The effects of pension changes on age of first benefit receipt: Regression discontinuity evidence from repatriated ethnic Germans

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HIGHLIGHTS

- We estimate the effects of 12% pension cuts using regression discontinuity design.
- Two natural experiments affect a group of repatriated ethnic Germans.
- We find no delay in first pension receipt for either of the two pension cuts.
- Repatriates resemble low-skilled Germans in job distribution and retirement behaviour.
- Results are consistent with low-skilled workers stuck in corner-solution equilibrium.

ARTICLE INFO

ABSTRACT

To estimate the effects of large cuts in pensions on the age of first benefit receipt, we exploit two natural experiments in which such cuts affect a group of repatriated ethnic German workers. The pensions were cut by about 12%, yet, according to our regression discontinuity estimates using administrative pension data, there was no significant delay in the age of first pension receipt. Based on additional data sources, we also find that (i) almost all people in our study population had left the labour force by the time they became pension recipients and (ii) repatriated ethnic Germans held similar jobs to and exhibited similar retirement behaviour as low-skilled Germans. These results are consistent with low-skilled workers in Germany being frozen in a corner-solution equilibrium in which the optimal choice is to retire as early as possible.

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1. Introduction

In recent years, governments in many industrialized countries have been making pension systems less generous. Increasing life expectancies, low retirement ages in many continental European countries like France, Germany, Italy or Spain (OECD, 2011 p. 43), and the fiscal implications of the current financial crisis will keep pension systems in the forefront of policy reforms. We might expect these reforms to have positive effects on the labour supply, notably for older workers; especially in the presence of myopic savings behaviour,

liquidity constraints, or unexpected pension cuts (cf. Card et al., 2007). These potential labour supply effects may in turn induce important fiscal effects by increasing tax and social security revenues and decreasing pension fund payouts, at least if those who retire later pay comparatively more into the pension systems than they receive in terms of increased pension benefits, as seems to be the case in most OECD countries (Queisser and Whitehouse, 2006, p. 29). The size of these pension reform effects, however, depends on the labour supply elasticity of mostly older workers, a factor that is hard to determine empirically because of the rarity of exogenous shocks to budget constraints (wages, pension rights).

Our analysis is one of very few studies to investigate large *exogenous* pension cuts using natural experiments, some others being Krueger and Pischke (1992), Jensen and Richter (2003), and Snyder and Evans (2006). This strand of literature also includes

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Mastrobuoni's (2009) analysis of small increases in the normal retirement age for successive cohorts in the U.S. and Liebman et al. (2009) exploitation of discontinuities in the link between social security taxes and benefits to estimate U.S. labour supply elasticities. In more recent work, Danzer (2013) investigates a large pension increase in the Ukraine.

In this article, we use administrative data from the German pension register to estimate pension receipt reactions to two large pension cuts during the 1990s that affected only repatriated ethnic Germans. Due to the fact that the pension cuts were based on repatriation date and enacted retrospectively, they can be analysed using regression discontinuity designs. The repatriated ethnic Germans studied here came primarily from such source countries as the former Soviet Union and Romania, their original countries of residence. Because these two natural experiments reduce pension rates *and* increase the price of leisure (see Appendix Figure A1), they differ from the natural experiment analysed by Danzer (2013) for the Ukraine, in which pension receipt did not require workers to reduce their labour supply. Because such reduction was a mandate in the German early retirement schemes used by most of our study population, we would expect pension cuts to induce workers to start drawing pensions later.

Despite this expectation, we find no significant effects of these reforms on the age of first benefit receipt. Because most repatriated ethnic Germans began drawing pensions under one of several early retirement schemes that did not actuarially decrease the pension level to adjust for longer pension receipt, we conclude that the population studied is bogged down in a "corner solution" made up of incentives to draw benefits as early as possible. For example, early pension receipt at age 60 (the modal age for first pension receipt in this study) induces retirement by requiring complete withdrawal of pension if an individual earns more than "marginal earnings" (currently around €450 per month). Hence, the German case investigated in this study can be seen as an example of how some European welfare systems provide few labour supply incentives or opportunities for older low-skilled workers. Indeed, Queisser and Whitehouse (2006, p. 29) show that pension reductions in the case of early pension receipt are below actuarially neutral reductions in the vast majority of OECD countries.

Although the natural experiments analysed here refer to a specific group of older repatriated ethnic Germans, we demonstrate that this group greatly resembles low-skilled workers in Germany (i.e. those without vocational training/apprenticeship) in terms of their (i) job distribution, (ii) first pension receipt distribution, and (iii) labour force participation and employment rates before and after the age of first pension receipt. Hence, even though our natural experiments refer to a particular group, the outcomes suggest that significant changes in pension levels for low-skilled workers in either direction may have mostly redistributive consequences, without significant changes in the benefits receipt behaviour of the affected workers.

The paper is structured as follows: Section 2 sketches the pension system in Germany, as well as the pension situation for repatriated ethnic Germans. Section 3 explains the pension reforms and empirical methodology and describes the principal data source. Section 4 presents the results, and Section 5 concludes the paper.

2. Institutional background: the German public pension system and special rights for repatriated ethnic Germans

2.1. The German public pension system

Before explaining the particular rules pertaining to repatriated ethnic Germans, we briefly sketch the key features of the German pension system. In Germany, the mandatory public pension insurance covers about 85% of workers (generally excluding civil servants, who have a separate pension system, and self-employed workers, who are mostly voluntarily self-insured) (Berkel and Börsch-Supan, 2004). This system is characterized by a net replacement rate of 58% (Boeri and van Ours, 2008, p. 123) which may reach over 70% after adding government subsidized private pension plans according to the Federal Ministry of Labour and Social Affairs (Bundesministerium für Arbeit und Soziales, 2012, p. 175). Börsch-Supan (2000, p. F29) states that public pension benefits are by far the most important source of income for elderly Germans (over 80% of income for households headed by persons over 64 years of age).

In the German public pension system, pension rights are usually based on the contributions made by employees and employers over the working life, which are translated into so-called "earnings points" that reflect the employee's earnings position relative to other workers in the economy. One earnings point corresponds to the average earnings in the economy in a given calendar year. Therefore, depending on individual earnings in any given year, the individual may gain more or less than one earnings point per calendar year, depending on his or her position in the wage distribution. The pension level is calculated based on the total number of earnings points collected according to the following formula:

$$Pension = Earnings\,Points \times Entry\,Factor \times PensionFactor \\ \times CurrentPensionValue \tag{1}$$

where the number of *EarningsPoints* are the earnings points collected during the working life. The *EntryFactor* equals *1* if the pension is first drawn at normal entry age and smaller (larger) than *1* in the case of reductions (increases) for an early (late) age of first pension receipt. If an individual draws a pension under an early retirement scheme, however (as did most of our study participants), it remains equal to *1*. The *PensionFactor* equals *1* for the retirement pensions considered here and less than *1* for a widow's or orphan's pension. The *CurrentPensionValue* is adjusted each year based on wage developments.

The natural experiments studied here led to a cut in earnings points for repatriated ethnic Germans who had immigrated after a critical date, without affecting other factors of the pension formula. Nevertheless, the observed pension cuts in our data are smaller than the originally conceived cuts in earnings points because the pension level is not necessarily a linear function of the earnings points earned during the working life: for the cohorts studied here, the German public pension insurance "beefed up" low pension levels by raising part of an individual's earnings points by up to 50%. [2]

For these cohorts, the German pension system was also characterized by considerable flexibility in the age of first pension receipt because of several early retirement schemes built into the system. The normal pension age was 65, but under certain preconditions, some workers could receive public pension payments earlier, most notably at ages 63, 60, or even earlier (e.g. in the case of disability) (Schmidt, 2014). One such scheme allowed any individual whose employment history exceeded 35 years to start drawing a pension at age 63. Other schemes allowed workers to receive pension payments as early as age 60; in particular, the so-called "reduced earnings capacity" scheme, in which workers who were administratively classified as not being

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[2] More specifically, if the average of the "earnings points" per year of dependent employment accumulated before 1993 is below 0.75 (i.e. 75% of the average wage), these earnings points are either increased by 50% (if 1.5 times the average earnings points is less than 0.75) or are raised so that the average is exactly equal to 0.75 (if 1.5 times the average earnings points is more than 0.75). These rules imply an attenuation of any cut in earnings points that would cause the average earnings points per year of dependent employment before 1993 to fall below 0.75 for a given pension. However, because the effective pension floor depends on an individual's years of social security-relevant employment (or other activities regarded as equivalent to employment) before 1993, there is no uniform and unconditional minimum pension.