pension pot. 94% of DC plans in the UK offer a life-style option and, in the majority of cases, that option is also the default fund (PADA 2009a: 70). Meanwhile, in the US, target-date funds came to the fore after the 2006 Pension Protection Act. But, it was the follow-up 2007 decision by the DoL to grant these funds 'safe harbour' status under law that catapulted them to prominence. Prior to this decision, the default option in US DC plans tended to be the least risky fund offered on the menu, such as a money market fund or a fund invested in triple-A rated bonds. After this decision, however, plan sponsors who automatically enrolled members in a target-date fund by way of default were shielded from legal liability for that fund's performance. Investment in target-date funds exploded. By mid-2009, and in the auto-enrolment plans that account for about half of all DC plans available to US workers, 8 out of 10 had target-date funds as their default option (Glover 2009). In a target-date fund - for example, a 2030 fund - the whole investment structure of the fund becomes 'less risky' as the target date nears, although managers retain flexibility for so-called 'tactical asset allocation' decisions in response to market conditions.

Uncertain Returns and Precarious Subjects

In seeking to solve the reluctant investor problem through default fund design, the behavioural revolution displaces investment risk management from individuals to the apparently expert calculations already present within the operations of default fund products themselves. It remains the case, nonetheless, that the assurances of individual retirement security provided by the DC *dispositif* continue to hinge on commercial calculative devices of risk/reward, fund management and investment in the uncertain circulations of financial asset markets. Despite, and arguably at least in part because of the recent behavioural revolution,

occupational pension provision continues to turn on a DC *dispositif* that retains what Foucault (2007: 20) marks out as 'pretty much the essential characteristic of the mechanism of security'. That is, this apparatus 'works on the future', 'not according to a static perception of what would ensure the perfection of the function there and then, but will open onto a future that is not exactly controllable, not precisely measured or measureable'.

The incapacity of commercial calculative devices of risk/return to consistently capture the 'material givens' (Foucault 2007: 19) of future asset market uncertainties, and to bring the semblance of order necessary for those uncertainties to be managed as risks, ensures that the investor subject placed at the centre of the distributed agency of DC plans remains necessarily insecure and constantly remade. Two sets of uncertainties are crucial. Each set may independently contribute to the precariousness of retirement investing, but in combination they turn the experience into something of a lottery. First, macroeconomic or conjunctural shifts tend to alter the performance and risk/return profiles of different asset classes, under conditions where the financial future may not strongly resemble the past. Second, returns for DC investors are also dependent on the asset allocations of the various anonymous experts and strategies that manage their fund portfolios, where performance is diverse across funds and erratic over a lifetime. Added to these uncertainties over returns are the vicissitudes of labour market and household experience. While what are known as 'biographic disruptions' are widely acknowledged in accounts of bankruptcy, they are set-to-one-side as behavioural economics continues to place a largely monolithic and disconnected financial subject at the centre of DC investment. We will deal with each of these imponderables in turn.

If the performance of DC plans is often diverse and erratic, it is partly because the risks and returns associated with different asset classes are strongly shaped by what, after Braudel (1982), we refer to as a 'conjuncture' and define as a distinctive but unstable constellation of financial market events, typically lasting four to seven years. Conjunctures are partly marked by a capital market configuration of asset prices, flows of funds and interacting fund managers and other intermediaries, and may make certain investments seem attractive over the short to medium term, only to falter dramatically as confidence shifts (Engelen *et al.* 2010). This was the case with the new economy bubble which was driven by a boom in venture capital funding, an explosion in new technology initial public offerings (IPOs) and a supporting narrative about the falling costs of information (Feng *et al.* 2001), just as the sub-prime boom was driven by low interest rates, cheap wholesale funding, technologies of securitisation, and the rhetorical promise that innovation in liquid financial markets could efficiently and safely manage risk (Engelen *et al.*, 2012).

The risk/return characteristics of the assets that comprise the portfolios of DC retirement investors are not fixed or endogenous to those assets, but rather they reflect the configurations of a conjuncture (Holmes 2009; Erturk *et al.*, 2010). This is particularly significant for reluctant investors in default life-style or target-date funds. During a target-fund investor's working life, for example, expert practices of tactical asset allocation are supposed to ensure that they benefit from short- and medium-term price rises in particular assets. Indeed, for the PADA (2009a: 48), 'increasing investments in relatively more attractive markets and reducing the holdings in less attractive markets' is precisely the main advantage that target-date funds are said to have over life-style funds. Yet, the risk/return characteristics of 'attractive' asset markets are conjunctural. And, as the circulations of financial asset markets move from one conjuncture to another, it may become far from

apparent which assets are ‘safe’ and which are ‘risky’. Since the Spring of 2010, for example, it has not been clear whether long-dated government bonds are safe, with investor opinions divided on whether we are headed for a period of deflation due to government fiscal austerity where bond values and coupon payments remain robust against declining prices, or a period of inflation due to quantitative easing where rising prices would erode the real value of coupon payments. Sovereign defaults are also possible and continue to seem quite probable. Thus, the operations of target-date funds post August 2007 have had to determine whether to lock in the equity losses of the height of the crisis by moving into bonds which remain at historic lows and may carry hidden risks (Authers 2010).

More broadly, should a sudden conjunctural downturn in assets prices occur as a retirement investor nears their retirement, or at the point immediately prior to their life-style or target-date fund shifting into ‘less risky’ assets, this will sharply diminish their retirement income, particularly if the final lump sum is used to purchase an annuity. The importance of timing in DC fund returns also means that the long-run average performance of certain asset classes may be less important for returns than short- or medium-term price movements. So, despite the widely acknowledged superior long run performance of equities over fixed income investments (Barclays 2007), as Figure 1 shows the return on UK equities between 1999-2009 was dismal, yielding an average of -1.2% per annum over that period despite a mini bull-run from the Spring of 2009 to the present. The poor performance of equities, especially after the August 2007 and September 2008 crashes, hit pension portfolio values and fund balances hard because around 60% of total UK pension fund assets were then held as equities (OECD 2009b). Overall, UK DC portfolio values fell 25%, from £550 billion to $410 billion, between September 2007 and January 2009 (Aon Consulting 2009). The result between 2007 and 2010 was the emergence of a cohort of near-retirement investors who were faced with the

decision of whether to accept reduced pensions due to investment losses and low annuity rates, or to defer retirement until such a time as returns improve (Giles 2009; OECD 2009b).

Insert Figure 1 here:

Uncertainty and variability in returns from DC retirement investment may not arise solely from conjunctural cycles and downturns in asset prices. The diverse asset allocation strategies of different fund managers, the fees and other charges levied on fund members, and the size of a fund may also generate considerable uncertainties over returns. It is estimated that almost 70% of Britain's largest equity pension funds actually lost investors' money in real terms between 1998 and 2008 (Right Annuity 2008), illustrating that average performance levels disguise significant discrepancies in returns within and between funds. Moreover, research by Brien *et al.* (2009) found that rates of return and volatility varied significantly on 2010 target-date funds, which broadly reflected asset allocation decisions, with some holding up to 60% equities despite being just two years from maturity. Brien *et al*. (2009) also found that returns varied greatly even within the same fund families - e.g. equities focused or fixed-income focused or emerging market focused etc. - largely as a result of differences in the fees levied by fund. The tendency for annual fund management fees and other charges to be calculated as a percentage of a DC plan participant's assets also compounds the experience of uncertainty and precariousness, as the impact of fees is felt, disproportionately, by small investors (Stokes 2001). Further, in terms of size, risk and volatility, small funds may be less able to diversify and spread their investments, making them more susceptible to conjunctural downturns in particular asset classes (Brien *et al.* 2009).

The attainment of adequate retirement income through DC investment is further complicated by the unpredictable 'life course' of many investors. Behavioural economics works on the

investor as a monolithic figure, and does not take account of ways in which household and family relations and subject performances impact on investment decisions and risk propensities (Clark and Strauss 2008). Typically, an individual's ability to invest in the first place, and their contribution rate, is often conditioned by whether they live in a household with two or more income earners. The top 40% of households measured by income are largely households with two income earners, and in the UK this 'fortunate 40%' hold 80% of the value of total household savings and investments (Froud *et al*. 2002). Periods of unemployment or illness for one household member can impact on the contribution rates of another when current living expenses take priority. Divorce may also lead to long-term reductions in investment contributions. This is partly illustrated in Figure 2, which shows the contribution rates (i.e. pension fund investment as a % of total earnings) required by individuals to help them achieve the OECD average replacement rate (i.e. pension income as a % of pre-retirement earnings) of 59% after prolonged periods out of the labour market. The table assumes a real investment return of 3.5%, and shows that an average-earner in the UK with ten missing years of contributions would need to pay 7.9% of income into a DC plan in order to bridge the pension gap, whilst also working on average seven years longer than their French counterparts.

Insert Figure 2 Here.

Concluding Remarks

During the 1980s and especially the 1990s, the consolidation of behavioural economics contributed to a partial but discernible 'loosening up' of the discipline which also came to

feature evolutionary and institutional approaches (Heukelom & Sent 2010). While behavioural economics is not his focus, for Callon (2008) these developments gave rise to the entrepreneurial, creative and flexible figure he calls '*homo economicus 2.0*'. Unlike *'homo economicus 1.0*' who 'was highly introverted and relied only on himself and his own resources', *homo economicus 2.0* 'draws on diverse material and emotional resources', 'relies on interpersonal networks' and is readily recognised as needing 'the assistance and institutional support that provides him with critical mental and cognitive resources' (pp. 30-31).

When calling for the analysis of the distributed agency of *homo economicus 2.0*, Callon draws a distinction between two sets of policies 'aimed at compensating for maladjustments encountered by individuals' (p. 46). What he terms 'prosthetic policy', like the behavioural revolution in DC pensions that we have interrogated here, concentrates on '"repairing" the person concerned and/or at restoring the functionalities of which she is deprived' (p. 46). As their proponents would have it, newly paternalistic prostheses – the technical nudges of auto-enrolment, contribution escalators and default fund design - solve the problem of the apathetic, inert and miscalculating retirement investor. For us, however, behavioural economics does not signal a paternalistic sea-change in occupational pension provision, but rearticulates the heterogeneous elements that, in relation, give DC plans their specific form and ordering power as a security apparatus. The distributed agency of the apparatus continues in the wake of the behavioural revolution to seek to secure the retirement of the population of responsible and risk-taking investor subjects, even though it is now a behavioural version of *homo economicus 2.0* that it calls-up and places at its centre.

Where our analysis of the behavioural revolution and occupational pensions departs from Callon's (2008) account of *homo economicus 2.0*, however, is in terms of the prospects of the second set of policies that he identifies. Callon invests a large measure of hope in what he calls 'habilitation policies'. Like prosthetic policies, habilitation policies 'compose individual agencies' but do not work from a given identity (e.g. the retirement investor) and instead seek 'an open range of associations, ties, and bonds, defined along with interactions and experiments' (p. 45). Yet, in placing faith in habilitation policies which 'aim … to construct socio-technical *agencements*' that transform 'individuals into interactive individual agencies' (p. 49), Callon, in effect, accepts the individualised and depoliticising definition of policy problems that emerges from recent developments in economics, including the behavioural revolution. The critical understanding of the behavioural revolution offered here, in contrast, re-opens political space such that the problem itself can be reconsidered, that the collective dilemmas of occupational pensions can be problematised. Not only is it the case that the extant DC Version 2.0 been shown here to be hobbled by the weight of its own contradictions. It also seems inconceivable that the elements of the DC apparatus could be rearranged in such a way that individual agents could interactively secure their own retirements, even if those interactions entailed mutual understandings of diverse social environments or contexts (see Clark, Strauss and Knox-Hayes 2012). While the policy problem remains one of remaking investors such that they can better or more creatively provide for their own individual retirements, then the occupational pensions of all will continue to be exposed to the whims of future financial uncertainties.

References

Angner, E. & Loewenstein, G. (2012, forthcoming,) 'Behavioral economics', in *Philosophy of Economics*, ed. U. Mäki, Elsevier, London.

Akerlof, G. & Shiller, R.J. (2009) *Animal Spirits: How Human Psychology Drives the Markets and Why It Matters for Global Capitalism*, Princeton University Press, Princeton, NJ.

Aon Consulting (2009) 'Credit crunch slashes workers' pensions by over a third', Press release, 19 February, Available at: http://aon.mediaroom.com/index.php?s=43&item=1464

Authers, J. (2010) **'**Why the bond vigilantes are starting to wake up**'**, *Financial Times*, 11 December, online edition.

Barclays (2007) *Equity Gilt Study*, Barclays Capital Publication, London.

Benartzi, S. & Thaler, R. (2005) 'Save more tomorrow: using behavioural economics to increase employee savings', *Journal of Political Economy*, vol. 112, pp. 164-187.

Braudel, F. (1982) 'History and time spans' in *Essays by Braudel*, University of Chicago Press, Chicago, IL.

Brien, N., Cross, P. & Panis, C. (2009) *Target Date Funds: Historical Volatility/Return Profiles*, Deloitte Advanced Analytical Consulting Group, London, 23 October.

Bruni, L. & Sugden, R. (2007) 'The road not taken: how psychology was removed from economics, and how it might be brought back', *The Economic Journal*, vol. 117, no. 516, pp. 146-173.

Byrne, A., Harrison, D. & Blake, D. (2008) 'Defined-contribution pensions: dealing with the reluctant investor', *Journal of Financial Regulation and Compliance*, vol. 16, no. 3, pp. 206-219.

Callon, M. (2008) 'Economic markets and the rise of interactive *agencements*: from prosthetic agencies to habilitated agencies' in *Living in a Material World: Economic Sociology Meets Science and Technology Studies*, eds. T. Pinch & R. Swedberg, MIT Press, Cambridge, MASS., pp. 29-56.

Choi, J.J., Laibson, D.I. & Madrian, B.C. (2005) '$100 bills on the sidewalk: suboptimal investment in 401(k) plans', *National Bureau of Economic Research*, Working paper W11554, August.

Clark, G.L & Knox-Hayes, J. (2007) 'Mapping UK pension benefits and intended purchase of annuities in the aftermath of the 1990s stock market bubble', *Transactions of the Institute of British Geographers*, vol. 32, no. 4, pp. 539-555.

Clark, G.L & Knox-Hayes, J. (2009) 'The "new" paternalism, consultation and consent: expectations of UK participants in defined contribution and self-directed retirement saving schemes', *Pensions: An International Journal*, vol.14, no. 1, pp. 58-74.

Clark, G.L & Strauss, K. (2008) 'Individual pension risk propensities: the effects of socio-demographic characteristics and spousal pension entitlement on risk attitudes', *Ageing and Society*, vol. 28, no. 2, pp. 847-874.

Clark, G.L., Strauss, K. & Knox-Hayes, J. (2012) *Saving for Retirement: Intention, Context, and Behavior*, Oxford University Press, Oxford.

Cutler, T. & Waine, B. (2001) 'Social insecurity and the retreat from social democracy: Occupational welfare in the long boom and financialization', *Review of International Political Economy*, vol. 8, no. 1, pp. 96-117.

Darlin, D. (2006) 'On making enrolment in a 401(k) automatic', *New York Times*, 19 August, online edition.

Davies, W. (2010) 'The rise of the guilty economist: hybrid policy metrics and governance', *After Markets Conference*, Säid Business School, Oxford, April.

Deleuze, G. (2006) 'What is a dispositif?' in *Two Regimes of Madness: Texts and Interviews 1975-1995*, Semiotext(e), N.Y.

Deleuze, G. & Guattari, F. (2004) *A Thousand Plateaus: Capitalism and Schizophrenia*, Continuum, London & New York.

Department of Health (2010) *Healthy Lives, Healthy People: Our Strategy for Public Health in England*, The Stationery Office, Norwich.

DWP (2006a) *Security in Retirement: Towards a New Pension System*, The Stationery Office, Norwich.

DWP (2006b) *Personal Accounts: A New Way to Save*, The Stationery Office, Norwich.

DWP (2008) '*Deregulatory review of private pensions: risk sharing consultation*, 5 June, Available at: http://www.dwp.gov.uk/pensionsreform/pdfs/pensionrisksharing-consultation-june2008.pdf

Engelen, E., Erturk, I., Froud, J., Johal, S., Leaver, A., Moran, M., & Williams, K. (2012) *After The Great Complacence: Financial Innovation and the Politics of Reform*, Oxford University Press, Oxford.

Engelen, E., Erturk, I., Froud, J., Leaver, A. & Williams, K. (2010) 'Financial innovation: frame, conjuncture and bricolage', *Economy and Society*, vol. 39, no. 1, pp. 33 - 63

Erturk, I., Leaver, A. & Williams, K. (2010) 'Hedge funds as 'war machine': making the positions work', *New Political Economy*, vol. 15, no. 1, pp. 9-28.

Ezra, D., Collie, B. & Smith, M.X. (2009) *The Retirement Plan Solution: The Reinvention of Defined Contribution*, Wiley, Hoboken, NJ.

Feng, H., Froud, J., Johal, S., Haslam, C. & Williams, K. (2001) 'A new business model? The capital market and the new economy', *Economy and Society* vol. 30, no. 4, pp. 467-503.

Foucault, M. (2007) *Security, Territory, Population, Lectures at the Collège de France, 1977-1978*, Palgrave MacMillan, Basingstoke.

Foucault, M. (2008) *The Birth of Biopolitics, Lectures at the Collège de France, 1978-1979*, Palgrave MacMillan, Basingstoke.

Fourcade, M. (2009) *Economists and Societies: Discipline and Profession in the United States, Britain and France, 1890s to 1990s*, Princeton University Press, Princeton, N.J.

Froud, J., Johal, S. & Williams, K. (2002) 'Financialisation and the coupon pool', *Capital and Class*, vol. 78, pp. 119-152.

Giles, C. (2009) 'OECD warns on pensions crisis', *Financial Times*, 23 June, online edition.

Glover, H. (2009) 'Suitability of target-date funds in doubt', *Financial Times*, 3 May, online edition.

Heukelom, F. & Sent, E-M. (2010) 'The economics of the crisis and the crisis of economics. Lessons from behavioral economics', *Krisis: Journal of Contemporary Philosophy*, issue 3, pp. 26-37.

Holmes, C. (2009) 'Seeking alpha, performing beta: hedge fund-based financial ecosystems', Available at: http://www.allacademic.com//meta/p_mla_apa_research_citation/3/1/1/6/9/pages311699/p311699-1.php.

Institute for Government and the Cabinet Office (2010) *Mindspace: Influencing Behaviour Through Public Policy*, March. Available at: http://www.instituteforgovernment.org.uk/images/files/MINDSPACE-full.pdf

Kahneman, D., Slovic, P. & Tversky, A. (1982) *Judgement Under Uncertainty: Heuristics and Biases*, Cambridge University Press, New York.

Langley, P. (2004) 'In the eye of the "perfect storm": the final salary pension crisis and financialization of Anglo-American capitalism', *New Political Economy*, vol. 9, no. 4, pp. 539-558.

Langley, P. (2006) 'The making of investor subjects in Anglo-American pensions', *Environment and Planning D: Society and Space*, vol. 24, no. 6, pp. 919-934.

Langley, P. (2008) *The Everyday Life of Global Finance: Saving and Borrowing in Anglo-America*, Oxford University Press, Oxford.

Mitchell, O. S., & Schieber, S.J. (1998) 'Defined contribution pensions: new opportunities, new risks' in *Living With Defined Contribution Pensions: Remaking Responsibility for Retirement*, eds. O.S. Mitchell & S.J. Schieber, University of Pennsylvania Press, Philadelphia, pp. 1-14.

Muniesa, F., Millo, Y. & Callon, M. (2007) 'An introduction to market devices' in *Market Devices*, eds. M. Callon, Y. Millo & F. Muniesa, Blackwell, Oxford, pp. 1-12.

Munnell, A. H. (2006) 'Employer-sponsored plans: the shift from defined benefit to defined contribution' in *The Oxford Handbook of Pensions and Retirement Income*, eds. G.L. Clark, , A.H. Munnell & J.M. Orszaq, Oxford University Press, Oxford, pp. 359-380.

Munnell, A.H. & Sundén, A. (2004) *Coming Up Short: The Challenge of 401(k) Plans*, The Brookings Institution, Washington, D.C.

NAPF (2008) *The 33rd National Association of Pension Funds' Annual Survey of Pension Funds 2007*, NAPF, London.

NEST Corporation (2010) 'Key facts and myth buster', NEST Corporation, London, Available at: http://www.nestpensions.org.uk/documents/Key-Fact-Myths.pdf

OECD (2009a) *Private Pensions and Policy Responses to the Crisis*, OECD, Paris.

OECD (2009b) 'UK Pensions at a Glance', OECD, Paris, Available at: http://www.oecd.org/dataoecd/31/9/43547091.pdf

Pensions Commission (2004) *Pensions: Challenges and Choices, The First Report of the Pensions Commission*, The Stationery Office, London.

Pensions Commission (2005) *A New Pension Settlement for the Twenty-First Century: The Second Report of the Pensions Commission*, The Stationery Office, London.

Pension Funds Online (undated), Available at: http://www.pensionfundsonline.co.uk/leaguetables/capitalvalue.aspx

PADA (2009a) *Building Personal Accounts: Designing an Investment Approach, A discussion paper to support consultation*, The Stationery Office, Norwich.

PADA (2009b) *Building Personal Accounts: Designing an Investment Approach, Key findings of the public consultation*, November, The Stationery Office, Norwich.

Pryke, M., & du Gay, P. (2007) 'Take an issue: cultural economy and finance', *Economy and Society*, vol. 36, no. 3, pp. 339-354.

Rabin, M. (1998) 'Psychology and economics', *Journal of Economic Literature*, vol. 36, no. 1, pp. 1-46.

Rabinow, P. & Rose, N. (2003) 'Introduction: Foucault today' in *The Essential Foucault*, ed. P. Rabinow and N. Rose, The New Press, New York, pp. vii-xxxv.

Right Annuity (2008) 'Pension fund returns have performed poorly over 10 years', Available at: http://www.rightannuity.co.uk/news/pension-fund-returns-have-poorly-performed-over-10-years/

SEC and DoL (2009) 'Public Hearing on Target Date Funds and Similar Investment Options', 18th June, Available at: http://www.dol.gov/ebsa/pdf/TDFhearingtranscript.pdf

Shiller, R.J. (2001) *Irrational Exuberance*, Princeton University Press, Princeton, N.J.

Stokes, J. (2001) *UK Stakeholder Pensions 2001*, Datamonitor, London.

Thaler, R.H and Sunstein, C.R (2009) *Nudge: Improving Decisions About Health, Wealth and Happiness*, Penguin Books, London.