Title
The Wind Before the Storm: Aging, Automation, and the Disability Crisis

Author
Morris, Zach Asher

Publication Date
2017

Peer reviewed|Thesis/dissertation

The Wind Before the Storm: Aging, Automation, and the Disability Crisis

By

Zachary Asher Morris

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in

Social Welfare

in the

Graduate Division

of the

University of California-Berkeley

Committee in charge:

Professor Neil Gilbert, Chair
Professor Michael Austin
Professor Jane Mauldon

Spring 2017

The Wind Before the Storm: Aging, Automation, and the Disability Crisis

Abstract

The Wind Before the Storm: Aging, Automation, and the Disability Crisis

by

Zachary Asher Morris

Doctor of Philosophy in Social Welfare

University of California-Berkeley

Professor Neil Gilbert, Chair

A substantial and growing share of the working age population of the advanced economies receives disability benefits. The causes of disability benefit expansion can primarily be attributed to an aging population and the deterioration of the low-skilled labor market due largely to technological change – challenges that also promise to strain other social welfare programs in the future. Using contemporary international disability benefit reforms as a case study, this dissertation argues that a new welfare state settlement is needed that no longer assumes a sustainable male breadwinner economy. The first chapter traces the history of disability benefits and argues that the traditional model for disability determination is ill suited for the post-industrial era. The second chapter provides a comparative policy analysis of major reforms to the disability determination processes in Denmark, Great Britain, and the Netherlands that shifts away from the traditional model and to a model focusing on work-capacity. The third chapter explores the relevance of disability policies in 17 OECD countries that attempt to integrate people with disabilities into the labor market and to reduce reliance on disability benefits. The dissertation concludes by summarizing the analyses and by returning to the major argument concerning the search for new policy solutions in the post-industrial welfare state.

Dedication

To my parents who provided love and the freedom to wonder.

Table of Contents

Acknowledgment

I am indebted to many for their support and assistance with this research. I would like to first thank my Dissertation Chair, Neil Gilbert. Neil has been a reliable source of brilliant ideas and sage advice. My most profound academic moments have occurred meeting (and arguing) with him in his office or over a cup of coffee. I will forever be grateful for the opportunity to study under him. I would also like to thank my two superb committee members, Michael Austin and Jane Mauldon. Both took an active role in my development and provided invaluable comments on this research and expert guidance over the years. Their thankless work made this dissertation far better than it would be otherwise.

Additionally, I would like to thank James Midgley for his valued mentorship and Jill Duerr Berrick for her work as the chair of the doctoral program. Jody Schimmel-Hyde and Todd Honeycutt provided fantastic supervision during my summer as a fellow at Mathematica Policy Research. Peter Kemp, my master's degree supervisor at the University of Oxford, and Morton Coleman, my undergraduate thesis advisor at the University of Pittsburgh, also deserve acknowledgment for their influence on my research path.

A great deal of gratitude is also owed for financial support from the UC-Berkeley Graduate Division, the Disability Research Consortium of the Social Security Administration, and the Austrian Marshall Plan Foundation. I am also grateful to the Vienna University of Economics and Business, which hosted me for a summer as I prepared my dissertation. August Österle was a gracious host during my time in Vienna and Stefan Angel has been a very helpful academic resource. Steen Bengtsson, Dorte Caswell, Malene Eskildsen, Jan Høgelund, Jon Kvist, Leif Olsen, and Lars Uggerhøj were kind to meet with me while traveling in Denmark and were useful experts on Danish disability policy. Thomas Carsey was also an excellent instructor of multilevel modeling at the Inter-University for Political and Social Research Summer Program at the University of North Carolina and provided helpful comments on this research.

Thanks also to my colleagues, Rachel Gartner, Leah Jacobs, Woojin Jung, Renee Mack, Hanna Mark, Stephanie Rennane, Nicky Schett, and Wendy Wiegman who provided exercise partnership, statistical consultation, and friendship. My partner, Aramie Brooks-Salzman, deserves special recognition for her patience, humor, and much needed support throughout my writing process. My mom, Robin, and sisters, Shira and Aliza, were constant sources of encouragement and warmth. Finally, I would like to thank my father, Jeffery, for his editing prowess and ready availability to FaceTime.

The research reported herein was performed pursuant to a grant from the U.S. Social Security Administration (SSA) funded as part of the Disability Research Consortium. The opinions and conclusions expressed are solely those of the author(s) and do not represent the opinions or policy of SSA or any agency of the Federal Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of the contents of this report. Reference herein to any specific commercial product, process or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply endorsement, recommendation or favoring by the United States Government or any agency thereof.

Introduction. The Wind Before the Storm

The future of the welfare state is feared by many to be in jeopardy. Opinion polls show that half of Millennials anticipate that they will receive no benefits from Social Security, the pillar of the US welfare state, when they retire.[1] A representative survey of eight European countries finds a similar level of gloom: more than 50 percent of the respondents in each country are convinced that they will not receive old-age pensions by the year 2050.[2]

This pessimism is not without merit, as the financial burden of supporting the welfare state is shifting to the steadily shrinking share of adults that are employed. The population in many Organization for Economic Cooperation and Development (OECD) and non-OECD countries is rapidly aging with life expectancies increasing and fertility rates in decline (OECD, 2015). By 2060, it is projected that 98 million people will be over the age of 65 in the US – more than twice the number in 2014.[3] The major social insurance programs that provide health care and old age pensions to millions of people are expected to be exhausted of funds in the next decade.[4] Europe and Asia, particularly Japan, are in even deeper trouble with underfunded pension schemes and a shrinking ratio of workers to retirees (OECD, 2015).

And population aging is not the only major looming concern. Technological change is threatening to make more and more people unemployable with workers replaced by driverless cars and trucks, drone delivery systems, and automated restaurants and grocery stores (Brynjofsson and McAfee, 2011; Ford, 2014). A recent study estimates that 47 percent of total U.S. employment is at risk to computerized automation in the next 20 years (Frey and Osborne, 2017). While the likelihood of a full-fledged artificial intelligence revolution is up for debate (Autor, 2015), wages are already stagnating for workers less capable of meeting the new skill demands of the 21st century (Goldin and Katz, 2008) and precarious employment is on the rise (Katz and Kruegger, 2015). Though the coming storm of population aging and technological change has yet to hit land, and the worst of its impact may still be averted, its incoming winds are clearly felt today, and there is no better example of this then the growth of enrollment in disability benefit programs.

Nearly all the advanced economies have experienced a growing number of working age adults receiving out of work disability benefits (OECD, 2003; 2010). For many countries, disability benefits are the largest form of social expenditure outside of old age pensions and health care. Cross-national spending on disability benefits are, on average, double the cost of unemployment benefits (OECD, 2015). In the US, more than 10 million people with disabilities received Social Security Disability Insurance (DI) benefits in 2015 and the percentage of the working-age population receiving these benefits has more than doubled since the late 1970s (Liebman, 2015). Consequently, that program faces a severe financial challenge as the trust fund that finances the program is expected to be unable to fully provide disability benefit payments as early as 2023 (Board of Trustees, 2016). These growth dynamics have spurred major reform efforts around the world, including in Australia, Britain, Denmark, Germany, the Netherlands, and Sweden (OECD, 2010; Burkhauser, McVicar, Daly, and Wilkins, 2015; Morris, 2015).

---

[1] http://www.pewresearch.org/fact-tank/2014/03/07/6-new-findings-about-millennials/
[2] http://www.vision-europe-summit.eu/survey/
[3] https://aoa.acl.gov/Aging_Statistics/Index.aspx
[4] https://www.ssa.gov/oact/trsum/

Indeed, reducing disability benefit rates and improving the labor market opportunities for people with disabilities has emerged as a major international policy priority.

Though a variety of factors have led to disability benefit expansion, population aging and technological change are two important factors (Stone, 1984; Rupp and Stapleton, 1998; OECD, 2003; 2010). The aging of the baby-boomer population has intensified the demand for disability benefits, as people become more likely to develop work-limiting disabilities in their older working years (Liebman, 2015). At the same time, the increasing insecurity of work for people with low skills, largely attributable to technological change, has made disability benefits the option of last resort for those with health issues who in a stronger economy could stay in work (Beatty and Fothergill, 1996; Autor and Duggan, 2003; Black, Sanders, and Daniels, 2003; Banks et al., 2015). The growing share of the working-age population receiving disability benefits thus portends a looming crisis in the broader welfare state. And as a forerunner to this crisis, its policy solutions can provide insights for how the welfare state can cope with the intensifying challenges of population aging and a declining low skilled labor market.

Welfare State Resiliency and Adaptation

But does the welfare state have the capacity to address these challenges? Will an aging population and the loss of jobs due to technological change so overwhelm the systems of welfare state support that they collapse entirely? These concerns should be examined skeptically in the context of other previous challenges to the welfare state. After all, for as long as there has been a welfare state, there have been those predicting its inevitable dismantling.

In the *Fiscal Crisis of the State,* James O'Connor (1973) argued that the capitalist state requires that governments promote the contradictory aims of private accumulation and social legitimacy obtained through redistributive welfare transfers. These competing imperatives, he projected, would lead to a fiscal crisis where the expenditures of the welfare state outpace government revenues. Reacting to the "democratic surge" of the 1960's, Samuel Huntington similarly predicted that the welfare state will precipitate a crisis of governance, as the public develops expectations that are impossible for the government to meet (Huntington, 1975). Daniel Bell (1976) viewed the materialist and anti-intellectual impulses of modernity present in the 1970s as an underlying threat to the social cohesion needed to uphold a welfare state. The pessimism of these scholars is, as Myles and Quadagno (2002) suggest, a reflection of the challenges of their time. Each was writing in the 1970s, a time of industrial decline that saw rising unemployment and a global oil crisis. Yet, despite their dire predictions, as well as the political efforts of Reagan and Thatcher to dismantle the welfare state, the welfare state of the advanced economies remained a primary component of government budgets throughout the 20th century (Pierson, 1996).

Nearly forty years after the crisis years of the 1970's, the welfare state hit another possible breaking point with the Great Recession of 2008. Surpassing the economic turmoil of the 1970s, the Great Recession was widely considered the greatest economic crisis since the Great Depression. Predictions of the welfare state's demise again surfaced. Paul Pierson rang the alarm in suggesting that, given the financial uncertainty caused by the recession, governments may be entering a "real era of retrenchment" (Pierson, 2011, 21). For other scholars, austerity measures that scaled back welfare state programs became viewed as the only viable policy option in light of the substantial fiscal constraints (Armingeon, 2013). Yet, in 2017, nearly a decade

after the recession, the welfare state stands largely intact. Surveys of the post-recession social policy landscape reveal government measures that resisted cuts to the welfare state (Starke, Kaasch and Van Hooren, 2013; Kersbergen et al, 2014). Some governments even increased investment in active labor market policies and childcare subsidies following the downturn and others expanded their core income support programs (Kersbergen et al, 2014). The welfare state, despite major obstacles to its sustainability and the dire predictions of scholars, has thus remained stubbornly in place.

Explaining Welfare State Resiliency

One can identify three perspectives for explaining the resilience of the welfare state. An institutionalist perspective posits that once a social welfare policy or program is established and ultimately institutionalized it becomes very difficult to cut back. Its adoption generates a "policy feedback effect" that can "transform politics and, as a result, influence future courses of policy development," (Moynihan and Soss, 2014). Beneficiaries of a social welfare program, for example, become a concentrated interest group that will go to great lengths to protect a program from retrenchment (Olson, 1965; Pierson, 1996). In the US, the classic example is the political influence of the American Association of Retired People and its ability to defend cuts to old age entitlement and health insurance programs. A negativity bias or general aversion to loss, well established in behavioral economics (Kahneman and Tversky, 1979), also explains why politicians have a harder time persuading voters of the need to cut back a welfare state program than to expand it (Pierson, 1996). These policy feedback effects, according to this institutionalist perspective, ultimately create a welfare state that is path dependent or "sticky" and thus impervious to radical change.

A second perspective views the welfare state as vital to the functioning of the capitalist system and thus impossible to eliminate. That the market economy is prone to severe downswings is obvious to the early 21st century observer. Also apparent is the role that the welfare state plays in mitigating the crisis tendencies of capitalism (Piven and Cloward, 1973; Peck, 2001; Starke, Kaassch, & Van Hooren, 2013). In response to the Great Recession, for example, many countries expanded eligibility to unemployment benefits. While a clear effort to expand social protection in a time of great need, such measures also very likely prevented social unrest and democratic upheaval. Yet, capitalism and the welfare state have typically been viewed in conflict. Whatever benefits the welfare state bestows, conservatives argue, increased taxation and regulation, restrain the profitability of firms and disincentivize individuals from working (Murray, 1984). This tension creates what Claus Offe (1984) has called the major contradiction of the welfare state: "that while capitalism cannot coexist with the welfare state, neither can it exist without the welfare state."

A third perspective views the political and economic explanations noted above as factors that prevent the wholesale retrenchment of the welfare state. Instead of observing welfare state change as a zero-sum expansion or contraction of social protection, this view sees changes as occurring multi-dimensionally (Pierson, 1996; Seeleib-Kaiser, 2008; Bonoli and Natali, 2012). Bonoli and Natali (2012, 292-293) identify three dimensions of welfare state change in the post-industrial period. The first concerns the level of protection and the quantity of social welfare transfers that are provided. This dimension concerns formally cutting back the quantity of expenditures, by, for example, raising the retirement age as a means of cost-containment. The

second-dimension concerns a "pro-employment orientation." This involves the recognition of new social policy instruments, such as active labor market policies that increase the employability of unemployed workers and tax credits that can increase their earnings. These efforts ultimately aim to "recommodify" (Pierson, 1996) individuals traditionally excluded from the labor market and place them back into the labor force in order to promote social inclusion and reduce reliance on welfare state programs (Lodemel and Trickey, 2001). Bonoli and Naftali refer to their third dimension as changes to the "encompassing character" or the "extent of coverage" of the welfare state. For instance, some welfare states, will provide greater protection to insiders (those employed) than outsiders (those not employed) (Emmenegger et al., 2011). Other welfare states will "de-universalize" (Bonoli and and Naftali, 2012) in other ways, by, for example, targeting their systems of social protection towards those in the greatest need, while restricting public support to those with greater resources. And still other social welfare programs within the welfare state, such as disability benefit programs, incrementally expand their coverage and thereby transform in order to meet changing societal circumstances.

This third multidimensional perspective, more so than the others, emphasizes human agency exercised by policy leaders, policy implementers, program beneficiaries, and active citizens. Contrary to the crisis theories predicting the inevitable dismantling of the welfare state, this perspective fundamentally views humans as "nearly infinitely adaptable" (Stone, 1984, 189). It thus views the welfare state much like an evolving organism that responds, both reactively and proactively, to new problems that emerge such as the economic burden of an aging population or the labor market turbulence associated with deindustrialization and technological change (Esping-Andersen, 1999; Taylor-Gooby, 2004; Gilbert, 2002; Seeleib-Kaiser, 2008; Marin, 2013). These reactions, moreover, are understood as evolving on the basis of prior institutional structures and in response to policy feedback effects. Though applying new social policy instruments to these emerging problems may amount to a shift towards a different kind of welfare state (Cox, 1998; Gilbert, 2002; Bonoli and Natali, 2012), that change is better characterized as a form of welfare state restructuring than as a tearing down of the basic social protection infrastructure (Pieson, 2001).

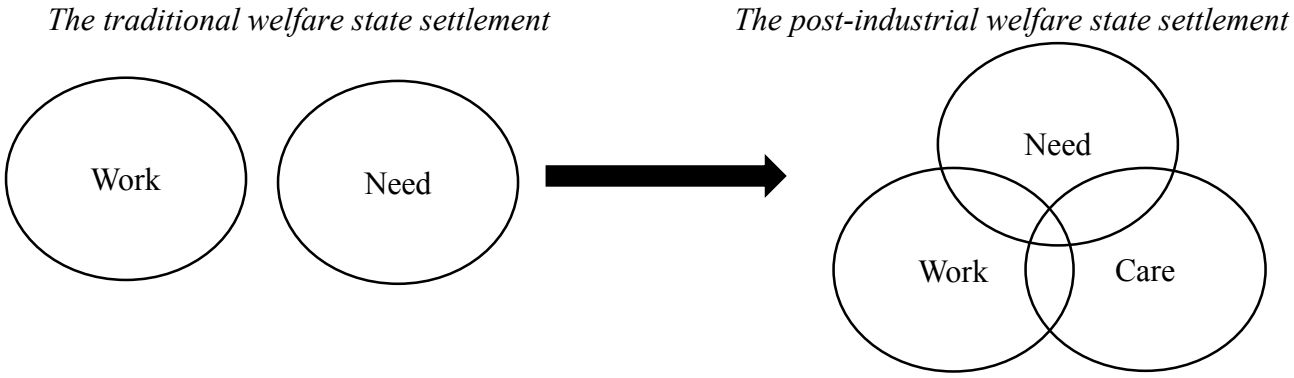
The Purpose of the Welfare State

As the welfare state evolves, it is important to consider how it deviates from its original purpose and whether it remains true to its fundamental principles. To do so, we must first ask what the welfare state was initially designed to do. In his classic essay, T.H. Marshall (1950) describes the development of the welfare state as an extension of the civil and political rights to which the modern citizen was already entitled. For Marshall (1950), these "social rights" consist of, "the right to the modicum of economic welfare and security to the right to share to the full in the social heritage and to live the life of a civilized being according to the standards prevailing in the society." Social rights protect citizens from the vagaries of the market economy by offering workers protection from market forces, most commonly in the form of partial earnings replacement that provides income when a person cannot be sustained through his or her labor (Esping-Andersen, 1990).

Another way of viewing this traditional purpose of the welfare state is as a solution to what Deborah Stone (1984) calls "the fundamental distributive dilemma." Stone argues that in all modern societies there is a political tension between work-based and need-based systems of distribution. On the one hand, most people are expected to work to maintain their livelihoods, as

this maximizes productivity, allows for an economic surplus, and encourages self-sufficiency. But, on the other hand, there will always be people who at one time or another are unable to meet their needs through the work-based system, such as the young, unemployed, disabled, or elderly. The welfare state is created to support these needy populations by exempting them from the work-based system. And because of the accepted notion that most people would not work if they had sufficient resources, various "categories of need" (e.g. "disabled", "unemployed") were developed to determine who is eligible for need-based aid and who must work to sustain themselves (Stone, 1984). These categories, which are restricted by eligibility criterion, police the boundaries of the work/need distributive systems. Politically constructed, they are neither universal nor static but culturally specific and subject to change over time. As Stone (1984:17) argues, "there is no natural boundary between the two systems, no inherent definition of what constitutes need or who 'belongs' in one system or the other. Rather, the boundary is something that each society has to invent, to redesign in the face of changing social conditions, and to enforce."

Figure 1. The Search for New Solutions to the Fundamental Distributive Dilemma



In Figure 1, the traditional welfare state is characterized as providing a dual resolution to Stone's fundamental distributive dilemma between work and need. Underlying this dual resolution was a male breadwinner economic system, in which men could be expected to find gainful employment independent of their level of skill or education. It was also a model where women were, for the most part, expected to provide unpaid familial care. Care was viewed as outside the work/need distributive dilemma, as it was provided for internally within the familial structure. Welfare states were designed to protect against the labor market risks to the male breadwinner. As Myles and Quadagno (2002, 48) argue, "The single-wage-earner family form was at the center of the risk structure of postwar industrial economies, threatening catastrophe when the male breadwinner lost his job as a result of illness, unemployment, or old age." Unemployment benefits thus provided men a source of income when they could not find work. Disability benefits and old age pensions similarly provided support when men could not work due to an impairment or the infirmities of old age. Women could receive welfare or widow benefits but only in the case of single motherhood or when there was no male breadwinner. Male labor force participation was thus central to the design of the risk protection system (Esping-Andersen, 1990; Lewis, 1992). Need was, moreover, typically viewed as a binary state. Either benefits were necessary because the male breadwinner could not participate in the labor market,

or benefits were not needed because work would provide a man and his family enough to make ends meet.

The Post-Industrial Welfare State Settlement

In the post-industrial era, the welfare state settlement is far more complex. The male breadwinner economic system, in which care was recognized as a familial concern and jobs were viewed as sustainable, has diminished. In 1945, just 28 percent of the civilian labor force in the US were women but by 2015 it had grown to 47 percent.[5] The revolutionary shift in notions of work and care has unlocked the potential for women to contribute their skills to the labor market. A recent study estimates that if the labor market participation rate of women had not changed over the past thirty years, the US GDP would have been roughly 11 percent lower in 2012 (Applebaum, Boushey, and Schmitt, 2014). While providing substantial economic gains, the increase in female labor force participation also brings forth new challenges in the provision of care (Esping-Andersen, 1999; Taylor-Gooby, 2004; Armingeon and Bonoli, 2006; Gilbert, 2010). The need for caregiving services, whether provided directly by the market through a growing caregiver workforce or through government provision and subsidy, has thus become an essential component of the distributive dilemma.

Notions of what people in the need-based category, particularly people with disabilities as well as mothers who are the primary caregivers for children are capable of doing in the labor market have also transformed. Many individuals traditionally relegated to that category are now willing and able to work with the appropriate support and accommodations (Livermore, 2011; Maestas, Mullen, and Strand, 2013). Disability rights advocates have, for example, long argued that people with disabilities can contribute to the labor market and should therefore not be discriminated against on the basis of their disabilities nor face other social or environmental barriers to employment (Barnes, 2000; Dorfman, 2016). Advancements in modern medicine and assistive technologies further allow many people with even severe impairments to participate meaningfully in the labor market (Stapleton, O'Day, & Livermore, 2006). Welfare states have thus further transformed in their orientation from providing passive support to actively assisting those traditionally placed in need-based categories in their return back to employment (Gilbert, 2002). A famous example of this is the 1996 welfare reform in the United States, which imposed work-conditions and time limits on the receipt of social assistance benefits for single mothers. Similar policies in Germany (the Hartz IV reform) and Australia (the "Work for the Dole" program) also sought to encourage movement from the need-based to the work-based category.

An additional feature of the traditional welfare state settlement is the assumption of work as a fully sustaining enterprise. The long-term stagnation of the low-wage sectors places this notion at odds with the realities of today's labor market. Increasingly, many who are in the work-based category are also in need and thus the overlap between work and need in Figure 1. Workign poverty, once almost an oxymoronic term, is increasingly common (Blank, Danziger & Schoeni, 2008). It was recently estimated that 56% of all US federal expenditures on social assistance programs went to working families - $127.8 billion annually.[6] In the years following welfare reform there was a dramatic increase in the labor market participation of single mothers

[5] https://www.dol.gov/wb/stat s/facts_over_time.htm
[6] http://laborcenter.berkeley.edu/the-high-public-cost-of-low-wages/#endnote4

(Blank and Haskins, 2001; Haskins, 2015). Yet, Acs and Loprest (2004) find that only about one-third of those who left welfare for work found jobs that provided health insurance and that their median hourly wage was about $8.00 an hour.

Much of this decline in the wages of the low-skilled labor market can be explained by the deindustrialization of the economy. In 1960, 59% of the labor force in the OECD was employed in either industrial and manufacturing sectors or agriculture but by 1995 that percentage dropped to 30% (Iversen, 2001). For many former industrial and agricultural workers, this economic transition has left them with skills no longer suitable for the new post-industrial economy. Deindustrialization has thus led to an increase in the share of workers in low-wage service occupations such as caregivers, janitors, and cleaners (Autor and Dorn, 2013). Accordingly, market wages of low-skilled workers in the US fell 5 percent from 1979 to 2013, while those with very high wages saw a 41 percent increase.[7]

The long-term labor market slowdown for people with low skills increases the political demand for policies that help "make work pay" and otherwise ensure that those who are in work are able to make ends meet (Armingeon and Bonoli, 2006). Minimum wage laws and the earned income tax credit are two examples of post-industrial policy solutions adopted to address this issue. The challenge of stagnating wages and the ability to sustain oneself through work is, moreover, likely to be of greatest concern to already disadvantaged populations, such as people with disabilities and those with fewer skills and less education. And with advances in technology that threaten to automate considerable segments of the workforce, the hurdles that these populations face in becoming gainfully employed may only deepen in the future.

But, so far, the welfare state survives. Although battered and bruised at every corner by demographic challenges, technological change, as well as the political machinations of those vying for its retrenchment, it remains resilient through adaptation and ingenuity. Confronted with a changing labor market and workforce, it seeks solutions that now must balance the requirements of work, need, and care in order to stay true to its purpose to provide a "modicum of economic well-being and security." And so, we now turn to the specific issue at hand – a crisis in the area of disability benefits – and dive deeper into exploring how the welfare state can adapt and find new ways to solve this "fundamental distributive dilemma."

[7] http://www.epi.org/publication/why-americas-workers-need-faster-wage-growth/

Chapter 1. Disability Benefits Meet the Post-Industrial Era

In a 2013 episode of the radio program "This American Life," the reporter Chana Joffe-Walt traveled to Hale County, Alabama, where nearly one in four people receive disability benefits. Like much of rural middle America, Hale County experienced a severe economic decline in recent decades as factories closed and joblessness became more common. About 29% of the population lived below the poverty line in 2015.[8] Joffe-Walt interviewed a long-time local doctor who evaluates patients for disability benefits, often for back pain. Asked by Joffe-Walt to describe his interactions with patients, the doctor responded, "Well, we talk about the pain and what it's like. Does it move in your legs? And I always ask them what grade did you finish." One's educational achievement would seemingly have little relevance to a person's medical impairment. Yet, the doctor knew from his experience that that fact was essential information for determining his patient's disability.

Consider also the following: Stephen Hawking, the eminent physicist, has a severe medical impairment (ALS) but he is a tenured professor at one of the world's most renowned universities. A delivery worker with a high school degree and the same physical impairment as Professor Hawking could reasonably expect to never work again. The examples from Hale County and Dr. Hawking are evidence that a health impairment alone is not sufficient for determining a person's inability to work. Disability determination also requires a judgment as to the skills of the claimant and the availability of jobs in which the person could reasonably work. In her episode, Joffe-Walt concludes:

> Being poorly educated in a rotten place, that in and of itself has become a disability. This is a new reality. This gap between workers who are fit for the US economy and millions of workers who are increasingly not. And it's a change that's spreading to towns and cities that have thrived in the American economy. Places that made cars and steel and batteries and textiles. The disability programs are acting like a sponge, sopping up otherwise desperate people.

This chapter traces the history of disability benefits with an eye to addressing the following question: How does a disability benefit program serve people with disabilities in a post-industrial period characterized by declining opportunities and wages for low-skilled workers and rapid technological change? To answer this question, it will be necessary to first consider the policy considerations formed in the historical antecedents to modern disability benefit programs. These antecedents were further evident in the first modern disability benefit program which emerged in the late 19th century in Germany and which then spread rapidly throughout the advanced economies in the 20th century. These modern programs were based on a model for determining disability that relied on two major assumptions. The first assumption was that a burgeoning medical sciences field could be leveraged to fairly and objectively determine a person's disability. And the second assumption was that a medically determined disability could be used to indicate a person's inability to work. It will be argued here that both of these pillars of the traditional disabled state prove to be problematic in the post-industrial era.

---

[8] https://www.census.gov/quickfacts/table/PST045215/01065

Definitions and Background

Disability benefits are referred to here as government financed programs that are designed to provide earnings replacements to those who are considered no longer able to earn a living through work due to a physical or mental disability. The focus of this analysis generally concerns disability insurance programs, which are contribution based disability benefit programs for people with substantial employment histories workers, although means tested or income based disability programs that target disabled poor people who have little or no work history will also be discussed. There are other kinds of disability programs that will not be discussed in this analysis. For example, individuals can frequently claim benefits for a period of time if they have incurred an injury or impairment while on the job (worker's compensation) or from their participation in a war effort (veteran's disability programs.) These programs, while important sources of social protection, are generally smaller programs and tend to have a different purpose in the constellation of welfare state programs.

Disability will be examined here as an administrative category of the state, whose definition is state-determined and differs across legal and administrative contexts. For instance, in the US anti-discrimination laws define disability (as an impairment that limits one or more "major life activities") differently from the disability definition used to determine eligibility for benefits (as an impairment that limits "substantial gainful activity"), which in turn also varies from the definition used to access state vocational rehabilitation services (as an impairment that results in a "substantial impediment to employment").[9] And these differences are just the tip of the iceberg. For every state and city health, housing, or anti-poverty program targeted to people with disabilities, one may encounter a different definition of disability. Surveying disability benefit programs throughout the OECD, Marin (2003, 23) describes disability as "inherently subjective, ambiguous, fuzzy, elusive, and inevitably problematic to define and measure." That there is great variation in the way countries define disability supports the notion that there is no objective criterion for what constitutes disability but rather many different kinds of subjective criterion that are politically developed (Kemp, 2006). The challenges involved with determining access to the disabled category were observed in the earliest precursors to modern disability benefits, where disability nevertheless provided a central mechanism for identifying the deserving from undeserving poor.

The Historical Antecedents to Modern Disability Benefits

A young man is paralyzed from the waist down and is unable to use his arms due to a congenital disease. Today, he would likely receive substantial governmental support. But receiving that support is not something new to modern society. A recent archaeological discovery found a person with that impairment who lived 4,000 years ago in a subsistence community in what is now Northern Vietnam. The Australian archaeologists who discovered his remains found that his, "survival reflects high quality, continuous and time-consuming care within a technologically unsophisticated prehistoric community," (Tilley and Oxenham, 2011, 36). This prehistoric record of disability support is consistent with Abram de Swann (1988) who argues, in a sweeping historical study, that disability is the primary principle that human societies have used to determine whether they will offer support to the poor. In medieval times, for

[9] http://webapps.dol.gov/dolfaq/go-dol-faq.asp?faqid=67

example, Christianity inspired charitable systems that offered support to the "invalid poor" (de Swann, 1988, 20). But, as de Swann shows, being an invalid was rarely a sufficient circumstance to justify charitable giving. To receive support, those with disabilities usually had to be from the local village, while those who came as strangers from other villages – so-called "vagrants" or wandering beggars – were viewed warily (de Swann, 1998, 20). Thus, to receive support a person with impairments had to meet the additional criterion of being "from the village."

Stone (1984) argues that modern definitions of disability find their origins in the response to the problem of increasing vagrants in medieval Europe that occurred during the transition from a feudal to capitalist economic system. Vagrants, she argues, threatened the feudalistic culture of labor market discipline by traveling freely and by sustaining themselves without working. Much like today's underclass, vagrants were stigmatized and treated suspiciously. Rumors spread widely in medieval Europe of vagrants who were specially trained to fake medical conditions in order to fund their preference for idleness (Stone, 1984, 32).

What was the solution to the problem of vagrancy? First, there was the invention of the workhouse for the able-bodied poor. The workhouse was intended to combat the problem of idleness by providing the bare minimum of food and shelter to able-bodied vagrants but only on the condition of labor (de Swann, 1988, 43). The second solution was the formalization of the disabled category. An English statute of 1388 required local officials in England to distinguish between beggars who were "impotent to serve and those able to serve or labor" (quoted in Stone, 1984, 35). These early definitions of disability were, given the level of distrust of vagrants, usually limited to those with clearly discernible impairments: such as those without an organ or limb or those who were blind or deaf (Marin, 2003, 30). Compensation on the basis of the workhouse or disability thus provided a logic for providing local relief that upheld work as the primary distributive system.

It was not until the British Poor Law of 1834 – the so-called "New Poor Law" – that the provision of relief was truly nationalized and made "uniform throughout the country," (Fowler, 2007, 23). Consistent with the historic response to vagrancy, the New Poor Law conceived the unemployment of the able-bodied poor as a product of their own lack of motivation (Casey, 1986). The New Poor Law harshly judged those thought capable of working who sought public assistance. The doctrine of "lesser eligibility", for instance, suggested that those who sought social assistance should be considered of inferior social status then the lowest of occupations. As Pateman (2005, 39) explains, these men were identified as "undeserving because they were potentially independent." Their condition of need was thus understood not as the result of some external circumstance but as the product of some personal failing or vice.

In stark contrast, the disabled, the aged, and the young were exempt from these punitive measures. As Webb and Webb (1910, 8) note: "In contradistinction to the revolutionary proposals of the Report of 1834 with regard to the able-bodied, it is extraordinary that it suggested absolutely no change with regard to the sick." If the able-bodied poor were stigmatized and thought of as undeserving of relief, the disabled (or the sick or impotent, as they were called) were to be left to "enjoy their indulgences." (Webb and Webb, 1910: 9). Separate buildings and accommodations were used to physically separate the incapacitated (the deserving) from the able bodied unemployed (the undeserving.)

Determining disability and thus deservingness was, however, problematic. Stone (1984, 40-45) notes the countless amendments made to the New Poor Law in an effort to add clarity to the process of sorting the able bodied from the disabled. German poor-relief in the 18th and 19th century also classified paupers on the basis of medical conditions with physicians primarily

responsible for administering relief (Eghigian, 2000). Identifying whether a person had a chronic condition, a difficult task even today with modern medical instruments, was hardly an objective exercise in the 19th century. There was thus, as Stone observes, a great deal of variation in how local councils and parishes determined disability despite efforts to create a more uniform system.

Disability Benefits and the "Take-Off Period" of the Welfare State

In the late 19th century, as industrialization accelerated, there was unprecedented social and economic change. Unemployment and poverty became a visible urban phenomenon that could no longer be dismissed as mere idleness. Rising inequality lead to social unrest and demands for greater worker protections (Wilensky and Lebeaux, 1962). Flora and Alber (1981) characterize this era as the "take-off period" of the welfare state — the period when modern social welfare programs were first introduced. They explain the take-off as resulting from, "the coincidence of new social problems created by industrialization and urbanization with an emerging philosophy that facilitated the destruction of old protective institutions," (Flora and Alber, 1981, 48). Rimlinger (1971) refers to this period as 'the liberal break', as it was when liberal ideas of social and economic rights replaced the repressive notions of relief made widespread by the Poor Law system. Critically, it was also a time of substantial economic growth, a necessary precondition to a welfare state that requires wealth to redistribute (Wilensky and Lebeaux, 1962).

The German Precedent

Germany, under Chancellor Otto von Bismark, was the leading welfare state innovator. As in other countries at the time, Germany was under pressure to deal with the demands of trade unions and was fearful of a socialist revolution. Bismarck was also personally drawn to a paternalistic philosophy of government built on the Christian ethics of duty and care. "We cannot expose the savings of the poor to the danger of bankruptcy," he is quoted as saying (quoted in Stone, 1984, 57). Civil servants in Germany also played a critical role both in producing data and designing insurance proposals and, like Bismarck, believed in the "imperial authority to paternalistically ensure the moral and social well-being of its subjects," (Eghigian, 2000, 29). Interestingly, Echigian (2000) shows that the major industrialists at the time were also in favor of the institutionalization of social protection, largely out of a self-interested fear of socialism.

Germany became the first country to adopt a nationalized form of compulsory disability insurance with the Pensions and Invalidity Act of 1889. The 1889 Act established both disability and old-age social insurance programs, which shows how intertwined disability and old age were as policy concerns, which even to this day are frequently "lumped together" (Berkowitz, 1988, 411). Indeed, in the 19th century there appears to have been a growing recognition across Europe that the risk of disability increased as one ages and thus older working men, specifically, could benefit from disability insurance (Macnicol, 2013). Urban industrial jobs were thought to be particularly harmful to health and thus to degrade the contribution of older working age men. "In one way or another," the social reformer Charles Booth noted, "effective working life is ten years longer in the country than in the town, or, speaking generally, is as seventy to sixty," (quoted in Macnicol, 2013, 39).

The hallmark of the Bismarckian approach was the social insurance model that provided benefits to workers who contributed a portion of their wages to a public trust fund. The fund

supporting the disability program in Germany, for example, was comprised of an equal taxable contribution from employers and employees and included an added subsidy from the government (Henderson, 1975; 232). Social insurance was a major innovation in the history of the welfare state for at least four reasons. First, social insurance formally recognizes that social risks, such as disability, old-age, and unemployment, were not limited to a few paupers but shared widely among the working populous, including those in the middle and upper classes. Second, as social insurance is based on a contributory principle – more or less, you get what you put in – the programs can be understood as rewarding work. Third, because it was based upon the contributory principle and its benefits were widely shared across classes, social insurance conceivably removes the stigma of receiving benefits that was the hallmark of the poor law policies. Fourth, by creating a vast administrative state and bureaucracy, social insurance could "depoliticize social problems by transforming them into technical questions," (Eghigian, 2000, 49). The limits of social insurance, however, were that its benefits were restricted to those with a work history. And there would always be some who did not have wages to contribute into the pool but would nonetheless require social protection.

As the first disability insurance program, the German program set an important precedent and would be used as a model for disability insurance programs adopted throughout the industrialized economies. Under the 1889 Act, disability was defined as when a person due to a "physical or mental condition is neither in a position to perform regularly his previous work nor to earn the minimum invalidity pension through other work corresponding to his strengths and capability and existing job opportunities," (quoted in Stone, 1984, 58). In this initial modern definition of disability lies the major building blocks of the traditional disabled state. First, there was the focus on the physical or mental condition, which was to be determined exclusively by a medical doctor. Eghigian (2000, 61) shows that this reliance on the medical profession coincided with advancements in biology and the increased professionalization of the medical sciences. Medicine was useful for disability insurance because, he argues, it "furnished a language and technique for talking about and investigating the individual's pathology," (Eghigian, 2000, 64). Medical doctors could be expected to provide a scientific analysis of a person's disability.

This initial German definition further defines disability as an inability to work on account of physical or mental impairment. The definition thus de facto equates the disabled with the unemployable. As Stone (1984, 58) notes, the German definition implied a "dual concept, linking the inability to earn some specified minimum level with a medical condition." The interpretation of the inability to complete "other work" in the German definition of disability would be hotly disputed. Did it mean that a person could not do any work in the national economy or just work suited to his skills or even social class? Stone shows that Germany ultimately created two structures of disability determination: one for white collar workers and another for blue collar workers with each having a different expectation of what kinds of "other work" they could or could not reasonably be expected to do. Thus, just as in the example of Stephen Hawking, the question of what kind of work a person could be expected to perform given his or her skills was at the core of the disability determination debate even in its most nascent period.

Policy Learning and the Diffusion of Disability Insurance

At the end of the 19th century and in the early 20th century, many countries were in the throes of adjusting to the newly industrialized economy and thus in search of new solutions to the so-called "Social Question" (Eghigian, 2000, 47). Around the same time, there was a growing field

of social policy expertise, which meant an increase in the knowledge and administrative capacity of the state. The Fabian Society in Great Britain, the associations for national economists throughout Scandinavia, and the German Economic Association all provided, for example, training for public servants and opportunities for shared knowledge in public administration and social policy. And among these groups the German social insurance legislation was widely viewed as an international best practice. From 1884 to 1888, the governments of Denmark, Sweden, Norway, and Finland all established commissions to study the German social insurance programs and what could be adopted in their own countries (Kuhnle and Sander, 2011, 66).

Explaining why some countries adopted social insurance programs before others is, of course, a major question of welfare state historiography (Wilensky and Lebeaux, 1962; Flora and Alber, 1981; Skocpol, 1995; Kuhnle and Saunders, 2010). Disability insurance programs were also introduced at widely different periods. The programs were introduced in Germany in 1889, Australia in 1912, Sweden in 1913, Switzerland in 1916, Denmark in 1921, and the United States in 1956 (Kuhnle and Saunders, 2010). Britain did not introduce its Invalidity Benefit program until 1971 (Burchardt, 1999). An accounting for this variation in disability insurance adoption is beyond the scope of this analysis. However, drawing on the major theories in welfare state historiography, one can speculate that the variation in timing is attributable to the political success of working-class parties, the existence of alternative forms of disability compensation such as other forms of cash and sickness benefits that may have reduced the need for disability insurance, and the large organizational demands on the state that are needed to operate a disability program. Countries with greater state capacity and administrative experience were perhaps more likely to introduce a disability insurance program than others (see, for example, Orloff and Skocpol, 1984).

For our purposes, it will be most helpful to fast forward to the post-World War II period when disability insurance programs were firmly established in most advanced economic countries. The United States introduced the Social Security Disability Insurance (DI) program in 1956, which was essentially an expansion of the old age pension program called "Social Security." The DI program was initially limited to only those 50 years or older with a work history who were found "unable to engage in substantial gainful activity by reason of a medically determinable physical or mental condition that was expected to result in death or to be of long-continued duration," (Derthick, 1979, 308). The Invalidity Benefit program in Britain would similarly provide highly restricted disability benefits to those found completely unable to work based on a medical determination. Both of these examples point to the adoption of a medically-based and binary (henceforth, "medical/binary") model of disability determination: a model of disability benefits that, built on the assumptions of the German model, relied on medical techniques to establish the presence of disability and viewed disability as a near total inability to work.

This medical/binary model was perhaps a natural byproduct of the industrialized period and particularly the immediate post-WWII decades when disability benefit programs were widely adopted throughout the advanced economies. The growth of the medical profession as a field of applied science provided new diagnostic tools that promised the ability to identify the truly disabled from the fraudulent. In the case of the US disability adoption, medical doctors would frequently testify that their expertise could not be expected to provide objective determinations on disability. Yet, there was such public faith and esteem in medical expertise, the politicians would ignore these warnings and thus come to rely on doctors for determining disability (see, Stone, 1984, Chapter 3). The task of obtaining "legitimate" medical evidence thus

became a central bureaucratic goal of the disability determination process in nearly all OECD countries.

Moreover, the ready availability in the post WWII economic environment of livable wages for people with low skills created the conditions for establishing the definition of disability as the complete inability to work. As Stone (1984, 20) suggests, "In a very important sense, a society's concept of need mirrors its concept of work." In the burgeoning industrial economy, those with low skills were needed and could rather easily find full time work that allowed them to support themselves and their families (Ruggie, 1982). The societal conception of work was thus of a job that provided a livable wage to all able-bodied individuals independent of their level of skill. And societal notions of disability, similar to that of retirement, arguably became viewed as the opposite of work or as the complete inability to sustain oneself through employment. Some countries would, of course, adopt partial disability benefit programs for those conditions not viewed as fully limiting (Mitra, 2009). Yet, these programs were still rooted in the tradition of viewing disability as an inability to work and were, moreover, adopted far less frequently than the total disability model. The two underlying assumptions of the traditional disabled state, apparent from the German adoption of Invalidity Pension in 1889 to the US adoption of the Social Security Disability Insurance (DI) program in 1956, thus concerned the practical reliance on medical evidence and the adoption of the idea of disability as a total (or near total) inability to work.

The Medical/Binary Model in the Post-Industrial Era

Experience with the medical model of disability determination and fundamental shifts in the low-wage labor market have unsettled these two building blocks of the traditional disabled state. Despite advances in the medical sciences, many debilitating impairments have proven difficult to measure in a medical context. Pain, for example, is not only a challenge to identify objectively in a clinical setting but tolerance for it can vary from person to person (Osterweis, Kleinman, and Mechanic, 1987; Tait, Chibnall, Andresen, and Hadler, 2006). Mental health and musculoskeletal impairments, which are the fastest growing forms of disabling conditions in OECD countries, can also fail to show up on diagnostic exams and thus be nearly impossible to verify medically (Marin, 2013). Assuming a direct connection between a person's medical impairment and his or her ability to complete work-related activities may also be misleading. Revolutionary advances in assistive technologies and medicines now enable many people with even severe medical conditions to function productively in society. For these reasons, contemporary definitions of disability, such as found in the International Classification of Functioning and Disease, no longer view disability in exclusively medical terms and instead focus on an individual's ability to function in the social environment (WHO, 2001; Brandt et al., 2011).

Structural changes to the low-wage labor market have further challenged the assumption that work is sustainable, a premise of the all or nothing disability category. Beginning with the oil shocks of the 1970s, globalization, technological change, and the deindustrialization of the economy have increased economic insecurity and many people are relegated to work in the low-wage service sectors (Taylor-Gooby, 2004; Autor and Dorn, 2009). Work in these sectors can be precarious – that is, "uncertain, unpredictable, and risky from the point of view of the worker" (Kalleberg, 2009:2). Periods of prolonged unemployment and work in non-standard arrangements have become much more common in the current post-industrial period (Blank,

Danziger & Schoeni, 2008). For workers without high-school degrees the consequences appear to be most stark. Autor and Duggan (2003) calculate that between 1979 and 1995 real weekly earnings of full-time, full-year workers with less than a high school degree fell by 19.1 percentage points.

The increasing precariousness of work, specifically for people with low skills, has made disability benefits more attractive for a worker with health issues who, in a more robust economy, would more likely continue working (Autor and Duggan, 2003; Black, Sanders, and Daniels, 2003; Banks et al., 2015). Disability benefit programs thus now serve as "hidden-unemployment" programs (Beatty and Fothergill, 2002), protecting individuals with health issues who nonetheless possess remaining work abilities. Looking across countries and over time, Benitez-Silva, Disney, and Martin (2010) find a robust statistical relationship between fluctuating unemployment rates and disability benefit claims. The heavy concentration of disability benefit recipients in areas of industrial decline, such as Hale County, further supports the claim that disability benefits programs are often used to mask the unfortunate consequences of the deindustrialized economy (Black, Sanders, Daniel, 2001; Beatty and Fothergill, 1996; 2004). The binary design of a disability determination process is thus problematic in the context of the current uncertain nature of work.

Moreover, a binary determination hinders the ability of street-level decision makers to accurately and fairly implement a disability determination process. The binary model requires that disability examiners, charged with resolving society's most fundamental distributive dilemma, make yes or no decisions when many cases are in the grey area involving claimants with remaining abilities and medical conditions. Also, the guaranteed cash benefits for disability benefit recipients who maintain some work capabilities discourages such people from returning work and thereby exposing themselves to the vagaries of a low-wage labor market. Efforts to help current beneficiaries return to work have for this reason been unsuccessful at improving employment rates (Livermore, Wittenburg, and Neumark, 2014). These beneficiaries are stuck in what Olney and Lyle (2011) refer to as a "benefits trap," where the long struggle to receive benefits, the pervasive and valid fear of becoming disqualified for benefits due to employment, and the absence of early intervention options and return to work services, create disincentives for beneficiaries to leave the benefits rolls for work.

The reliance on a medical/binary model of disability benefits in turn produces a major international policy crisis composed of efforts to reduce disability expenditures, to improve the employment rates of people with disabilities, and to create a modern form of disability benefit allocation emerge as major international policy goals. Given the perceived deservingness of people with disabilities and the general aversion to retrenchment, politically viable solutions to this crisis center almost entirely on policies that aim to help people with disabilities return to work (OECD, 2003; 2010; Morris, 2016). Yet, the effectiveness of these policies is far from certain and there is a need for research that can identify the most promising integration strategies that are also politically acceptable. And that, therefore, is the focus of chapters two and three.

Chapter 2. Reforming the Disabled State

Of the many and varied social welfare programs run by governments, a disability benefit program may be the most challenging to design and administer. Unlike old age pension or low-income-assistance programs, eligibility for disability benefits cannot be determined simply based upon reaching a certain age or whether one's income falls below a certain level. Rather, governments must politically construct a definition of what constitutes a "disability" and design a disability determination process that optimally avoids both Type I (false positive) and Type II (false negative) errors. On the one hand, the public has little tolerance for fraudulent claims, and screening out applicants that are not truly disabled can be viewed as a policy priority (Berkowitz, 1987; Congressional Budget Office, 2012). On the other hand, people with disabilities are generally considered to be a highly deserving population and policy makers also have the objective to ensure that vulnerable people are not denied needed benefits (van Oorschot, 2006).

Though disability, as a political construct, may not be objectively determinable, governments must nevertheless strive to develop coherent and fair disability determination processes. And in this effort, as noted in Chapter 1, they have traditionally relied on two major assumptions: that modern medical techniques can determine a person's disability and that a medically determined disability can indicate a total inability to work. Building from these assumptions, a disability determination model is typically adopted that draws a clear distinction between those who are considered medically disabled and those who are not, and equates the disabled with those who are unable to work and the non-disabled with those who have work abilities. The disability benefit system in the US provides a clear example of this medical/binary model. To receive DI benefits in 2017, "the person must not be able to engage in any substantial gainful activity because of a medically determinable physical or mental impairment(s) expected to last a year or longer or to result in death."[10] A disability is thus assumed to be an all or nothing condition ("not be able to engage in any substantial gainful activity") that has been verified by a medical diagnosis.

With a focus on US disability policy, this chapter examines an alternative model for determining eligibility for disability benefits which has been described as a work-capacity approach (OECD, 2010, Chapter 4). This approach departs from the assumptions of the traditional medical/binary model by seeking to identify a person's remaining work abilities, as opposed to an individual's inability to work based upon a medical diagnosis. In theory, the work-capacity approach is consistent with the strengths-based approach in social work, as it concentrates on identifying what claimants can do rather than on the limitations that arise due to their impairment (Saleebey, 1992). Depending on how it is implemented, it may also accord with the ideas of social inclusion and empowerment envisioned by the Americans with Disabilities Act (Bagenstos, 2002; Brandt, Houtenville, Huynh, Chan, and Rasch, 2011; Dorfman, 2016).

The general policy appeal of the work-capacity approach is two-fold. First, it could conceivably improve the accuracy of the disability determination process. Instead of an examiner focusing on a binary decision of awarding full disability benefits or none whatsoever, that examiner would have the additional option of finding that the claimant has serious impairments but also remaining work abilities. This flexibility could allow for a more accurate determination of those needing permanent benefits. Second, a work-capacity approach could theoretically

[10] http://www.ssa.gov/disability/professionals/bluebook/general-info.htm

reduce the number of permanent disability benefit recipients by providing to people with work abilities, who under the binary system may have been found disabled, accommodation and rehabilitation services to assist them in their return to work.

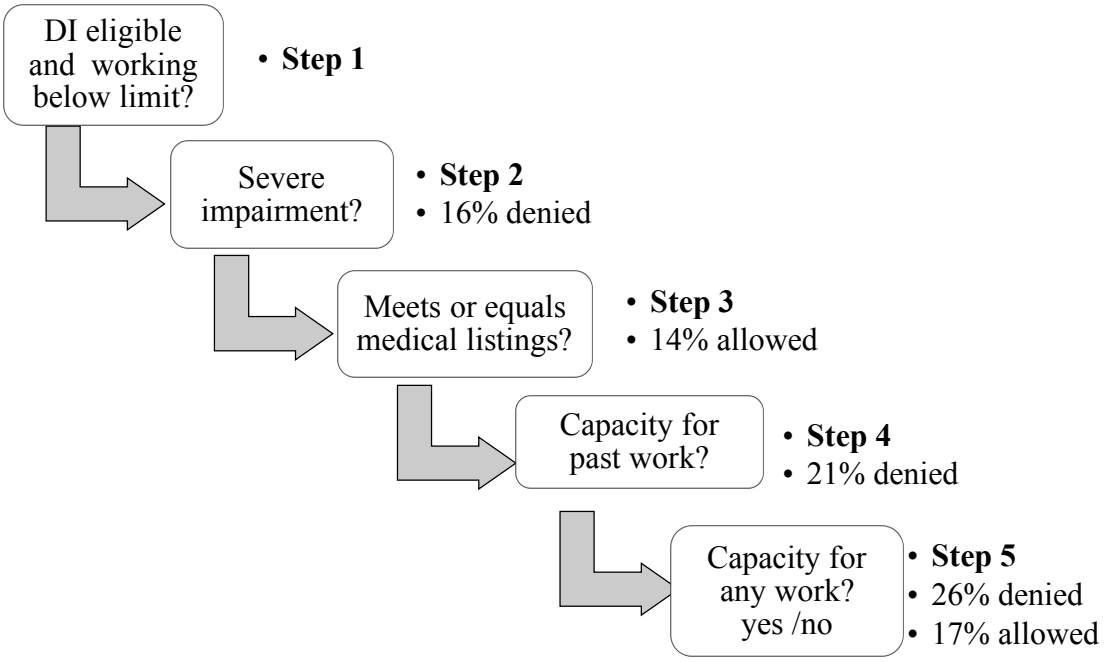
Drawing on a cross-national panel dataset of older adults, this chapter examines the effects of work-capacity reforms in three countries – Denmark, Great Britain, and the Netherlands. Specifically, it explores whether the reforms improved the accuracy of the disability determination process and the employment rates of people with disabilities. The analyses of these findings contributes to the literature by comparing cross-nationally the effects of work-capacity reforms and thus adds to the literature evaluating the effects of disability policy reforms.[11] The analysis, moreover, examines the effects of three major disability benefit reforms and thus can inform policy debates underway in many countries, including in the United States, where versions of a work-capacity reform have been proposed by policy researchers (Mann and Stapleton, 2011; Liebman and Smalligan, 2012) and in the United States Congress (see, Social Security Disability Insurance Return to Work Act S.3037/ H.R. 5409).

The Disability Determination Process in the United States

The disability determination process for DI benefits in the US is likely the largest validating system of its kind in the world. In 2014, nearly 10 million people received DI benefits (SSA, 2015). The Social Security Administration uses a five-step sequential process to determine disability (see, Wixon and Strand, 2013). The underlying idea behind this strategy is "to screen quickly the large majority of cases that could be allowed on reasonably objective medical tests and then deal individually with the troublesome cases that didn't pass the screen" (Ball, 1978: 157, quoted in Wixon and Strand, 2013). The five-step process is described in Figure 2, which also described the percentage of claimants accepted and denied benefits at each stage for the year 2010. The first step considers whether the person is currently engaged in substantial gainful activity, which was defined in 2014 as the equivalent of being able to earn $1,070 a month for those who are not blind, or $1,800 for those who are blind. If earning above this limit, an individual is ineligible for disability benefits. Other non-medical eligibility factors are also considered at this step, including whether the applicant has a sufficient number of work credits. The second step of the process seeks to identify whether the claimant has a severe medical impairment and the severity of that impairment is considered at the third step by comparing the impairment to a listing of severe impairments. If an applicant is found to have one of these severe impairments they are determined to be eligible for SDI with no further assessment needed.

[11] For example, Aarts, Burkhauser, and De Jong (1996); Angrist and Acemoglu (1998); Bound and Burkhauser, (1999); Deleire (2000); van Sonsbeek and Gradus (2011); De Jong (2012); Nielsen, M., Hansen, J., Aust, B., Tverborgvik, T., Thomsen, B., Bjoerner, J., Mortensen, O., Rugulies, R., Winzor, G., Orbaek,P., Helverskov,T., Kristensen, N., and Poulsen, O. (2014). Banks, Blundell and Emerson (2015)

Figure 2. The Five Step Disability Determination Process in the US



Source: Wixon and Strand, 2013

Note: Allowance data is for all applicants to the DI program in 2010. The remaining 6% of applicants were denied due to providing insufficient evidence.

If a claimant does not meet the criteria for disability in the third step, he or she must complete a physical or mental residual functional capacity assessment. This assessment seeks to identify the impact of the claimant's medical impairment on the individual's capacity for full-time work. The fourth step in the determination process considers whether the impairment prevents the claimant from working in his or her previous job, while the fifth stage considers whether the claimant can work in any other job. A national register of occupational information – the Dictionary of Occupational Titles – is used to identify whether an individual's functional limitations limits the ability to work. Of all the applicants to the DI program in 2010, 64% were either accepted or rejected at steps 4 and 5 (Wixon and Strand, 2013). Thus, a majority of claimants did not have medical impairments that immediately met the eligibility criteria, and final determination required difficult decision making concerning whether the impairments allowed them to work in their previous job or any job.

The high rate of eligibility decisions overturned on appeal, along with research indicating subjective discretion among disability examiners, suggests that the determination process struggles with many of these complex cases that are decided in the latter steps of the process. Following an initial denial determination, claimants have the right to request an appeal. Autor et al., (2011) show that in a five-year period more than two-thirds of all applicants receive benefits, though only one-third are allowed at the initial determination point. The litigious nature of the process is not only costly in terms of the wellbeing of claimants, who often subsist on social assistance benefits during the application period (Coe et al., 2014), it is also expensive to administer. In 2015, the SSA completed 752,000 reconsiderations, 801,000 hearings, and 165,000 Appeals Council reviews of DI appeals (SSA, 2015). To give a sense of the costs,

recipients often hire representatives to help navigate the complex determination process. These representatives receive a percentage of the back pay their clients become entitled to if allowed DI. In 2014, 1.4 billion US dollars were provided as direct payments to claimant representatives (SSA, 2015).

The subjective nature in which many disability determinations are made at the initial application and assessment can help explain the high rate of eligibility decisions decided on appeal. All disability examiners are randomly assigned claims to review. Despite receiving similar cases on average, some examiners prove far stricter than others (Keiser, 2010; Maestas, et al., 2013). Maestas et al (2013) studied the number of claimants who received DI allowance solely because of the leniency or strictness of the examiner they were assigned. They found that, in 2005 and 2006, the typical examiner approval rate was 33%. Keiser (1999) and Soss and Keiser (2006) explored the variations in allowance rates across US states. Their research points to economic and political factors that make some US states more likely to have higher allowance rates than others. Yet, none of these studies shed light on the specific determinants of bureaucratic discretion at the street level.

In the only quantitative study of the issue, Keiser (2010) surveyed disability examiners in three different US states in order to understand the variations in their front-line decision-making. The allowance rates of individual disability examiners are not posted publicly but in Keiser's survey the average self-reported allowance rate among disability examiners was 33 percent but with a standard deviation of 17 percent. To explain this wide variation of allowance rates among examiners, her survey examined the role of personal characteristics, such as personal political ideology, and bureaucratic behaviors, such as whether supervisors are focused on reducing allowances and whether they have knowledge of the amount of determinations overturned on appeal. Her findings suggest that the political ideology of the examiner is not a significant factor but that bureaucratic behaviors do affect decision-making. While an important contribution to the knowledge base, this model can account for just 12 percent (adjusted R-squared = .12) of the variation in allowance rates across the surveyed disability examiners. Thus we are left with a fairly large gap in our understanding of the reasons behind the bureaucratic discretion of disability examiners.

Discretion at the Street Level: A Problem of Policy Implementation or Policy Design?

According to Brodkin (2007), managerial approaches to reducing bureaucratic discretion take two divergent paths. The first is that greater hierarchical control of the administrative process can standardize policy implementation and thereby reduce discretion. The second, more in line with the so-called New Public Management, uses decentralization and privatization to create market like incentive structures to reduce the discretion of street-level bureaucrats. Past attempts to improve the US determination process have most closely aligned with the former approach. A series of organizational redesigns, for instance, have sought to improve the determination process in the US by standardizing the measures for determination and providing examiners more face time with claimants with the more difficult cases (Brandt et al., 2013).

An implicit assumption underlying these managerial policy responses is that the problem of administrative discretion results from a failure of policy implementation. If only administrators had better oversight, more aligned incentives structures, or more information to make decisions, the managerial approach theorizes, then the problem of discretion could be mitigated, if not solved. Unaccounted for in this logic is the possibility that the problem of

discretion is not an administrative problem but ingrained in a more structural problem of policy design. Indeed, after showing how difficult it is to reduce discretion through both managerial approaches, Brodkin (2007) identifies policy design as a potential root cause. She writes that, "In general, it is possible to minimize discretion when formal policy is simple, fact-based, and supported by an administrative technology. Minimizing discretion is not a realistic option when policy is complex, interpretive, and lacks a clear technology," (2011:13). The medical/binary determination model in the US, with its complicated assessment process and difficulties at making reliable determinations on the most complex cases, appears to align with Brodkin's understanding of a policy design for which it is difficult to reduce discretion. It follows that a new model of disability benefit provision may serve to improve the accuracy and overall performance of the determination process.

The Work-Capacity Model

Some countries have, indeed, redesigned their disability determination processes with a new approach that emphasizes a person's work-capacity. This model can be defined, in general terms, as a work-capacity approach. The major idea behind this determination model is that many claimants with medical conditions can also maintain an ability to work and thus could be diverted from long-term benefits given the right support and incentives (OECD, 2010). The work-capabilities of people with disabilities are thus viewed along a continuum instead of as a binary. For the binary model, the sole objective is to identify those incapable of working, usually through a medical assessment process, in order to provide permanent disability benefits to those thought unable to work. The work-capacity approach, on the other hand, re-orients the objective of the assessment process toward identifying what claimants can do, with the goal of providing assistance to those who could potentially return to work. For the work-capacity approach, there is thus no presumption that disability necessarily indicates an inability to work.

A work-capacity reform ultimately has three primary aims: to increase the reintegration of those with disabilities but also remaining abilities back into the labor market by providing a diversity of rehabilitative supports, such as personalized medical and employment services or a disability allowance for various accommodation costs; to increase the financial incentives involved with moving off of benefits and into work by, for example, allowing some beneficiaries to work while also receiving temporary disability cash benefits and; to improve the targeting of permanent disability benefits to those in the poorest health who cannot be expected to return to work.

In their report entitled Fiscal Austerity and the Transition to Twenty First-Century Disability Policy: A Road Map, researchers David Mann and David Stapleton (2011) propose a work-capacity reform in the US that adopts a new eligibility criteria for DI benefits that focuses on the claimant's "potential work capacity rather than on the chronic inability to work." This new criterion would identify three categories of beneficiaries: retirees with impairments, people with low work-capacity, and workers with disabilities. Beneficiaries in the first two categories would receive benefits similar to those available under the current DI program, while workers with disabilities would receive a capacity rating reflecting the number of hours that he or she would be expected to work and a package of individually tailored services to assist them in returning to or staying in employment.

A bill recently introduced in the United States Congress similarly seeks to amend the eligibility criteria for DI benefits by focusing on claimants with remaining abilities. The Social

Security Disability Insurance Return to Work Act of 2016 (HR.5409 and S.3037) proposes that the Social Security Administration establish a new disability classification system that identifies additional categories for beneficiaries as "medical improvement expected" or "medical improvement likely." Beneficiaries in these categories would receive time-limited disability benefits and could elect to return to employment and continue to receive a portion of their disability benefits in the form of a wage subsidy. This proposed bill thus shares some common features with work-capacity reforms already adopted in many countries.

Work-Capacity Reforms in Denmark, Great Britain, and the Netherlands

The first decade of the 20th century saw major reforms in disability policy in many of the well-developed countries. And three countries have been identified by the OECD (2010) as having adopted versions of a work-capacity reform: Denmark, Britain, and the Netherlands. In the paragraphs below, the work-capacity reforms in these countries are described with specific reference to the form of disability determination introduced and the specific reintegration efforts each country put forward.

The Disability Benefit Reform of 2003 in Denmark was an ambitious attempt at initiating a work-capacity determination model. That reform replaced the previous partial disability benefit program and introduced a new assessment process that requires for all incoming claimants the development of a "resource profile" that describes the claimant's abilities. The profiling is conducted by a social worker in conjunction with the claimant and his or her physician and measures the claimant's resources using twelve components including their education and skills, dwelling and finances, and social networks. Notably, the health condition of the claimant is just one of the considered factors. For those Danes with reduced work-capacity but remaining work-abilities, a wage subsidy is provided in the form of a flex-job ('Fleksjob'), which allows the individual to work the hours that he or she can while still receiving compensation for full time work. Eligibility for the permanent disability benefit program ('Førtidspension') is determined by whether the individual can participate in a Flex-job. When there are not enough flex jobs available in the economy, individuals are paid a waiting benefit that is equivalent to the unemployment or sickness benefit (see, OECD, 2013; Gupta, Larsen, and Thomsen, 2015).

A comprehensive work-capacity reform of Great Britain's disability determination process occurred with the Welfare Reform Act of 2008. That reform incorporated a new disability determination process – the Work Capability Assessment – for evaluating eligibility of all participants in the disability benefit program. The process in Britain consists of a face-to-face meeting with a healthcare professional who assesses how the claimant's physical or mental impairment affects the ability to work. The assessment addresses, among other activities, the ability to walk unaided, stand or sit, reach above one's head, understand communication, learn or initiate tasks, and cope with social engagement. The assessment does not consider any prior skills or training of the claimant. Those who are found to have no work limitations are deemed "fit-for-work" and referred to the unemployment benefit program. Those found to have a limited capability for work and work related activity are placed into a "support group" and are provided permanent disability benefits. Like those in Denmark eligible for the flex-job program, the British assessment also identifies claimants with a remaining work-capacity who are placed into a work-related activity group. These individuals receive time-limited benefits that are conditioned upon the individual participating in a job program. The rules require these beneficiaries to have work-focused interviews with personal advisers and to carry out work-

related activities deemed appropriate to their circumstances. The penalty for non-compliance is a benefit sanction (see, OECD, 2014a).

A 2006 reform in the Netherlands likewise instituted a new assessment process for all those participating in its disability benefit program (the 'WIA scheme'), which "emphasizes the use of residual capacity instead of compensating incapacity," (De Jong, 2012: 13). This reform followed a series of major disability benefit reforms in the Netherlands which reduced disability benefit rates by increasing the financial responsibilities of employers to provide accommodation and sickness benefits to their employees (van Sonsbeek and Gradus, 2011; De Jong, 2012; Burkhauser et al., 2014). Similar to the British approach, the new Dutch assessment model relies upon a doctor's inventory of the applicant's functional capabilities. While in Britain the number and severity of an individual's functional limitations are scored in the assessment to determine eligibility for benefits, in the Netherlands the functional information and information pertaining to the individual's prior skills and training are is fed into an algorithm representing the Dutch labor market to determine the individual's residual earnings capacity. This produces a list of jobs corresponding to the claimant's abilities and wage rates (De Jong, 2012) and is thus similar to the Dictionary of Occupational Titles used in the US disability determination process.

Those found to have remaining work-capacity in the Netherlands (judged as between 35 percent and 80 percent remaining earnings capacity) receive a partial and temporary disability benefit ('WGA') that comes with frequent reassessments. The benefit has two chronological phases. In the first phase, beneficiaries receive a benefit equal in time and benefit amount to the unemployment benefit (the maximum duration was 3.5 years in 2011). If the individual is unable to return to work during the first phase, he or she then becomes eligible for a wage subsidy that is structured to incentivize beneficiaries to work to their maximum abilities, while providing a minimum benefit for those who do not work. The 2006 reform also increased the minimum grade of disability required to receive benefits from 15 percent to 35 percent and thus tightened the eligibility criteria (van Sonsbeek and Gradus, 2011).

To review, in all three countries a new disability determination process was introduced incorporating a work-capacity approach that shifts away from relying exclusively on medical information to determine eligibility, and which identifies a group of eligible beneficiaries with remaining work-capacity for return to work interventions. These reforms, however, differed in three major respects. First, work-capacity is measured differently. In Denmark and the Netherlands, an individual's ability to work is assessed based upon both functional abilities and whether the individual can find work given his or her skills and training. The British assessment does not consider the previous skills or training of the claimant (see, Baumberg et al., 2015). Secondly, these reforms differ concerning the return to work interventions they provide to the group of beneficiaries found to possess remaining abilities to work. In the Netherlands and Denmark, a wage subsidy is provided. In Britain, beneficiaries are required to participate in an employment program. And thirdly, the countries part ways on the issue of reassessments for previous beneficiaries. In Britain and the Netherlands, previous beneficiaries were re-assessed with the new determination process, while in Denmark only incoming claimants participated in the new assessment processes and previous beneficiaries were made exempt from the new determination process.

Analysis of Work-Capacity Reforms in Denmark, Britain, and the Netherlands

In order to examine broadly the effects of the reforms and their ability to improve determination accuracy and the employment of people with disabilities, an analysis of data from a nationally representative sample of older working-age adults generated before and after the work-capacity reforms is provided. Specifically, the dataset includes cross sectional micro data on the health and socioeconomic status of older adults in Denmark and the Netherlands from various waves of the Survey of Health Aging and Retirement in Europe (SHARE) that is merged with a representative sample of older working-age adults in Britain from the English Longitudinal Study of Aging (ELSA). [12] SHARE and ELSA are biennial longitudinal surveys modeled after the Health and Retirement Study in the United States. Both surveys provide nationally representative cross-sectional samples of the national populations age 50 and older by regularly adding refreshment samples of the sub-population of people who turned 50 after the original baseline sample collection (see, Malter and Borsch-Supan, 2015; Rogers, Banks, Nazroo, and Steptoe, 2016 for more information on SHARE and ELSA, respectively).

The final analytic sample includes adults age 50 to state pension age in the respective countries at the time of interview (OECD, 2011). The state pension age data for Denmark and the Netherlands is age 65 for both men and women for all years analyzed. In Britain, the entitlement age was age 65 for men and age 60 for women until 2010 when it began gradually increasing to age 65. The British sample was accordingly restricted to women below 60 until 2010 and then restricted to women 61 years of age in 2012 and 62 years of age in 2015.

List wise deletion was used to account for missing data. All observations with no information on disability benefit enrollment or employment were removed, as were those with missing population weights. The sample was further restricted to individuals in all waves and countries without missing data on any of the 19 health related questions used in the health index or on the self-reported health measure. Despite this stringent criterion, just 2.1 percent of the analytic sample (650 observations) was dropped due to missing values on the various health and labor force variables. This provides for a final dataset of 37,503 observations, of which the sample from Britain represents 68 percent, the Netherlands 17 percent, and Denmark 15 percent.

Table 1 below reports on key characteristics of the samples from each country, divided into before and after the work-capacity reform periods. An effort was made to provide a multi-year baseline and post-reform sample by drawing on multiple survey waves. In Britain and the Netherlands, there is a clear balance in the observations pre and post reform. However, in Denmark, because the reform occurred in 2003 and first wave of SHARE was 2004, there is only one wave of data that can be reasonably understood as providing a baseline. The data is restricted to older adults and does not include data for those under the age of 50. Understanding the effects of disability benefit reform on older adults is critical for policy makers as that population

[12] Data is used from the generated easySHARE data set (DOI: 10.6103/SHARE.easy.200), see Börsch-Supan, A., C. Hunkler, S. Gruber, A. Orban, S. Stuck, M. Brandt (2015) for methodological details. The easySHARE release 2.0.0 is based on SHARE Waves 1, 2, 3 (SHARELIFE), 4 and 5 (DOIs: 10.6103/SHARE.w1.260, 10.6103/SHARE.w2.260, 10.6103/SHARE.w3.100, 10.6103/SHARE.w4.111, 10.6103/SHARE.w5.100)." Specifically, data from various SHARE panels are merged into easySHARE as the base platform.

represents the majority of claimants. In the US, for example, 63 percent of all DI beneficiaries were between the ages of 50 and 64 in 2012 (SSA, 2012).

Table 1. Characteristics of study samples by country and by whether pre- or post-reform.

	Denmark		Britain		Netherlands	
Mean	Pre-reform	Post-reform	Pre-reform	Post-reform	Pre-reform	Post-reform
Years included in dataset	2004	2007 - 2012	2004 - 2008	2010 - 2014	2004 - 2006	2010 - 2012
Male	0.49	0.5	0.59	0.57	0.5	0.49
Receives disability benefits	0.17	0.12	0.08	0.07	0.15	0.12
Currently working	0.62	0.71	0.71	0.69	0.55	0.63
Age	57.05	57.09	56.66	56.72	56.65	56.74
Married or cohabitating	0.71	0.7	0.79	0.76	0.78	0.71
Has any education past high school	0.37	0.49	0.35	0.32	0.31	0.34
Receives unemployment benefit	0.08	0.05	0.01	0.02	0.09	0.12
Self-reported fair or poor health	20.6	18.12	17.61	21.51	22.52	25.45
Self-reported poor health	0.06	0.04	0.05	0.07	0.04	0.05
N	895	4686	10511	7994	3149	3336

Sources: ELSA waves 2,3,4,5,6, and 7; SHARE waves 1,2,4, and 5. All values weighted using individual level population weights.

"Disability benefits", as defined in Table 1, includes benefits from both income-based (i.e. restricted to the poor and not conditioned on past employment) and contribution-based disability programs. As the work-capacity reforms introduced an alternative model of disability benefits, it is important to elaborate on what the disability benefit category means over time in the dataset. Table 2 describes what the disability benefit variable indicates in all three countries pre and post-reform. Prior to the reform, individuals in all countries who received the "traditional" form of permanent disability benefits are marked as receiving disability benefits. In Demark and the Netherlands, which maintained partial disability benefit programs prior to the reform, individuals are also marked as receiving disability benefits if they received partial benefits pre-reform. Ideally those receiving permanent and partial disability benefits would be disentangled but the disability variables in SHARE do not allow for them to be distinguished. Post-reform, as indicated in Table 2, all respondents who continue to receive permanent disability benefits are again marked in all countries. Those receiving temporary work-oriented disability benefits (beneficiaries in the work-related activity group in Britain and who receive

WGA benefits in the Netherlands) are also categorized as receiving disability benefits. However, those receiving Flex-job benefits in Denmark are not marked as receiving disability benefits in the dataset and are instead marked as "currently working."[13]

Table 2. What does the variable "receives disability benefits (DB)" indicate?				
	Pre-reform	*Pre-reform*	*Post-reform*	*Post-reform*
	Respondent receives "traditional" permanent cash disability	Respondent receives partial disability benefit or sickness benefit, uncoordinated with employment	Respondent has "traditional" permanent cash disability aid	Respondent receives work-oriented temporary cash disability aid or wage subsidy/flexjob
Denmark	DB = Yes	DB = Yes	DB = Yes	DB = No
British	DB = Yes	DB = No	DB = Yes	DB = Yes
Netherlands	DB = Yes	DB = Yes	DB = Yes	DB = Yes

A health index developed and validated by Poterba, Venti and Wise (2013) is further used. The index consists of a composite measure of health that divides the population into quintiles by health. The composite measure is compiled using a principal component method from 18 different measures of health in the surveys. The first principal component is the weighted average of the 18 health indicators and is used to maximize the share of the variance of the individual health indicators (see table A1 in the appendix). Using the coefficient from the first principal component, each individual in the dataset is assigned a raw health score. These raw scores are then divided into quintiles that provide a national population level health ranking with those in the 4th and 5th quintiles in the worst health and those in the 1st through 3rd quintiles in better health. In prior work, Poterba et al., (2013) validated this index by showing it to be strongly related to mortality and economic outcomes. Kapteyn and Meiger (2014) compared three different health indexes and found that the Poterba et al, (2013) index provided the best fit for explaining transitions into disability. All respondents in each country were also asked to self-rate their health as excellent, very good, good, fair, or poor. As a robustness check on the health index, all results are also analyzed using the self-reported health measure or those individuals self-reporting as in fair or poor health.

[13] I've confirmed via correspondence with the SHARE Denmark survey team that there is no way to identify those receiving flexjobs in SHARE. Email correspondence on 3/16/16.

Improvements in targeting?

A major aim of the work-capacity reforms is to improve the targeting of disability benefits to those who suffer from poor health and are permanently unable to work. One way to examine changes in the targeting of disability benefits is to compare the health characteristics of those on the disability rolls both before and after the work-capacity reform has been implemented. For instance, an increase, after a reform has been implemented, in the share of benefit recipients in poor health would indicate the improved targeting of benefits to those who are most in need based on their level of health. These kinds of improvements in targeting may help to avoid "errors of leakage" that ensure only those requiring benefits are eligible to receive them. Yet, on the other hand, increasing the targeting of benefits may also result in "errors of exclusion" or the false rejection of those who require permanent disability benefits but are denied those benefits (see, Low and Pistaferri, 2015).

In Table 3 below, the health characteristics of those on the disability rolls both before and after the work-capacity reforms are provided in the subject countries. Again, the health composition includes five quintiles with the 1st quintile representing those in the best health and the 5th quintile reflecting those in the worst health. The fair/poor health label includes those who self-reported that they are either in fair or poor health, while the "Either fair/poor health or in 5th quintile" category includes those who are classified using the health index as either in the 5th health quintile or self-reported fair or poor health. This latter construct of poor health is the most robust of the measures, as it combines the self-reported health measure with the more objective health index information expressed in quintiles.

The table indicates that only in Britain did the health characteristics of those receiving disability benefits change in a statistically significant way from both pre and post reform. Most noticeably, the share of disability benefit recipients in fair or poor health increased by 16.6 percentage points following the reform in Britain, while those in either fair or poor health or in the 5th health quintile increased 6.5 percentage points. Both increases are statistically significant. This shift in the composition of beneficiaries in Britain is likely attributable to the effects of the reassessment process, which were mostly implemented after 2010. That process resulted in 1,224,520 disability benefit recipients being referred for reassessment, of which 21 per cent were found fit for work and thus ineligible for benefits.[14]In Denmark, the lack of compositional changes is to be expected given there was not a reassessment process and thus all prior beneficiaries, screened using the previous determination model, were able to retain benefits. There were also no significant compositional changes identified from before and after the reforms in the Netherlands. However, the full extent of the changes caused by this reform are likely not displayed in this dataset, which is limited to older adults. These older adults were not subject to the reassessment process when the determination process was introduced in the Netherlands in 2006. According to De Jong (2012), 300,000 disability benefit recipients age 50 years or younger were reassessed by 2007 under the new disability process and 39 percent of these recipients had their benefits terminated or reduced.

[14] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/274090/esa-wca-outcomes-jan-14.pdf

Table 3. The health status of disability benefits recipients before and after the work-capacity reforms.

	Health quintile	Pre-reform %	Post-reform %	Change	significance
Denmark	1st through 3rd	15.2%	13.9%	-1.3%	ns
	Fair/Poor health	64.9%	63.6%	-1.3%	ns
	5th Health	64.9%	62.2%	-2.7%	ns
	Fair/poor health or in 5th quintile	74.8%	75.1%	0.3%	ns
Britain	1st through 3rd	13.4%	10.2%	-3.2%	(*)
	Fair/Poor health	56.8%	73.5%	16.6%	***
	5th Health	70.1%	75.0%	4.9%	ns
	Fair/poor health or in 5th quintile	77.8%	84.4%	6.5%	**
Netherlands	1st through 3rd	22.8%	16.6%	-6.2%	**
	Fair/Poor health	61.1%	60.6%	-0.5%	ns
	5th Health	48.6%	51.1%	2.5%	ns
	Fair/poor health or in 5th quintile	70%	71%	1%	ns

Source: Author's calculations drawing from ELSA and SHARE. All values weighted.
Significance determined from a two-tailed *z* test.
Tests of significance: ns= $p>0.1$; (*) $p<0.1$ * $p<0.05$ **$p<0.01$ ***$p<0.001$

While Table 3 examines changes in the health composition of disability benefit recipients, Table 4 below examines changes in the disability benefit participation rates for the entire older working age population. In this table, we see that the share of older adults receiving disability benefits declined significantly in all countries. The data thus indicates a general trend away from disability benefits for the older adult populations in all three countries, including for those in poor health who are likely most in need of benefits. Taken together with Table 3, it further suggests that inflow rates onto disability benefits decreased following the reforms in Denmark and the Netherlands, while the outflow of older adults out of the programs likely did not change given there was no reassessment process.

One must recall the information in Table 2, however, that those who transitioned onto the flex-jobs scheme in Denmark were not marked as on disability benefits in the dataset in the post-reform period. The reported 9.9 percentage point decline in the disability benefit participation for those in fair or poor health in that country may thus be the result of a migration onto the flexjob scheme. It is also possible that this general decline in the disability benefit rates indicates an increase in false rejections or "errors of exclusion." Though some in poor health with remaining abilities may have been able to work following the reform, others may have found themselves unable to receive disability benefits and instead relying on unemployment benefits. These two outcomes – changes in employment and unemployment benefit receipt of those in poor health – will thus be considered in the next section.

Table 4. The share of those in the general population receiving disability benefits by health status before and after the work-capacity reforms					
	Health status	**%**	**%**	**Change**	**significance**
Denmark	1st through 3rd	4.5%	2.9%	-1.6%	(*)
	Fair/Poor health	53.3%	43.4%	-9.9%	**
	5th Health	46.3%	39.6%	-6.7%	(*)
	Fair/poor health or in 5th quintile	43.6%	36.8%	-6.8%	*
	Entire pop.	16.9%	12.4%	-4.5%	***
Britain	1st through 3rd	1.8%	1.2%	-0.7%	**
	Fair/Poor health	27.1%	23.9%	-3.2%	**
	5th Health	29.5%	26.4%	-3.1%	*
	Fair/poor health or in 5th quintile	25.2%	21.8%	-3.4%	**
	Entire pop.	8.4%	7.0%	-1.4%	***
Netherlands	1st through 3rd	5.4%	3.2%	-2.1%	**
	Fair/Poor health	40.0%	29.0%	-11.0%	***
	5th Health	39.3%	30.9%	-8.3%	**
	Fair/poor health or in 5th quintile	36.5%	27.5%	-9.0%	***
	Entire pop.	14.7%	12.2%	-2.6%	**

Source: Author's calculations drawing from ELSA and SHARE. All values weighted.
Significance determined from a two-tailed *z* test.
Tests of significance: ns= $p>0.1$; (*) $p<0.1$ * $p<0.05$ **$p<0.01$ ***$p<0.001$

Improvements in employment?

A major aim of the work-capacity approach is to improve employment outcomes for people with disabilities by providing targeted return to work interventions to those with work limitations but also remaining abilities and also by providing financial incentives for beneficiaries to leave benefits and return to work. If these reforms were broadly successful at improving employment, individuals in poor health, would, on average, have a greater relative likelihood of being employed following the reform.

In Table 5 below, the employment rates for various categories of health are provided from before and after the reforms. We see that the employment rates for the entire older adult working age population increased by 8.7 percentage points in Denmark, 8.2 percentage points in the Netherlands, but declined by 2.3 percentage points in Britain in the years following the work-capacity reforms. The employment rates of those in the 5th quintile or in fair/poor health increased significantly in the Netherlands 14.5 percentage points but did not change in a significant way in Denmark or in Britain. These employment changes, however, may be attributable to general improvements in the labor market for older working-age adults. It is thus important to consider whether the employment rates for those in poor health improved relative to

those in good health from before and after the reforms. In the Netherlands, the employment of those in the 1st through 3rd health quintiles or those in better health increased significantly by 9.3 percentage points compared to the 14.5 percentage points for those in the fifth quintile or in fair/poor health. Thus, the relative employment rate for those in the Netherlands appears to have been reduced by 5.2 percentage points following the work-capacity reform. However, we are unable to determine from these descriptive statistics whether this change is statistically significant.

Table 5. Changes in employment before and after the work-capacity reforms

		Pre-reform working %	**Post-reform working %**	**Change**	**Significance**
Denmark	1st through 3rd health quintiles	73.8%	81.3%	7.5%	***
	4th quintile	59.4%	66.9%	7.5%	(*)
	5th quintile	37.3%	41.5%	4.3%	ns
	Fair or poor health	29.9%	40.2%	10.3%	***
	5th quintile or fair/poor	39.8%	44.4%	4.6%	ns
	5th quintile or fair/poor and no DB	63.7%	64.7%	1.0%	ns
	All DB beneficiaries	15.9%	12.4%	-3.5%	ns
	Entire population	62.2%	70.9%	8.7%	***
Britain	1st through 3rd health quintiles	81.9%	78.2%	-3.7%	***
	4th quintile	73.4%	70.5%	-3.0%	*
	5th quintile	35.4%	37.4%	2.0%	ns
	Fair or poor	39.0%	40.9%	1.9%	ns
	5th quintile or fair/poor	42.4%	44.3%	1.9%	ns
	5th quintile or fair/poor and no DB	54.9%	55.4%	0.5%	ns
	All DB beneficiaries	13.2%	10.0%	-3.2%	(*)
	Entire population	71.0%	68.6%	-2.3%	***
Netherlands	1st through 3rd health quintiles	64.7%	74.0%	9.3%	***
	4th quintile	48.1%	53.7%	5.6%	*
	5th quintile	27.5%	38.4%	10.9%	***
	Fair or poor health	28.6%	45.3%	16.8%	***
	5th quintile or fair/poor	31.8%	46.3%	14.5%	***
	5th quintile or fair/poor and no DB	43.2%	59.6%	16.4%	***
	All DB beneficiaries	16.6%	14.6%	-2.0%	ns
	Entire population	54.7%	62.9%	8.2%	***

Source: Author's calculations drawing from ELSA and SHARE. All values weighted. Significance determined from a two-tailed *z* test.
Tests of significance: ns= $p>0.1$; (*) $p<0.1$ * $p<0.05$ **$p<0.01$ ***$p<0.001$

Another important avenue to consider is whether the employment rates of those receiving disability benefits changes from before and after the work-capacity reforms. In Britain and the Netherlands, where those in the temporary work-oriented programs disability benefit programs were marked as receiving disability benefits, we expect to see increases in the number of disability benefit recipients working. However, the table indicates no significant changes in the employment of disability benefit recipients. Moreover, in Denmark, we should expect to see an increase in the number of those in poor health working, as this would include those in a Flexjob. Here we do see a statistically significant 10.3 percentage point increase in the employment of those in fair or poor health and also a significant 7.5 percentage point increase of those in the 4th health quintile, which could be attributable to the movement away from disability benefits to flexjobs. Yet, as in the general employment trends for those in poor health, we are unable to determine whether this change is significant with this descriptive data.

To explore these questions with greater precision, several regressions were conducted to explore changes in the probability of employment before and after the work-capacity reforms. Table 6 reports the results of a logit model that captures the effects of the work-capacity reforms on the odds of employment of people in the 5th health quintile or in fair/poor health. Because the surveys include multiple observations on the same individuals, all standard errors, which are provided in parentheses, are calculated to account for correlations across repeated observations (see, Deleire, 2000). The table provides the estimated change in the metric of odds ratios. The post-reform variable is a dummy variable indicating the effect of the post-work-capacity reform periods for those in the lower quintiles or in better health in each country. This variable can thus capture the effect of labor market changes, such as the effect of the Great Recession, before and after the reforms (See Figure A2 in the appendix). Dummy variables for the survey years are also included in all models. The variables 5th health quintile or fair/poor health indicates the effect that an individual being in worse health has on the odds of working and are expressed as relative to those in good health. The health measures are further interacted with the work capacity reform variable to identify whether, compared to the pre-reform years, reported changes in employment during the post work-capacity reform improved for those in the 5th health quintile or in fair/poor health relative to those in the lower health quintiles or in better self-reported health.

The result of this specification without the demographic controls, as found in Table 6, implies that there were no changes following reforms in the relative employment rates for older adults in the 5th health quintiles or in fair or poor health in Denmark and in the Netherlands, though the odds of employment increased significantly in Britain in both models [odds ratio, OR = 1.367 and OR=1.357]. The additional columns in Table 3 provide the results of the same logit model while including controls for gender, age, the quadratic term age squared, higher educational achievement, and marital status. After applying these controls, the employment gains for those in 5th health quintile or in fair or poor health in Britain remain statistically significant [OR = 1.371].[16]

[16] An additional question in ELSA but not in SHARE asks respondents whether they have a "health problem or disability that limits paid work." Using the ELSA data for Britain only and the same regression model, an additional analysis was performed using this health question. The fully specified model with controls shows that the odds of employment for those with self-reported disabilities increased significantly following the reform in Britain. Full results are available upon request.

Table 6. Changes in the employment rates of those in the 5th quintile or in fair/poor health before and after the work-capacity reforms: Results from a logistic regression (Odds ratios with 95% Confidence Intervals in parentheses)

	Denmark		Britain		Netherlands	
Reform	1.752***	2.230***	0.875*	1.005	1.519***	2.335***
	[1.425 ,2.15]	[1.774,2.803]	[0.771,0.993]	[0.881,1.146]	[1.310,1.762]	[1.955,2.788]
5th quintile or fair/poor health	0.263***	0.269***	0.181***	0.193***	0.312***	0.306***
	[0.194,0.355]	[0.192,0.378]	[0.161,0.204]	[0.171,0.218]	[0.260,0.374]	[0.251,0.374]
5th quintile or fair/poor X Reform	0.805	0.709	1.367***	1.357***	1.218	1.186
	[0.582,1.112]	[0.492,1.022]	[1.173,1.592]	[1.160,1.588]	[0.965,1.537]	[0.908,1.549]
Age		21.293***		2.943***		7.268***
		[13.066,34.702]		[2.192,3.952]		[4.726,11.178]
Age squared		0.972***		0.989***		0.981***
		[0.968,0.976]		[0.987,0.992]		[0.977,0.984]
Married		1.320**		1.530***		1.156
		[1.084,1.609]		[1.360,1.722]		[0.917,1.458]
Male		1.780***		1.328***		2.299***
		[1.496,2.117]		[1.185,1.488]		[1.978,2.673]
Higher education		1.948***		1.184**		1.863***
		[1.635,2.321]		[1.066,1.316]		[1.590,2.184]
2006			1.019	0.966	1.130*	1.273***
			[0.940,1.105]	[0.890,1.049]	[1.004,1.271]	[1.114,1.454]
2007	0.734***	0.655***				
	[0.630,0.855]	[0.553,0.775]				
2008			1.115*	1.143**		
			[1.011,1.229]	[1.034,1.263]		
2010			0.982	1.015	0.826**	0.879
			[0.902,1.070]	[0.929,1.108]	[0.737,0.926]	[0.767,1.007]
2011	1.03	0.934				
	[0.891,1.192]	[0.785,1.112]				

2012	1	1	1	1	1	1
	[1.000,1.000]	[1.000,1.000]	[1.000,1.000]	[1.000,1.000]	[1.000,1.000]	[1.000,1.000]
2014			0.609***	0.657***		
			[0.555,0.668]	[0.596,0.724]		
Constant	2.514***	0.000***	3.933***	0.000***	1.266***	0.000***
	[2.116,2.986]	[0.000,0.000]	[3.584,4.316]	[0.000,0.000]	[1.136,1.411]	[0.000,0.000]
N	5581	5556	18505	18457	6485	6401

Source: Author's calculations of ELSA and SHARE data.
Notes: Standard errors, provided in parentheses, are corrected for repeated observations across individuals. (*) indicates p<.05, (**) indicates p<.01, and (***) indicates p<.001.

Only in Britain do we observe a significant improvement in the relative employment rates of people in poor health. The positive employment effect in Britain may be attributable to the stricter disability assessment process compelling more people with disabilities but with remaining work abilities to keep working. Another interpretation is that the return to work program that provided personalized employment and rehabilitation support successfully helped many people with disabilities get back to work. The latest available data on the Work Programme in Britain indicates improvement in the job placement outcomes of those in the work-related activity group (Dar, 2016). The Danish reform thus appears to have underperformed with the goal of reducing the disability employment gap - a finding consistent with the OECD (2014) report. Recent policy developments in Denmark have thus sought to improve the assessment of work-capacity and to provide more targeted return to work interventions (Kvist, 2015; Aust et al., 2012). The non-significant employment effects in the Netherlands also suggest statistically insignificant effects, though, as in Denmark, we should be careful in our conclusions given the relatively small sample size. Nevertheless, the OECD (2014) has noted that budget cuts in the Dutch department responsible for providing employment services to disability benefit recipients with partial or temporary conditions led to many people not receiving the reintegration services that they are entitled. This issue may have thus limited the magnitude of the employment effect of the reform in the Netherlands.

Changes to the employment rates of those on and off disability benefits are further examined in Table 7. As noted, in Britain and the Netherlands, disability benefit recipients identified in the data include those in temporary work-oriented disability benefit programs, while they are not included in the Danish data. The interaction variable on receives disability benefits and reform indicates a statistically significant decrease in the relative employment rates of those on disability benefits in Denmark [OR= .309], which is consistent with the transition to flexjobs for those with disability with remaining abilities to work and off of permanent disability benefits. However, this decrease does not correspond with an increase in the relative employment rates of those in poor health and not on disability benefits. This is indicated by the interaction between those in the fifth quintile or in fair/poor health and not on disability benefits and the reform variable, which shows a statistically significant decrease in the odds of working following the reform [OR=.635]. We do, however, observe significant improvements in the relative employment rates of those in those in poor health and not on disability benefits in Britain

following the reform [OR=1.281]. This suggests that the employment improvements identified in Table 6 were experienced in the broader population of those in poor health in Britain and were not limited to those receiving temporary disability benefits as part of the work-related activity group.

Table 7. Changes in the employment rates of those on disability benefits before and after the work-capacity reforms: Results from a logistic regression
(Odds ratios with 95% Confidence Intervals in parentheses)

	Denmark		Britain		Netherlands	
Reform	1.815***	2.640***	0.833**	0.958	1.488***	2.344***
	[1.454,2.264]	[2.050,3.400]	[0.730,0.951]	[0.836,1.099]	[1.276,1.735]	[1.948,2.821]
Receives disability benefits	0.067***	0.054***	0.035***	0.036***	0.119***	0.101***
	[0.042,0.108]	[0.031,0.092]	[0.028,0.044]	[0.028,0.046]	[0.086,0.164]	[0.071,0.143]
Receives disability benefits X Reform	0.462**	0.309***	0.905	0.863	0.852	0.706
	[0.271,0.789]	[0.171,0.559]	[0.624,1.315]	[0.590,1.264]	[0.570,1.275]	[0.439,1.137]
5th quintile or fair/poor health but no DB	0.625*	0.637	0.285***	0.296***	0.432***	0.453***
	[0.426,0.917]	[0.398,1.018]	[0.251,0.323]	[0.259,0.338]	[0.353,0.528]	[0.363,0.565]
5th quintile or fair/poor health but no DB X Reform	0.641*	0.635	1.284**	1.281**	1.2	1.174
Age		29.192***		3.144***		7.698***
		[16.879,50.489]		[2.320,4.260]		[4.929,12.023]
Age squared		0.969***		0.989***		0.980***
		[0.964,0.973]		[0.986,0.991]		[0.976,0.984]
Married		1.108		1.266***		0.996
		[0.896,1.369]		[1.119,1.432]		[0.786,1.262]
Male		1.792***		1.415***		2.580***
		[1.492,2.152]		[1.259,1.590]		[2.213,3.008]

Higher education		1.653***		1.125*		1.868***
		[1.375,1.988]		[1.011,1.251]		[1.587,2.198]
2006			1.023	0.966	1.091	1.230**
			[0.939,1.115]	[0.885,1.055]	[0.967,1.230]	[1.073,1.410]
	[0.424,0.971]	[0.382,1.056]	[1.086,1.518]	[1.077,1.523]	[0.927,1.554]	[0.873,1.578]
2007	0.735***	0.624***				
2008			1.055	1.082		
			[0.953,1.169]	[0.975,1.201]		
2010			1.034	1.075	0.811***	0.866*
			[0.944,1.132]	[0.978,1.181]	[0.721,0.912]	[0.752,0.997]
2011	1.101	1.005				
	[0.932,1.301]	[0.818,1.235]				
2012	1	1	1	1	1	1
	[1.000,1.000]	[1.000,1.000]	[1.000,1.000]	[1.000,1.000]	[1.000,1.000]	[1.000,1.000]
2014			0.584***	0.629***		
			[0.531,0.642]	[0.569,0.696]		
Constant	2.809***	0.000***	4.271***	0.000***	1.404***	0.000***
	[2.341,3.370]	[0.000,0.000]	[3.874,4.710]	[0.000,0.000]	[1.255,1.570]	[0.000,0.000]
N	5581	5556	18505	18457	6485	6401

Source: Author's calculations of ELSA and SHARE data.
Notes: Standard errors, provided in parentheses, are corrected for repeated observations across individuals. (*) indicates p<.05, (**) indicates p<.01, and (***) indicates p<.001.

In the previous sub-section, the data indicated that in all countries studied the odds of receiving disability benefits for those in poor health declined following the work-capacity reforms. If those in poor health are not in work and not on disability benefits, it is possible that many benefit recipients transitioned to receiving unemployment benefits. Table 8 explores this possibility by applying the same model as Table 6 but with the new dependent variable indicating whether the respondent receives unemployment benefits. The data indicates significant increases in the odds of receiving unemployment benefits for those in poor health following the reforms in Denmark [OR = 1.952] and the Netherlands [OR= 1.532]. This statistic helps to paint a fuller picture of the effects of the reforms in these countries, where any reduction in expenditures on disability benefits was likely counteracted by an increase in expenditures for unemployment benefits.

Table 8. Changes in the receipt of Unemployment Benefits of those in the 5th quintile or in fair/poor health before and after the work-capacity reforms

	Denmark		Britain		Netherlands	
Reform	0.512***	0.560**	2.417**	2.467**	2.086***	2.052***
	[0.356,0.738]	[0.387,0.812]	[1.320,4.424]	[1.345,4.526]	[1.395,3.119]	[1.373,3.068]
5th quintile or fair/poor health	0.974	0.951	2.113**	1.556	4.589***	4.311***
	[0.561,1.692]	[0.540,1.676]	[1.307,3.416]	[0.938,2.581]	[3.506,6.007]	[3.286,5.656]
5th quintile or fair/poor X Reform	1.988*	1.952*	1.081	1.057	1.564*	1.532*
	[1.063,3.716]	[1.038,3.671]	[0.582,2.010]	[0.566,1.976]	[1.089,2.247]	[1.064,2.207]
Age		8.206***		5.601*		0.763
		[3.287,20.490]		[1.370,22.901]		[0.401,1.452]
Age squared		0.981***		0.984**		1.003
		[0.973,0.989]		[0.972,0.996]		[0.997,1.008]
Married		0.520***		0.166***		0.572***
		[0.394,0.686]		[0.117,0.235]		[0.443,0.738]
Male		1.322*		1.545*		1.529***
		[1.013,1.724]		[1.077,2.216]		[1.224,1.911]
Higher education		0.765		0.768		0.755*
		[0.579,1.010]		[0.510,1.157]		[0.577,0.988]
2006			1.084	0.974	3.266***	3.251***
			[0.616,1.907]	[0.549,1.728]	[2.415,4.417]	[2.403,4.399]
2007	1.224	1.226				
	[0.916,1.634]	[0.912,1.648]				
2008			1.421	1.374		
			[0.844,2.392]	[0.817,2.311]		
2010			0.634*	0.683	0.932	0.932
			[0.411,0.981]	[0.436,1.071]	[0.778,1.116]	[0.776,1.120]
2011	0.84	0.819				
	[0.608,1.161]	[0.589,1.137]				
2012	1	1	1	1	1	1

	[1.000,1.000]	[1.000,1.000]	[1.000,1.000]	[1.000,1.000]	[1.000,1.000]	[1.000,1.000]
2014			0.564*	0.570*		
			[0.357,0.891]	[0.360,0.904]		
Constant	0.082***	0.000***	0.005***	0.000*	0.023***	29.4
	[0.061,0.110]	[0.000,0.000]	[0.003,0.008]	[0.000,0.000]	[0.016,0.032]	[0.000,3.75e+09]
N	5580	5555	18505	18457	6470	6387

Source: Author's calculations of ELSA and SHARE data.
Notes: Standard errors, provided in parentheses, are corrected for repeated observations across individuals. (*) indicates p<.05, (**) indicates p<.01, and (***) indicates p<.001.

Discussion and Lessons for the United States

The traditional model of disability determination rests on the gathering of medical evidence and the idea of disability as a total inability to work. However, the subjective nature of the medical determination process and the transformative shifts in the low wage labor market raise questions about the viability of this model. This chapter examined an alternative model of disability determination, the work-capacity approach, and addressed whether this model has benefits both as to the targeting of benefits and the employment of people with disabilities. The analysis found evidence that the work-capacity reforms significantly increased the targeting of benefits to those in poor health in Britain and that the likelihood of receiving disability benefits for those in poor health declined in all three countries.

The data further offers evidence that the reform in Britain yielded improvements in the employment rates for people with disabilities, though no effect was observed in the Netherland and Denmark. We further identified an increase in the rate of unemployment benefit receipt for those in poor health in Denmark and the Netherlands following the work-capacity reforms. The analysis was limited, however, by the number of years studied pre and post reform, particularly for Denmark, and in being restricted to older adults. For instance, it is also possible that the reforms may have improved the employment rates for younger adults with disabilities. These benefit recipients, while generally a small share of total beneficiaries, are likely to have greater latent work-capacity than older beneficiaries. Future research should thus aim to examine the effects of these reforms for longer time periods and for those of younger ages.

Overall, this study indicates a possible relationship between a work-capacity determination process and enhancements to determination accuracy and employment rates, while also providing lessons regarding the implementation of such reforms. The comparative analysis suggests that a new determination process be adopted cautiously to avoid "errors of exclusion." Moreover, the findings suggest that tailoring personalized employment support to adults with impairments but with remaining abilities to work, as is currently done in Britain under its work-capacity reform, may help people with disabilities in the US return to work. Examining the effects of a large randomized control trial, Weathers II and Bailey (2014) provide evidence of a positive impact of rehabilitation and counseling programs on the labor market activity of newly entitled DI beneficiaries. Their findings point to the "potential need for partial temporary income support as a component of disability programs designed to quickly restore work capacity," (Weathers II and Bailey, 2014, p. 24). In a similar vein, Liebman and Smalligan (2013) propose

a demonstration project that screens disability applicants and targets with services and supports those who are likely to be found eligible for disability benefits but who also have the potential to return to work if provided appropriate services. The creation of this kind of temporary disability program that relieves street-level decision makers of the burden of making yes/no eligibility decisions on the most complex cases and that targets rehabilitative services to those with the potential to get back to work may thus be a promising opportunity for reform. Yet, the relatively modest employment effects of the work-capacity reforms analyzed in this study should also invite reflection on alternative employment strategies. This examination of alternative strategies will be the focus of the next chapter.

Chapter 3. How Relevant are Integration Policies?

Reducing early labor market exit onto public disability benefits and helping disability benefit recipients move off benefits to the labor market is widely viewed as an international policy priority. Yet, disability benefit programs seek to provide guaranteed income at a time of increasing economic insecurity for those with low-skills, which disproportionately includes people with disabilities (Beatty and Fothergill, 2015). And this structural disincentive to return to work has led to mixed results among efforts to integrate people back into employment. While select evaluations of single country integration efforts have shown positive employment results (von Sonsbeck and Gradus, 2012; Kostøl and Mogstad, 2013; Burkhauser et al., 2015; Chapter 2 of this dissertation), other major policies and programs appear to have yielded no significant effects (Stapleton, Mamum, and Page, 2013; Aust et al., 2012). These results leave open the question of which kinds of integration initiatives are the most effective and whether integration measures targeted at people with disabilities can in fact be effective.

The previous chapter addressed the effectiveness of a particular kind of disability benefit reform, a work capacity reform, in enhancing employment rates in three countries. This chapter investigates the relevance of integration policies cross-nationally among seventeen countries and asks plainly: Given an individual's health and sociodemographic status, what influence does a country's disability policy have on the likelihood of that individual receiving disability benefits? To answer this question, this chapter reviews the determinants of disability benefit receipt and then draws from and analyzes data from three nationally representative data sets of older adults: The Health and Retirement Study (HRS) in the United States, the English Longitudinal Study of Aging (ELSA) in Great Britain, and the Survey of Heath Aging and Retirement in Europe (SHARE), a comparable sample of older adults in 15 European countries. Data on the disability policies of these countries comes from the OECD (2010). The chapter puts forward a multilevel framework of the determinants of disability benefit receipt as split between demographic and geographic factors. It further advances upon prior research by using a more methodologically sophisticated multilevel modeling technique. And, as the first study to examine the cross-national relevance of integration measures, it can inform policy makers who must weigh the costs and benefits of expanding integration policies, particularly those that are directed at older adults approaching the state pension age.

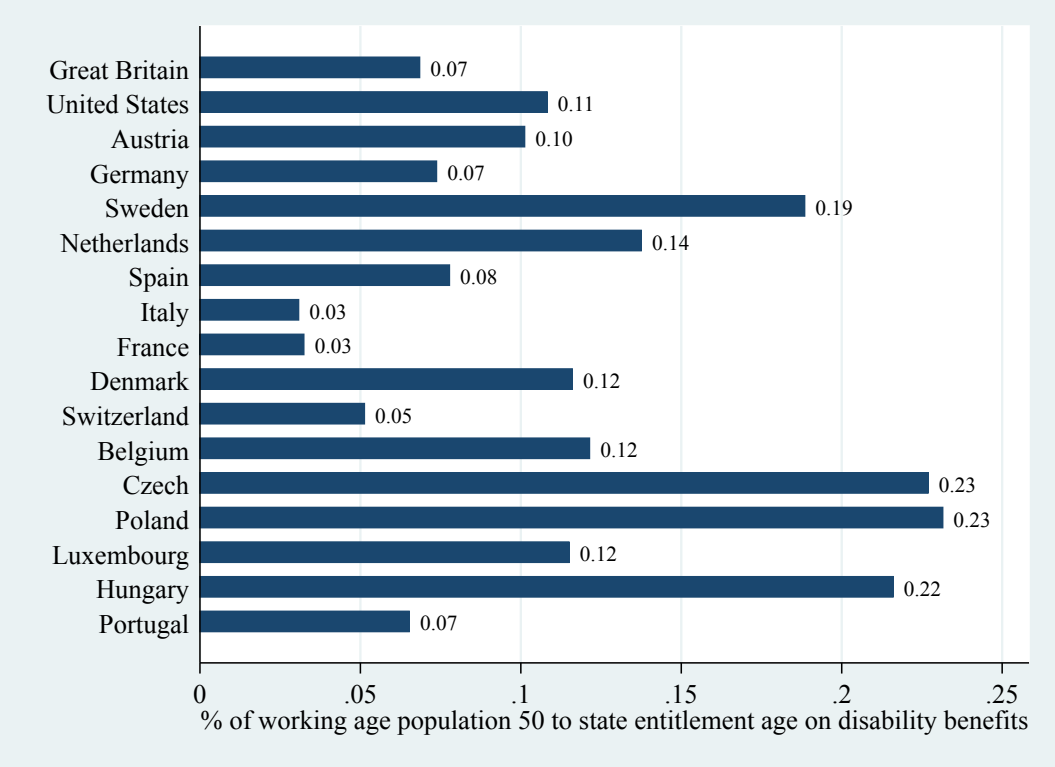
The Determinants of Disability Benefit Receipt

A complicated assortment of reasons can affect an individual's likelihood of going on disability benefits (see, for example, Rupp and Stapleton, 1998). One can, however, usefully distinguish between two kinds of factors: demographic and geographic. Demographic factors refer to those attributes that are specific to an individual within a population, such as age, gender, education profile, marital status, and physical and mental well-being. Geographic factors consist of properties that are shared by a population within a geographic boundary, such as living within a local, national, or supranational jurisdiction with varying public policies, cultures, and formal and informal labor markets.

The importance of geographic factors is alluded to with the wide cross-national variation in the rate of disability benefit receipt. In Figure 4, the percentage of older adults age 50 to retirement age receiving disability benefits across 17 OECD countries is provided. That Figure

indicates the striking variation that exists in disability benefit participation – from 3 percent of the older working-age population receiving disability benefits in Italy and France to 23 percent in the Czech Republic and Poland. Given this wide discrepancy, it is unlikely that demographic factors alone, such as cross-national differences in health, can explain these differences. Indeed, Milligan and Wise (2012) find little evidence of a relationship between changes in health (e.g. mortality) and disability benefit participation over time and across multiple countries, Yet, they show how changes in disability policy clearly affected disability benefit participation. A robust understanding of the determinants of disability benefit receipt must, therefore, account for both demographic and geographic factors.

Figure 4. Disability benefit rates among older adults in 17 OECD countries around 2012



Source: Authors calculations of ELSA, SHARE, HRS. All values weighted.

Demographic Factors

Demographic factors consist of individual characteristics that make a person more likely to receive disability benefits. Disability benefit programs are designed to provide insurance against the risk of declining health, for example, and it is to be expected that those suffering from physical and mental impairments, whether from car accidents, unhealthy personal behaviors, or genetic conditions, will be more likely to receive disability benefits. Independent of a person's specific medical condition, an individual's functional status may be an even more important factor, as to whether a person receives disability benefits. Functional impairments refer to physical or mental limitations that restrict a person's full participation in work-related activities,

such as the ability to walk, carry large objects, or bend down. While functional impairments are usually rooted in a medical diagnosis, not all medical diagnoses yield functional impairments. An individual diagnosed with HIV or even a survivor of a heart attack can live without functional limitations affecting their ability to work. In many countries, a person's functional limitations are thus viewed as the most important information for determining eligibility for disability benefits (OECD, 2010).

Other demographic factors besides health and functional status, such as gender, marital status, age, and education may also increase the likelihood of a person going on disability. Most countries offer two major types of disability benefit programs. One is for workers whose social insurance tax contributions make them eligible to receive disability insurance benefits if they develop a work-limiting condition. And the other is a means-tested disability benefit program for people with low incomes who are incapable of working due to a physical or mental impairment. Those not engaged in paid work and not low income (traditionally this included many married women) do not qualify for either kind of disability programs. In recent decades, however, as the female labor force participation rate has expanded, the share of women receiving disability benefits has increased. Still, disability benefit caseloads remain, at least in most countries, comprised of a majority of males (OECD, 2010).

A person's marital status may also be an important determinant of disability benefit status. There is robust literature examining the health benefits of personal relationships, such as marriage (Kiecol-Glaser and Newton, 2001). Married people tend to be healthier and less likely to develop physical or mental health issues compared to non-married adults (Wilson and Oswald, 2005). In a longitudinal study of the effects of divorce, Crouch, Tamborini, and Reznik (2015) find that the risk of receiving US disability benefits 20 years after a man's first divorce is 10 percentage points higher for those who do not remarry relative to the continuously married. The mechanisms underlying the effect of divorce on disability remain unclear though these authors suspect that the stress involved with divorce combined with the lack of marital resources makes divorced men more vulnerable to disability.

The risk of developing a health impairment also naturally increases as we age, as does the likelihood of receiving disability benefits. Liebman (2015) shows that those who are between 50 and 64 years old in the US are four and one-half times as likely as those between the ages of 20 and 49 to be receiving disability benefits. Countries may also be more willing to find people of older age eligible for disability benefits (Arts, Burkhauser, and de Jong, 1996). Older people with disabilities are likely to have shorter life expectancies and to be transitioning sooner to old age public pensions, and to thus be less costly to a disability benefit program than a young person who could receive benefits for many years.

A person with lower skills and education is also expected to be more likely to be receiving disability benefits. As is the case for many low-skilled workers in Hale County, those with less education generally have fewer labor market opportunities and are thus more likely to be incapable of working given a physical or mental impairment. Those with lower skills may also be less likely to access nutritious food and quality health care and may be relegated to working in jobs with greater health risks (see, Schrecker and Bambra, 2015). Using forty years of longitudinal data from the Panel Study of Income Dynamics, Rank and Hirschl (2014) show that household heads with less than 12 years of education are 1.8 times more likely to report a work disability than those with higher levels of education. The combination of these demographic factors thus make a person more or less likely to receive disability benefits.

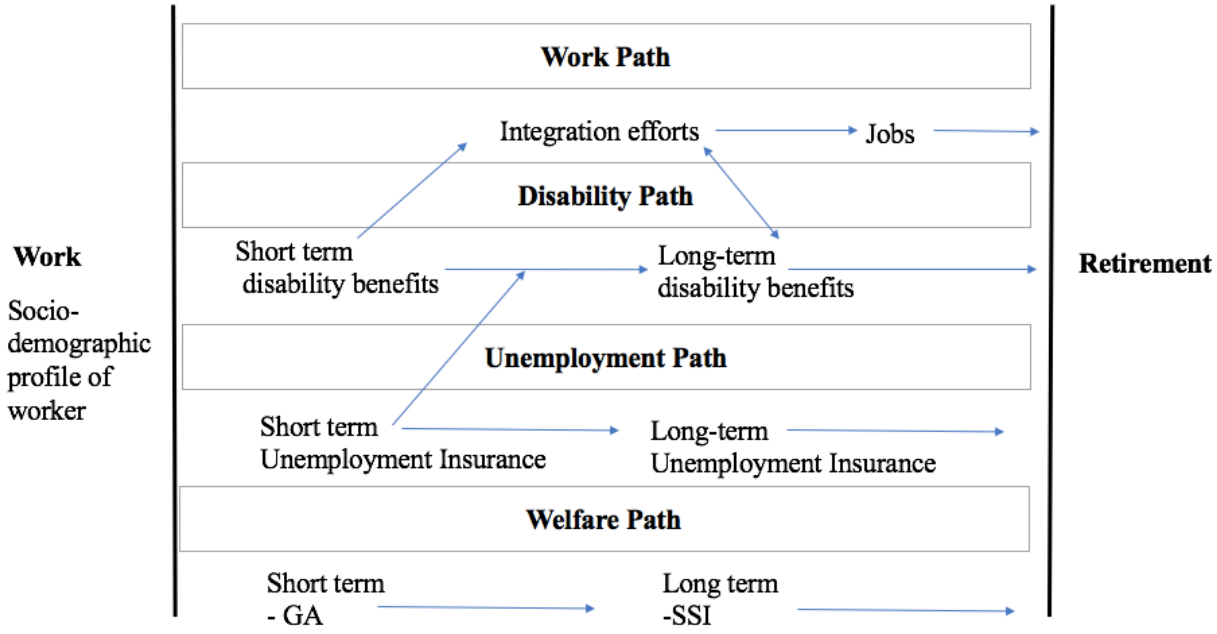
Geographic Factors

Geographic factors refer to those characteristics relevant to a population of people who share a specific place and time. When countries experience periods of economic recession and labor market turmoil, for example, applications for disability benefits typically increase (Rupp and Stapleton, 1998). Looking across countries and over-time, Benitez-Silva, Disney, and Martin (2010) find a robust statistical relationship between unemployment rates and disability claims. The heavy concentration of disability benefit recipients in areas of industrial decline further supports the claim that disability benefits programs are often used to mask the unfortunate consequences of the deindustrialized economy (Black, Sanders, Daniel, 2001; Beatty and Fothergill, 1996; 2004). McVicar (2006) reviews the economic literature exploring the regional variation in the disability benefit rolls in the US and UK and finds that labor market demand along with demographic and health factors all play a role in explaining the spatial variation.

Stone (1984) theorizes that as job markets tighten individuals are more likely to become aware of their limitations, especially when they find it difficult to make ends meet. In this vein, McVicar (2006) identifies two causal pathways in which labor markets shape patterns of disability benefit receipt: job destruction (i.e. areas where jobs disappeared rapidly lead to high disability benefit claims) and wage replacements (i.e. when the ratio of benefit payments to average local earnings is high, people are incentivized to claim disability). Though less thoroughly explored than labor markets, social networks may also help to explain the geographic concentration of disability benefit recipients. Using experimental survey vignettes in the Netherlands and the US, Van Stoest et al., (2011) shows that the more people with disabilities there are in a person's reference group the more likely they themselves are to identify as having a work disability.

The availability of disability benefit programs themselves, as well as other working age benefits, may also influence the likelihood of going on disability benefits. Individuals living in more universalistic welfare states may, for example, be more likely to receive disability benefits. O'Brien (2015) finds a strong association between the welfare state context and the odds an individual reports a disability. Figure 5 provides a model of the various exit pathways available to older working-age adults following the onset of a disability, which is adapted from Aarts, Burkhauser, and De Jong (1996). This model identifies four different exit paths: welfare, unemployment, disability, and work. What determines which exit pathway a person takes? In this configuration of the model, the exit pathway is determined by the interaction of a person's sociodemographic profile and the availability of benefit programs in their respective geographies. All, furthermore, are conceived as moving towards retirement as one ages.

Figure 5. Exit pathways from the labor market following disability onset



Source: Authors adaptation of a model from Aarts, Burkhauser and de Jong (1996)

The welfare path is reserved for those with low-incomes who, because of a lack of a work history, will not qualify for contribution based benefits. In the US, the short-term welfare program consists of General Assistance (GA) benefits, which states and counties administer. A longer-term version of a welfare benefit for older adults with disabilities, which many GA clients go on to receive, is the Supplemental Security Income program. Other countries provide social assistance benefits that provide a similar role in the safety net for people with disabilities who also qualify also poor. The unemployment path is an additional option for those with disabilities whose work history qualifies them for either short term or long-term unemployment insurance benefits. The unemployment pathway may be especially advantageous to those with impairments that are not severe enough or too difficult to verify to warrant disability benefits. Some will, however, find that they can move from the unemployment path to the disability path, which can bring forth more generous disability benefits.

Those who develop disabilities that are determinable and that meet the severity criterion of the country where they live can follow the disability path and receive disability benefits. They may receive short term disability benefits in the form of workers-compensation benefits or other temporary disability insurance benefits. Or they may receive long term disability benefits through disability insurance programs. The specific design of the disability benefit program in a given jurisdiction matters a great deal. Examining health, demographic, and policy factors, Börsch-Supan (2010) estimates that more than 60 percent of the cross-national variation in the rate of disability benefit receipt across thirteen countries in 2004 was attributable to the minimum level of disability required in a particular country to receive disability benefits. This finding accords with research highlighting how the relative strictness of the disability determination process can create incentive structures that increase or decrease the number of disability benefit recipients (Autor and Duggan, 2003; Burkhauser et al., 2014).

Other workers with disabilities will take a work path that allows them to stay in or return to their jobs despite their impairments. Whether an individual takes a work path is dependent on a number of factors, including the kinds of integration policies and services available, the general state of the labor market, and their general financial well-being. Some countries will provide more comprehensive vocational rehabilitation programs or mandate employers to more fully accommodate workers who develop disabilities. These integration efforts strive to help people with disabilities stay in the world of work. Others with a disability will, however, find it difficult to stay in their jobs given their impairment or may ultimately struggle to find work in the labor market and thus will turn to short-term or long-term disability benefits. For these individuals, integration policies also strive to provide the right combination of support services and monetary incentives to assist these individuals back onto the work path. Inevitably, for many of these individuals the integration efforts will presumably fail and they will continue to receive disability benefits until they are entitled to old age pensions and are thus considered retired.

Assessing the Significance of Integration Policies in 17 OECD Countries

The following analysis explores the association between various demographic and geographic factors and a person's disability benefit status with a specific focus on exploring the relevance of a country's integration policies. The analysis draws on a harmonized sample of older adults in 17 countries that combines cross sectional data from the Health and Retirement Study (HRS), the English Longitudinal Study of Aging (ELSA), and the Survey of Health Aging and Retirement in Europe (SHARE). ELSA and SHARE are biennial longitudinal surveys of older adults that were both modeled after the HRS. Nearly 2/3 of the variables in all three surveys are identical (Borsch-Supan, 2010). Thus, in combining all the surveys into a single dataset, a nationally representative sample of older adults across 17 countries is created.[19]

As the goal of this analysis is to identify predictors of disability benefit receipt, it is imperative that all individuals included in the final sample are still of working-age and are thus eligible for disability benefits. The final dataset is, therefore, restricted to individuals that are between the age of 50 and the state retirement age in his or her respective country. [20] The final dataset contains nationally representative cross-sectional information on 36,816 older working-age adults in 17 countries between the years 2011 to 2013. As in Chapter 2, list-wise deletion is applied where all observations with no information on disability benefit enrollment were removed from the analytic sample, as were those with missing population weights. The sample was further restricted to individuals in all waves and countries without missing data on any of the 18 health related questions used in the health index, as well as those without information on key demographic variables, including marital status, gender, education level, and age. Despite this stringent criterion, just four percent (1,555 observations) of the analytic sample is dropped because of missing values.

The dependent variable used in the analysis consists of whether an individual currently receives income from a publicly financed disability insurance or sickness benefit program. This

[19] SHARE data for Austria, Germany, Sweden, Netherlands, Spain, Italy, France, Denmark, Switzerland, Belgium, and Luxembourg comes from wave 5 (interview year was 2013). Wave 4 data is used for Poland, Portugal, and Hungary, as there was no 5th wave in those countries (interview years were 2011 and 2012). ELSA and HRS data are for the year 2012.

[20] Data on State Retirement age in each country comes from OECD (2013), which is available at: http://www.oecd.org/pensions/public-pensions/OECDPensionsAtAGlance2013.pdf

includes both contribution-based and means-tested disability benefit programs, as there was no way to distinguish between the two in the dataset. The same robust health index used in Chapter 2 is also constructed that consists of responses to 18 health related questions that are used to obtain country specific first and second principal components of the indicators of health status (Poterba, Venti, and Wise, 2013). The variables and factor scores used for the United States, Germany, and Britain are described in Table A2 in the appendix.[21] Importantly, the variables provide information on both medical impairments and the functional limitations of the respondent. Using the coefficient from the first principal component, each individual in the dataset is assigned a raw health score. As in chapter 2, these raw health scores are then divided into quintiles that provide a national population level health ranking with those in the 4th and 5th quintiles in the worst health.

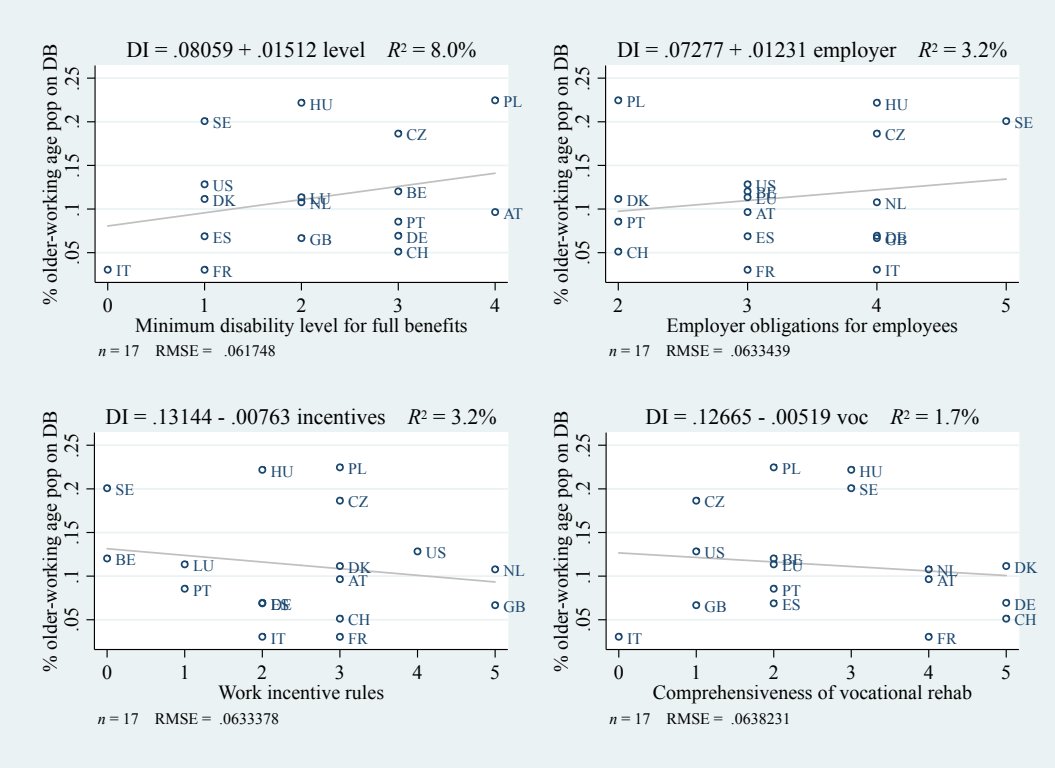
Country-level disability policy variables

The country-level variables tested in this analysis are described in the appendix in Table A3 and come from the OECD (2010:101-102) and reflect country policies in 2007, which is the most recent data available. Of the six policy variables examined, only the Level for Benefits variable is not directly related to integration policies. This variable is included because it was found to be predictive of disability benefit receipt in a previous cross-national study using a different multilevel method and with earlier data (Börsch-Supan, 2010). A high score on the level of work-incapacity indicates looser eligibility criteria, while a lower score indicates more restrictive criteria. It is hypothesized that individuals in countries with higher scores on the level of work-incapacity and thus less restrictive eligibility criteria will be associated with a higher likelihood of receiving disability benefits. A higher score on the three integration variables, on the other hand, demonstrates increased efforts at assisting people with disabilities in their efforts to stay in or return to the labor market. It is thus hypothesized that those living in countries with higher integration efforts will have lower odds of going on disability, when controlling for demographic factors.

The four country-level variables are identified in Figure 6 and shown in a scatterplot with the rate of disability benefit (DB) receipt for working age individuals 50 to the state retirement age in the respective country. Given the labor market challenges of returning to work and the monetary incentives involved with claiming disability benefits, it is to be expected that the integration variables will display a weaker association than the eligibility criteria variable and may show no association at all. The three integration policy variables are selected because they represent major areas of rehabilitation policy but different approaches to reducing the disability benefit rolls. Policies that add employer responsibilities aim to reduce the number of beneficiaries flowing into disability programs by either creating financial incentives for firms to hire and accommodate workers with disabilities and/or by creating antidiscrimination laws that aim to reduce hiring discrimination of adults with disabilities. The comprehensiveness of a country's vocational rehabilitation programs, on the other hand, aims to restore the work-capacity of adults who encounter disabilities. Finally, adjusting the work-incentives for benefit recipients to continue to receive benefits is targeted at assisting current benefit recipients in their return to employment.

[21] The full results for the principal component analysis for each country are available upon request.

Figure 6. Disability Benefit (DB) rate and Country-level variables



Source: ESLA, SHARE, HRS various waves. Policy scores come from OECD, 2010.

Methods

To examine the effects of demographic and the geographic policy factors, a number of regressions are conducted. Random intercept and fixed effects logistic regression models are used to explore the effects of various demographic predictors, while controlling for the multilevel or clustered nature of the data (i.e. people in countries). To explore the effects of the country-level policy factors two-step multilevel logistic regression model is used that explicitly models for the small number of countries. In the first step, a logistic regression controlling for all of the demographic factors is performed to identify the likelihood of receiving disability benefits in each country. The intercepts, and their standard errors, are then stored. These thus provide the baseline log odds of receiving disability benefits in each country. In the second step, the intercepts become the dependent variable that is then regressed on the policy variables in a regression that is based on only the 17 country observations (see, Bryan and Jenkins, 2013; Angel and Heitzman, 2015). Of concern with two-step multilevel models is that the standard errors produced at the first step vary across the different countries due to the different numbers of observations, which leads to heteroscedasticity. To account for this problem of uncertainty of the dependent variable in the second-step, the *edvreg* procedure in STATA developed by Lewis and Lindzer (2005) is used. This provides a weighted least-squares estimation with robust standard errors to the data.

Statistical research on multi-level methods suggests that multilevel regressions violate a number of assumptions when there are few observations at the second level, in this case, the

country level (Bryan and Jenkins, 2013; Stegmueller, 2013; Di Stasio, Bol, & Werhost, 2015). Since this study includes only seventeen countries, the two-step procedure is used to produce reliable estimates of the effects of the country-level policies. This marks a methodical improvement upon the prior research of Borsch-Supan (2010). In that study, he similarly explores the effects of country-level policies on disability benefit participation across thirteen advanced economic countries using earlier waves of the SHARE, HRS, and ELSA data. However, he only accounts for the multilevel nature of the data by applying cluster robust standard errors. Using Monte-Carlo simulations, Bryan and Jenkins (2013) show that using clustered robust standard errors when there are few countries leads to imprecise estimation due to the assumption of normality. As Cameron and Miller (2015, 2) note, cluster robust standard errors require the assumption that the number of clusters "goes to infinity." This analysis thus follows from Byran and Jenkins (2013) who argue in favor of a graphical analysis approach and a two-step estimation procedure that explicitly models for the small number of countries.

Results

In Table 9, these demographic predictors on disability benefit receipt are regressed, while controlling for the multilevel nature of the data (people in countries) through random intercepts and fixed effects logistic regressions (see, Rabe-Hesketh and Skrondal, 2012; Angel and Heitzman, 2015).[22] The results show that many of the demographic predictors in the model are significantly associated with higher or lower odds of being on disability benefits. Individuals in poor health or in the 5th health quintile have substantially higher odds (OR = 17.694) of receiving disability benefits than people in better health. Those in fair health or the 4th health quintile also have significantly higher odds of going on disability than those in better health (OR = 4.588). As expected, men are significantly more likely to receive disability benefits than women (OR = .489). Older adults with higher education levels (ISCED 2-3 and ISCED 4-5) also have significantly lower odds of receive disability benefits. The age categories do not appear to be significant factors. Those who are married also have significantly lower odds of receiving disability benefits, as expected from previous literature.

The regression results in Table 9 further help to identify to what extent the odds of receiving disability benefits vary across countries when controlling for these demographic predictors. The intra-class correlation coefficient provided in Model 1 suggests that about 16 percent of the variation in disability benefit receipt is due to country level differences. The results of the fixed-effects model, Model 2, further show that none of the demographic predictors changed in a meaningful way and that nearly all of the country level dummy variables are significant predictors of disability benefit receipt when compared to the baseline country of Britain. Table 9 thus suggests that demographic factors alone cannot alone explain disability benefit receipt and that country-level factors are also important.

[22] The default of 12 quadrature points is used with the Xtlogit command in Stata for the random intercept regression in Model 1. I further conducted a check of the quadrature using the Quadchk command for 8 and 16 quadrature points and found no difference in the estimate of the log of the variance of the random component.

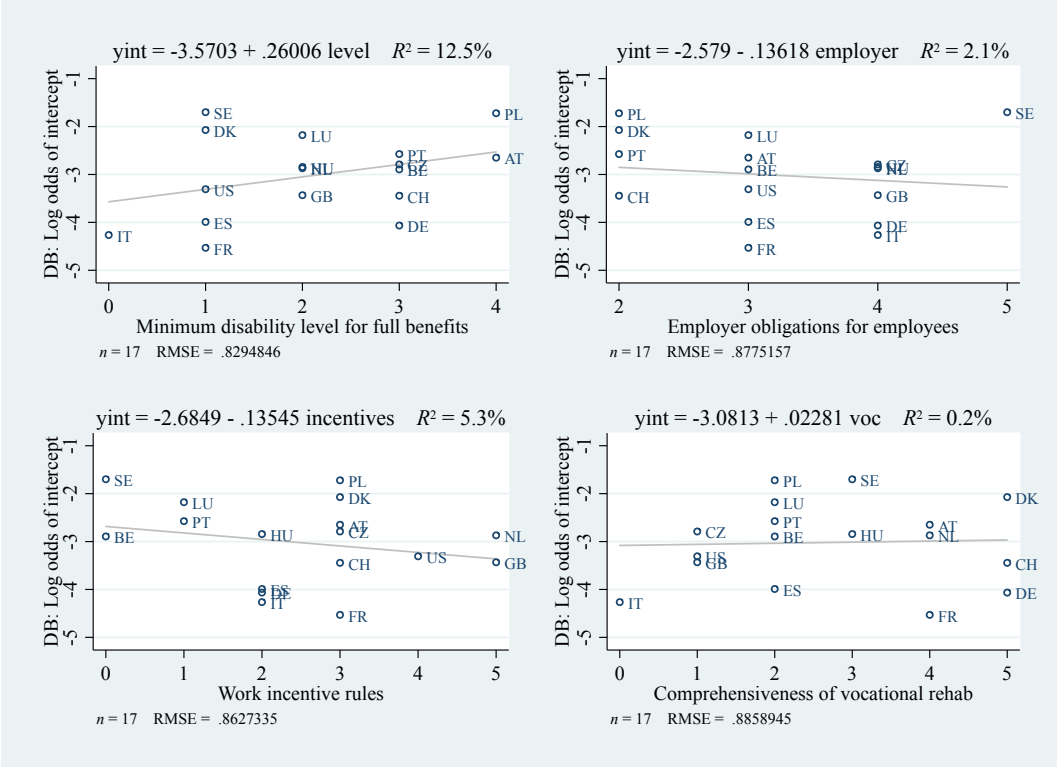
Table 9. Demographic predictors of disability benefit receipt: Results from logistic regressions with random intercepts and fixed effects 17 OECD countries, 2011-2012 (Standard errors in parentheses)		
Dependent Variable: Disability benefit receipt	**Model 1**	**Model 2**
	Country= Random Intercept	Country = Fixed Effect
	(odds ratio)	(odds ratio)
Poor health (5th Health Quintile)	17.964*	17.990*
	(0.898)	(0.899)
Fair health (4th Health Quintile)	4.588*	4.589*
	(0.255)	(0.255)
Gender (male)	1.489*	1.490*
	(0.058)	(0.058)
ISCED 2-3	0.795*	0.792*
	(0.043)	(0.043)
ISCED 4-5	0.575*	0.573*
	(0.034)	(0.034)
Age 50-55	0.985	0.985
	(0.049)	(0.049)
Age 56-60	1.035	1.034
	(0.046)	(0.046)
Married	0.521*	0.521*
	(0.021)	(0.021)
Great Britain		1.000
		(.)
United States		2.653*
		(0.238)
Austria		1.739*
		(0.234)
Germany		1.313*
		(0.149)

Sweden		5.876*
		(0.653)
Netherlands		2.364*
		(0.276)
Spain		1.186
		(0.138)
Italy		0.483*
		(0.079)
France		0.459*
		(0.073)
Denmark		2.431*
		(0.277)
Switzerland		0.918
		(0.144)
Belgium		2.562*
		(0.269)
Czech		4.591*
		(0.513)
Poland		6.392*
		(0.943)
Luxembourg		2.258*
		(0.322)
Hungary		6.646*
		(0.751)
Portugal		1.624*
		(0.239)
_Intercept	0.045	0.023
	(0.009)	(0.002)
Pseudo R2		
Intra-class Correlation Coefficient	.1569414	
Observations	36,816	36,816

Source: Authors calculations of ELSA, HRS, and SHARE. (*) indicates p<.05, (**) indicates p<.01, and (***) indicates p<.001.

To explore these relationships further, we turn to the two-step estimation procedure and a graphical analysis of the country intercepts and the policy variables. The first step in this process involves running multiple logistic regressions restricted to each country using all of the demographic predictors reported in the fixed effects model in Table 9. The next step then stores the intercepts for each country dummy variable as the baseline log-odds of receiving disability benefits. Figure 7 graphically displays the relationship between the four policy variables and the country intercepts. The higher a country is on the y-axis the greater the likelihood is, on average, for older adults in that country to be on disability benefits when accounting for the demographic factors. None of the country level variables are significantly correlated with the disability benefit intercept, which is not surprising given the low number of countries. Nevertheless, we are able to derive some possible findings through a graphical analysis. Consistent with the findings of Borsch-Supan (2010), there appears to be observe a positive relationship between the likelihood of receiving disability benefits and the strictness of a country's work-capacity level for full benefits. This suggests that in countries where the full disability benefit can be received with less severe impairments individuals are more likely to receive disability benefits. The other country-level variables, which includes all three of the integration variables, look to be completely insignificant.

Figure 7. Association of the country intercepts for disability benefit (DB) receipt and the four disability policy variables, by country, around 2012



Source: Authors calculations from ESLA, SHARE, HRS various waves. Policy scores come from OECD, 2010.

Sweden, however, appears to be a frequent outlier, particularly in the case of the employer obligations variable. Sweden has long had one of the highest disability benefit rates in the OECD and for this reason introduced a series of integration policy reforms in the 2000s, which centralized the determination process and increased the duties of employers to accommodate their workers (see, Burkhauser et al., 2014). While these reforms curbed the inflow onto disability benefits, "the reduction came mostly from reductions in new beneficiaries rather than returning existing beneficiaries to work," (Burkhauser et al., 2014, 16). More recent reforms introduced in 2013, and thus post-dating the data analyzed in this chapter, focused on improving the outflow rates from disability benefits by increasing the incentives for beneficiaries to return to work.[24] Though the effects of these latest reforms are unclear, the disability benefit caseload in Sweden remains high despite the introduction of substantial integration efforts.

In Tables 10 and 11, the results of the two-step regression procedure are provided with and without the Swedish outlier. The tables display the regression results from the policy variables on the country intercepts using the weighted least squares estimator and robust standard errors. The coefficients in the table represent the change of the country-specific intercepts (expressed in log-odds) due to a change in the macro-level variables (see, Angel and Heitzman, 2015). The estimated effects support the finding that the work-capacity level for full benefits is the most important country-level predictor of disability benefit receipt. As shown in Table 11, which consists of the models not including Sweden, it is the only variable found to be statistically significant at the $p<.05$ level. This thus suggests that individuals in countries with less stringent disability eligibility criteria have a higher likelihood of going on disability benefits. The coefficient on the employer obligations variable, Model 8, is also significant in the model without Sweden in Table 11 at the $p<.10$ level. This thus suggests that individuals in countries where policies require more comprehensive employer responsibilities have a lower likelihood of receiving disability benefits, when controlling for demographic predictors. A countries work-incentive rules, moreover, are uncorrelated with the likelihood of going on disability in all models. Individuals living in countries with more comprehensive vocational rehabilitation programs also appear to not have any higher or lower odds of going on disability benefits.

Table 10. Results of two-step multilevel logistic regression 2012: Effects of disability policy variables on country intercepts (standard errors in parentheses)

	Model 3	**Model 4**	**Model 5**	**Model 6**
	Work-capacity level for full benefits	Employer obligations employees	Work incentive rules	Comprehensiveness of vocational rehabilitation
Coefficient (log-odds)	0.251	-0.105	-0.142	0.033
	(0.179)	(0.242)	(0.139)	(0.142)
R-squared	0.057	-0.053	0.003	-0.063
N (countries)	17	17	17	17

[24] http://umdcipe.org/conferences/LaborActivationParis/Papers/Laura%20Heartmans%20draft%20paper_11_1108.pdf

Table 11. Two-step estimation results without Sweden				
	Model 7	**Model 8**	**Model 9**	**Model 10**
	Work-capacity level for full benefits	Employer obligations employees	Work incentive rules	Comprehensiveness of vocational rehabilitation
Coefficient (log-odds)	0.354*	-0.429 +	-0.051	0.019
	(0.159)	(0.244)	(0.149)	(0.134)
R-squared	0.209	0.122	-0.063	-0.070
N (countries)	16	16	16	16

Source for Tables 10-11: ELSA, HRS, SHARE various waves (2012). (+) indicates p<.10, (*) indicates p<.05. All results weighted using *edvreg* procedure.

Summary of Findings

This chapter set out to explore, when controlling for health and other sociodemographic factors, what effect a country's disability policy has on a person's likelihood of going on disability benefits. While the results of the cross-sectional analysis cannot provide causal evidence of the effects of disability policies, they do point to the relevance of the strictness of the disability definition, as well as the possible advantage of a system that requires employers to accommodate their employees. In countries with more employer responsibilities and stricter definitions of disability, there appears to be a reduced likelihood of going on disability benefits. An additional limitation of this analysis concerns the broad definition of the policy scores provided by the OECD (2010) and described in the appendix. Those definitions code countries with a high employer responsibility score if they are found to have "major obligations towards employees and new applicants." While a helpful category, its broadness provides no information as to which kinds of employer responsibility policies countries adopted. For example, countries may decide between imposing greater accommodation demands on employers or imposing a larger tax burden on employers whose workers frequently enter the disability program.

Single country studies of the effects of employer mandates, nevertheless, support the effectiveness of policies that add to employer responsibilities. As noted in Chapter 2, the reforms in the Netherlands successfully reduced disability benefit rates by increasing the financial responsibilities of employers to provide accommodation and sickness benefits to their employees (van Sonsbeek and Gradus, 2011; De Jong, 2012; Burkhauser et al., 2014). Employers in the Netherlands were required to fund the first two years of disability benefits and to pay an experience-rated disability tax that was based on the number of workers that transitioned to the Dutch disability insurance program (Burkhauser and Daly, 2012). Both Autor and Duggan (2010) and Burkhauser and Daly (2011) develop similar proposals for reforming the US DI program that would increase employer obligations for workers with disabilities. Autor and Duggan (2010) favor requiring employers to support the first two years of a short-term disability insurance program, whereas Burkhauser and Daly (2011) would borrow heavily from the Dutch model by imposing an experience rating on firms. Both proposals would increase the employer obligations for workers with disabilities in the US.

Yet, these proposals also have drawbacks. First, the political feasibility of increasing employer responsibilities is questionable given that they impose a burden or "mandate" on

employers. The Affordable Care Act, for instance, mandated employers with 50 or more employees to provide health insurance. But this mandate ultimately became a lightning rod politically. Second, it is possible that imposing additional employer responsibilities could reduce the hiring of people with disabilities to begin with. Comparing Dutch and Danish disability policy, Hogelund (2003) finds that while the advantage of the Dutch approach favoring obligations is the retention of workers with disabilities, it also disadvantages people with disabilities who do not yet have work as employers may be reluctant to hire. Others have similarly argued that an unintended consequence of the American's with Disabilities Act, which required employers to provide reasonable accommodations to employees with disabilities, was a reduction in the hiring of people with disabilities (Acemoglu and Angrist, 1998; Deleire, 2000). For these reasons, incorporating policies that increase employer obligations should be considered carefully prior to large scale adoption.

The null funding's of this analysis are also worth noting – that comprehensive rehabilitation systems and robust work incentive rules are not associated with a reduced likelihood of going on long term disability cross-nationally. As two of the most widely used forms of integration policy, their limitations deserve noting, particularly in light of a labor market that spells for increasing insecurity for workers with low-skills in the future. Indeed, if such trends continue, it could create an even stronger pull to disability benefits from employment for those in poor health, particularly those living in economically weak regions. This would further complicate the ability of integration measures to assist those with disabilities in their efforts to return to work.

Conclusion. Bracing for the Storm

Much like the wind that blows before a storm, disability benefit expansion is a harbinger of a future welfare state crisis that must brace itself for an aging population and labor market turbulence. But the welfare state is, if anything, resilient and adaptable. It has defied many predictions of its demise. And with new policy solutions that recognize a realistic post-industrial welfare state settlement, it can meet the challenges of the future. It is argued in this dissertation that policy solutions require questioning the traditional assumptions made at the welfare state's founding in the post-WWII era, particularly the male breadwinner economic system and that all jobs provide sustainable wages. A theoretical framework of the post-industrial welfare state settlement was provided that maps the increasingly complex social policy terrain where work and need can no longer be viewed in binary terms and where caregiving joins work and need in the forefront of policy concerns.

International disability benefit reforms were then examined as a means of exploring new policy solutions to the post-industrial pressures on the welfare state. It is argued that the traditional model of disability benefits relies on two overarching assumptions: the usage of medical evidence to determine disability and the notion of a disability as a total or near total inability to work. Both of these assumptions, however, are problematic in today's post-industrial era. And some countries have shifted away from these traditional assumptions by adopting work-capacity reforms. Using a harmonized panel dataset of older adults from Denmark, Britain, and the Netherlands, an analysis was conducted to examine the effects of these major policy reforms. The results indicated a possible relationship between a work-capacity determination process and improvements in the targeting of disability benefits and in the employment rates of people with disabilities. The analysis further identified lessons for the US, where a work-capacity reform has been proposed by members of the US Congress.

In addition to studying the effects of work-capacity reforms, the integration policies and disability benefit rates of 17 countries were examined to determine, given an individual's health and sociodemographic status, what influence a country's disability policy has on the likelihood of receiving disability benefits. The results of a multilevel regression analysis exploring these factors revealed that many demographic factors were significant predictors of disability benefit receipt and that older adults living in countries with more restrictive disability benefit programs and with more intensive obligations for employers to accommodate workers with disabilities appeared to have a lower likelihood of receiving disability benefits.

Now, using the disability benefit reforms as a case study, we turn to the broader discussion of the post-industrial welfare state and its ability to brace itself for the incoming storm of population aging and technological change. The post-industrial welfare state can broadly be understood as having to cope with dual demands. It must at once provide adequate social protection that meets the changing risk structure brought forth with the decline of the male breadwinner economic system but at the same time it must decrease social expenditures that threaten the fiscal sustainability of welfare state programs. As shown in Chapters 2 and 3, two dominant policy approaches have arguably emerged in response to these dual demands. The first is the targeting of benefits to those most in need and the second is improving the employment rates of those traditionally placed in the need-based category. The following describes both strategies and considers their strengths and weaknesses.

Targeting versus Universalism

One seemingly straightforward solution to the dual demands of providing protection and reducing expenditures is to target social welfare programs to those who are most in need, while limiting public support for those of greater means (see, Gilbert, 2016). This utilitarian approach rightly recognizes that a $1,200 monthly Social Security check is of greater value to the retired delivery worker with limited savings than it is to the retired company executive with a valuable stock portfolio. Tightening the income restrictions on tax credits, old-age and disability insurance benefits, and other social welfare programs may thus help concentrate "public expenditures on where they will achieve the greatest good," (Gilbert, 2016, 149).

The primary critique of increased targeting is that it reduces political support for social welfare programs because it undermines the cross-class political support achieved when welfare states programs are universal – that is when there are no income restrictions on who can receive benefits. In an influential study, Korpi and Palme (1998) find a "paradox of redistribution," in which countries that target benefits to those most in need end up, paradoxically, redistributing less to the poor. Universal programs, they argue, create supportive coalitions for welfare state program. They thus conclude that, "by providing high-income earners with earnings-related benefits, encompassing social insurance institutions can reduce inequality and poverty more efficiently than can flat-rate or targeted benefits." From this perspective, if the welfare state were to increase its targeting to those of limited means, it could inadvertently jeopardize the political support needed to provide adequate social protection.

A number of studies have re-examined the study by Korpi and Palme and questioned its findings. Kenworthy (2011), for example, applies the same methods as Korpi and Palme but over a longer period and finds that the relationship between redistribution and targeting weakened in the 1990s and 2000s. Brady and Bostic (2015) expanded the analysis to multiple countries and find that targeting is not positively associated with poverty. Most recently, Marx, Salanauskaite and Verbist (2016, 1) find that means-tested benefits "play a crucial role in bringing about redistributive effectiveness" and are thus an effective way to combat poverty. These scholars speculate, moreover, that the political support for targeted programs has increased in recent years because of work-oriented reforms that make means-tested programs more popular in the eyes of the public. For example, the earned income tax credit, which rewards work, is now the largest means-tested program in the United States, while the primary social assistance program – welfare – has been transformed into a temporary work-conditioned program.[25]

Examining disability benefit programs across 19 affluent democracies, Harrold Wilensky (2002, 285) discerns a general principle: "Highly visible, highly targeted benefits for any handicapped population will be less adequately funded than either universal benefits or quietly income tested work-oriented benefits." Though he is clearly skeptical of extreme targeting, he nevertheless notes that more active, work-oriented benefits can receive greater political support. These kinds of programs may be more agreeable to the majority of the public who will not directly benefit from these programs and who themselves must work to make ends meet. In this sense, combining work-oriented reforms with increased targeting may help to sustain political support for welfare state programs, while also responding to the dual demands of providing protection and limiting costs.

[25] The conceptual validity of this approach to measuring the impact of social transfers on redistribution and poverty is also in dispute, as it does not account for the counterfactual of what the household income would have been if there were no social transfers. (See, Gilbert 2016, 131).

Another problem with increased targeting concerns the drawing of hard eligibility lines in the sand. As argued in Chapter 1, this can create systemic disincentives for individuals to work if it threatens their benefit eligibility, while also posing challenges to street-level examiners who must develop and implement complex procedures for determining eligibility. While the challenges of disability determination have been explored in depth, means testing based on income is also not as straightforward as it seems. Should an accounting of a person's wealth include that person's car, home, and other assets? Should it account for the extra costs people with disabilities or people providing care must assume? Should it consider the assets of family members who could provide financial support? Should it adjust for geographic differences in the cost of living? A job with a $40,000 a year salary can support a middle-class livelihood in Jacksonville, Florida but it means a near poverty existence in San Francisco.

These are hard policy questions and answers to them inevitably leave some people out – usually the near poor or those in the lower middle-class. Political opposition to the Affordable Care Act in the US may stem in part from the problem of a "squeezed middle class." Larry Levitt, the senior vice president at the Kaiser Family Foundation, notes that while 85 percent of those with lower incomes receive federal subsidies that make health care premiums affordable, those in the middle class, which can mean a single person earning more than $47,250 or a family of four with an income of $97,200, will not receive any subsidy and can thus encounter unaffordable health insurance premiums.[26] For these policy losers, class resentment of the poor is not a surprising outcome, which can undermine political support for social welfare programs. As the economics reporter for the New York Times, Eduardo Porter, explains:

> Struggling middle-income families may not understand that welfare programs are so meager that the poor hardly get any help. But they can directly understand that they missed out on the earned-income tax credit because their family income hit $50,000. It is not surprising that harried working mothers resent that 30 percent of low-income families using center-based child care receive some form of subsidy while middle-income families get next to nothing.[27]

One solution to this problem is to create benefit programs with gradations of eligibility. That is, to transition away from viewing a person's need as an all or nothing condition and to recognize that need fits along a spectrum. The work-capacity reforms discussed here provided an excellent example of this kind of policy solution. Instead of an all or nothing program for the permanently impaired, these reforms introduced an additional temporary work-oriented disability program for those with impairments but also remaining abilities. Similarly, means tested benefit programs could introduce gradations of benefit eligibility by creating benefit offsets that smooth the transition from benefits to work or by providing at least some assistance for health care costs, rather than none whatsoever.

Such policy designs may be particularly effective if they can be designed to reward work. For example, in 2005, the Norwegian government introduced a program that reduced disability benefits by approximately 60 cents for every $1 in earnings that a beneficiary accumulated above

---

[26] http://money.cnn.com/2016/11/04/news/economy/obamacare-affordable/

[27] https://www.nytimes.com/2017/03/07/business/economy/trump-budget-entitlements-working-class.html?smprod=nytcore-iphone&smid=nytcore-iphone-share

a minimum threshold. This created an incentive structure that made beneficiaries better off the more they worked and the less they received benefits. Kostøl and Mogstad (2013) find that the labor force participation rate of disability beneficiaries aged 18-49 increased by 8.5 percentage points following the reform in Norway. Removing benefit cliffs created from targeted programs and introducing gradations of benefit eligibility can thus encourage the labor force participation of beneficiaries, while also avoiding needless class resentment.

Is Work the Right Goal?

Aside from increasing the political popularity of welfare state programs, work-oriented reforms are designed to increase employment and to reduce reliance on welfare state programs, and are thus an obvious solution to the dual demands of social protection and reduced costs. A takeaway from the study of the three disability benefit reforms in Chapter 2 is that policy reforms are capable of impacting the employment of people traditionally segmented to the need-based category. Even people with disabilities, a group in the need-based category that should be particularly difficult to return to work, appeared to show signs of improvement following policy reforms. For this reason, a focus on employment and active labor market policies is a key feature of the "pro-employment" (Natali and Bonoli, 2012) orientation of the post-industrial welfare state. Work-oriented reforms have been widely adopted for years now to deal with the problem of high social expenditures and social exclusion and as a means of emphasizing the rights and responsibilities of citizenship (Gilbert, 2002).

Work, in this sense, is understood as central to citizenship (Mead, 2005) and broadly beneficial to physical and mental well-being (Waddell and Burton, 2006). Even with the growing precariousness of low-skilled labor, work remains the primary means of securing enough financial resources to stay out of poverty (Crettaz, 2011). That said, policies are also needed to increase wages and to improve the conditions of those engaged in precarious employment. Investing in high quality education systems, job training, and job search assistance can, moreover, help ease the labor market burden faced by those struggling to find decent work (Esping-Andersen, 1999; Card, Kluve, and Weaver, 2010). Pro-employment policies, combined with measures to support those in work who are in need, thus comprise an appropriate goal of contemporary social policy reforms.

There is reason, however, to question whether this will remain true in the future. Technological change is accelerating and key industries of employment could simply disappear (Brynjofsson and McAfee, 2011; Ford, 2014). And in a world with far fewer jobs, there will be far fewer opportunities to transition from welfare to work. Sophisticated sensors and machine learning, for example, now allow robots to generate near human like awareness of the physical environment (Frey and Osborne, 2017). The trucking industry, one of the few still providing middle class jobs to those without a college degree, is an example of an industry existentially threatened by this technological change. There are more than 1.7 million truck drivers in the United States. All of these drivers could lose their jobs with the adoption of driverless trucking, which analysts predict could come before driverless cars given that highway driving is easier to automate.[28] In 2016, Uber acquired a driverless trucking company developed by a former Google engineer for $680 million. And numerous other companies are now competing for a share of this

[28] https://www.wsj.com/articles/self-driving-truck-startups-race-to-take-on-uber-1488466802

massive market that would not be limited by human sleep schedules or require the payment of salaries let alone health insurance premiums.[29]

John Meynard Keynes was perhaps the first to predict a future of technological unemployment "due to our discovery of means of economising the use of labour outrunning the pace at which we can find new uses for labour" (Keynes, 1933, 3 quoted in Frey and Osbourne, 2017). Since Keynes, numerous commentators have argued that we are approaching what Jeremy Rifkin (1995) calls "the end of work." And concern seems to be reaching a fever pitch. In 2016, the World Economic Forum, the gathering of the global elite in Davos, Switzerland, convened special panels on "A World Without Work?". And in 2017 it focused the entire conference on the so-called "Fourth Industrial Revolution", where the end of work was a major running theme.[30] Recent articles in the New York Times have declared automation a "job killer" and sought solutions for "easing the pain of automation."[3132] "The next wave of economic dislocations won't come from overseas," President Obama warned in his 2016 farewell address to the American people, "It will come from the relentless pace of automation that makes a lot of good, middle-class jobs obsolete."[33]

Yet, in 2016, the same year as President Obama's address, the president of the San Francisco Federal Reserve Board declared that the US was "basically at full employment."[34] A clear indication that, although mass unemployment caused by technological automation may indeed be a considerable threat in the future, that day has not yet arrived. And the severity of it as a future threat remains in dispute. The labor economist David Autor (2015) argues that replacing workers with computers will be far more difficult than the technologists in Silicon Valley predict. While some routine tasks are easily automated, others will be very difficult to automate, such as those requiring, "flexibility, judgement, and common sense – skills that we understand only tacitly." Autor dismisses an imminent threat what Herbert Simon (1966) called "the bogeyman of automation" (cited in Autor, 2015, 28). Others, such as Professors Erik Brynjofsson and Andrew McAfee (2011), are less optimistic than Autor but nonetheless argue that work will not disappear if humans can learn to work alongside machines: "In medicine, law, finance, retailing, manufacturing, and even scientific discovery," industries they consider threatened by automation, "the key to winning the race is not to compete *against* machines but to compete *with* machines." They highlight Apple's App Store, Amazon, and eBay as examples of opportunities for entrepreneurs to work with machines.

Of course, not everyone can be expected to make a living as a software engineer designing apps or as an Amazon retailer. And even if Autor's general skepticism is right, there are still likely many jobs at risk – truck drivers, for example – that could be lost to automation and cause serious economic displacement. The kinds of jobs available today even in a full employment labor market are also worth considering. Katz and Krueger (2016) find that the share of workers employed in alternative working arrangements, defined as temporary help agencies, on-call workers, contract workers, or as independent contractors or freelancers, increased from 10.1 percent in 2005 to 15.8 percent in 2015. They also note that "all of the net employment growth in the U.S. economy from 2005 to 2015 appears to have occurred in

[29] http://www.latimes.com/projects/la-fi-automated-trucks-labor-20160924/
[30] https://www.weforum.org/agenda/archive/fourth-industrial-revolution/
[31] https://www.nytimes.com/2016/12/21/upshot/the-long-term-jobs-killer-is-not-china-its-automation.html
[32] http://www.nytimes.com/roomfordebate/2016/10/04/easing-the-pain-of-automation
[33] https://www.nytimes.com/2017/01/12/upshot/in-obamas-farewell-a-warning-on-automations-perils.html?_r=0
[34] http://money.cnn.com/2016/05/23/news/economy/us-full-employment-williams/

alternative work arrangements." Few working in these jobs are likely to acquire health and retirement benefits and many will need to work more than one job to make ends meet.

Although there is no crystal ball for predicting the future of job markets, it does seem likely that technology will have a considerable impact on the future availability and quality of work. And given that scenario, some have considered alternatives to the idea that work should be a primary goal of post-industrial social policy. For instance, attracting increasing international attention is the idea of a universal basic income (van Parijs, 2004; Ford, 2014). This would represent a new innovation to Stone's (1984) fundamental distributive dilemma and one that recognizes the limits of work in today's post-industrial economy. It could also eliminate the need for disability benefits altogether, including the complex disability determination process, by providing a universal benefit to all citizens. Whether a basic income program could be at once fiscally sustainable and generous enough to replace disability benefits and other social welfare programs is, however, a major question. Robert Greenstein, the president of the Center on Budget and Policy Priorities, calculates that at $10,000 a year for 300 million Americans a basic income would cost more than $3 trillion dollars, which is nearly all the tax revenue the US government currently collects.[35] This cost would clearly be unaffordable without doing away with most other welfare state programs, which could, Greenstein warns, in effect leave the poor worse off.

Another option, championed by the Nobel Prize winning economist Edmund Phelps, recognizes both the importance of work as a source of social and psychological stability and its increasing precariousness. Phelps proposes "a subsidy for low-wage employment, paid to employers for every full-time low-wage worker they hire."[36] This would be different from an expansion of a refundable tax credit paid to low-income workers, such as the Earned Income Tax Credit in the United States, as it would provide a direct incentive for firms to hire low-wage workers. Unlike a basic income, which provides no clear alternative to work as a primary source of meaning and purpose for people's lives, a wage subsidy program could help grow the opportunities available for people with low-skills. Yet, even a wage subsidy may not be enough for those who could still find only limited demand for their labor. If wage polarization trends continue, there will likely be increased demand for those in the high-skilled sectors – those who work with computers – and in the lower end service occupations – those who work well with people. But many employees are unlikely to work well as coders, let alone as caregivers. And there will probably not be enough jobs in maintenance, security, or janitorial work to go around even with a significant subsidy for that kind of work.

A further alternative for enhancing employment might be the creation of a centralized employment market – on the local, state, or national level – with a public-sector training and job program.[37] The employment exchange could mirror the health insurance exchanges created under the Affordable Care Act by establishing an online site for finding work. Much like buying private health insurance, those capable of finding a job at a market wage could do so on the exchange. A subsidy to employers for hiring low-wage workers would help boost the employment options available on the exchange to those with low-skills. But for those who still find no opportunities, the government would, critically, provide a robust training option and

---

[35] http://www.cbpp.org/poverty-and-opportunity/commentary-universal-basic-income-may-sound-attractive-but-if-it-occurred

[36] https://www.project-syndicate.org/commentary/subsidies-that-save?barrier=accessreg

[37] A similar version of this idea is put forward by Derek Thompson: https://www.theatlantic.com/magazine/archive/2015/07/world-without-work/395294/

access to a public-sector job in fields such as construction, education, or public service. To encourage labor market participation, a flat benefit could be provided to those who are active on the online exchange.

The combination of wage subsidies, increased job training, and a public-sector job option would no doubt be costly. Yet, those costs might pale in comparison to the economic and social costs involved with millions on unemployment and disability benefits, searching for purpose, and struggling to make ends meet. Such a program would bring together people of diverse backgrounds to work on common projects, which could strengthen our perilously frayed social ties. It would perhaps most closely mirror the Works Progress Administration, which was the US government response to the problem of mass joblessness of the Great Depression – a major storm that, with ingenuity and the aid of a robust public response, came and went.

References

Aarts, L., Burkhauser, R. & De Jong, P. (1996). Curing the Dutch disease: an international perspective on disability policy reform. Avebury.

Acemoglu, D., & Angrist, J. (1998). Consequences of employment protection? The case of the Americans with Disabilities Act. National Bureau of Economic Research.

Acs, G., & Loprest, P. (2004). Leaving welfare: Employment and well-being of families that left welfare in the post-entitlement era. WE Upjohn Institute.

Ai, C., & Norton, E. C. (2003). Interaction terms in logit and probit models. Economics letters, 80(1), 123-129.

Angel, S., & Heitzmann, K. (2015). Over-indebtedness in Europe: The relevance of country-level variables for the over-indebtedness of private households. Journal of European Social Policy, 25(3),331-351.

Appelbaum, E., Boushey, H., & Schmitt, J. (2014). The Economic Importance of Women's Rising Hours of Work. Center for American Progress and the Center for Economic and Policy Research.

Armingeon, K., & Bonoli, G. (Eds.). (2007). The politics of post-industrial welfare states: adapting post-war social policies to new social risks. Routledge.

Aust, B., Helverskov, T., Nielsen, M. B. D., Bjorner, J. B., Rugulies, R., Nielsen, K., & Buchardt, H. L. (2012). The Danish national return-to-work program-aims, content, and design of the process and effect evaluation. Scandinavian journal of work, environment & health, 120-133.

Autor D., & Duggan, M. (2003). The rise in disability resiliency and the decline in unemployment. Quarterly Journal of Economics. 118 (1):157–205.

Autor D., & Duggan, M. (2010). Supporting Work: A Proposal for Modernizing the U.S. Disability Insurance System. The Hamilton Project.

Autor, D., & Dorn, D. (2013). The growth of low-skill service jobs and the polarization of the US labor market. The American Economic Review, 103(5), 1553-1597.

Autor, D., Dorn, D., & Hanson, G. H. (2013). The China syndrome: Local labor market effects of import competition in the United States. The American Economic Review, 103(6), 2121-2168.

Autor, D., Maestas, N., Mullen, K. J., & Strand, A. (2015). Does delay cause decay? The effect of administrative decision time on the labor force participation and earnings of disability applicants. National Bureau of Economic Research.

Autor, D. (2015). Why are there still so many jobs? The history and future of workplace automation. The Journal of Economic Perspectives, 29(3), 3-30.

Armingeon, K. (2013). Breaking with the past? Why the Global Financial Crisis led to austerity policies but not to modernization of the welfare state, in C. Pierson and F. Castles (eds) The Welfare State Reader (3rd edn), Oxford: Blackwell.

Bagenstos, S. R. (2002). Americans with Disabilities Act as Welfare Reform, The. Wm. & Mary L. Rev., 44, 921.

Banks, J., Blundell, R., & Emmerson, C. (2015). Disability benefit receipt and reform: reconciling trends in the United Kingdom. The Journal of Economic Perspectives, 29(2), 173-190.

Barnes, C. (2000). A working social model? Disability, work and disability politics in the 21st century. Critical social policy, 20(4), 441-457.

Baumberg, B., Warren, J., Garthwaite, K., & Bambra, C. (2015). Rethinking the Work Capability Assessment. Demos.

Beatty, C. & Fothergill, S. (1996). Labour market adjustment in areas of chronic industrial decline: The case of the UK coalfields." Regional Studies 30 (7): 627-640.

Beatty, C., & Fothergill, S. (2004). Economic change and the labour market in Britain's seaside towns. Regional Studies, 38(5), 459-478.

Bell, D. (1976). The cultural contradictions of capitalism. Basic Books.

Benítez-Silva, H., Disney, R., & Jiménez-Martín, S. (2010). Disability, capacity for work and the business cycle: an international perspective. Economic Policy, 25(63), 483-536.

Berkowitz, E. (1987). Disabled policy: America's programs for the handicapped. Cambridge: Cambridge University Press.

Berkowitz, E. (1988). Social Insurance for the Disabled and Elderly in Historical Perspective. Educational Gerontology: An International Quarterly, 14(5), 411-418.

Black, D., Daniel, K., & Sanders, S. (2002). The impact of economic conditions on participation in disability programs: Evidence from the coal boom and bust. The American Economic Review, 92(1), 27-50.

Blank, R. M., Danziger, S., & Schoeni, R. F. (Eds.). (2007). Working and poor: How economic and policy changes are affecting low-wage workers. Russell Sage Foundation.

Blank, R. M., & Haskins, R. (Eds.). (2004). The new world of welfare. Brookings Institution Press.

Bonoli, G., & Natali, D. (2012). The politics of the new welfare state. Oxford University Press.

Börsch-Supan, A., C. Hunkler, S. Gruber, A. Orban, S. Stuck, & M. Brandt (2015). easySHARE. Release version: 1.0.0. SHARE-ERIC. Data set DOI: 10.6103/SHARE.easy.200

Börsch-Supan, A. (2010). Work disability: The effects of demography, health, and disability insurance. In Research Findings in the Economics of Aging, David A. Wise (ed.) The University of Chicago Press.

Bound, J., & Burkhauser, R. (1999). Economic analysis of transfer programs targeted on people with disabilities. Handbook of Labor Economics, 3, 3417-3528.

Brady, D., & Bostic, A. (2015). Paradoxes of social policy: Welfare transfers, relative poverty, and redistribution preferences. American Sociological Review, 80(2), 268-298.

Brandt, D., Houtenville, A., Huynh, M., Chan, L., & Rasch, E. (2011). Connecting contemporary paradigms to the Social Security Administration's disability evaluation process. Journal of Disability Policy Studies, 22(2), 116-128.

Brodkin, E. Z. (2007). Bureaucracy redux: Management reformism and the welfare state. Journal of Public Administration Research and Theory, 17(1), 1-17.

Bryan, M. L., & Jenkins, S. P. (2015). Multilevel modelling of country effects: A cautionary tale. European Sociological Review, 1-20.

Brynjolfsson, E., & McAfee, A. (2011). Race against the machine: How the digital revolution is accelerating innovation, driving productivity, and irreversibly transforming employment and the economy. Digital Frontier Press. Lexington, Massachusetts

Burchardt, T. (1999). The evolution of disability benefits in the UK: Re-weighting the basket.

Burkhauser, R. V., & Daly, M. (2011). The declining work and welfare of people with disabilities: What went wrong and a strategy for change. AEI Press.

Burkhauser, R. V., & Daly, M. C. (2012). Social Security Disability Insurance: time for fundamental change. Journal of Policy Analysis and Management, 31(2), 454-461.

Burkhauser, R. V., Daly, M. C., McVicar, D., & Wilkins, R. (2014). Disability benefit growth and disability reform in the US: lessons from other OECD nations. IZA Journal of Labor Policy, 3(1), 1-30.

Casey, B. (1998). "Back to the poor law? The emergence of 'workfare' in Britain, Germany, and the USA", Policy Studies 7,1, 52-64.

Cameron, A. C., & Miller, D. L. (2015). A practitioner's guide to cluster-robust inference. Journal of Human Resources, 50(2), 317-372.

Card, D., Kluve, J., & Weber, A. (2010). Active labour market policy evaluations: A meta-analysis. The economic journal, 120(548), F452-F477.

Congressional Budget Office (2012). Policy Options for the Social Security Disability Insurance Program. Available from: https://www.cbo.gov/publication/43421

Couch, K. A., Tamborini, C. R., & Reznik, G. L. (2015). The Long-Term Health Implications of Marital Disruption: Divorce, Work Limits, and Social Security Disability Benefits Among Men. Demography, 52(5), 1487-1512.

Cox, R, (1998). The consequences of welfare reform: How conceptions of social rights are changing, Journal of Social Policy 26 (1), 1-16

Crettaz, E. (2011). Fighting working poverty in post-industrial economies: causes, trade-offs and policy solutions. Edward Elgar Publishing.

Croda, E., Skinner, J. S., & Yasaitis, L. (2013). An International Comparison of the Efficiency of Government Disability Programs (No. odrc13-08). National Bureau of Economic Research.

Dar, A. (2016). Work Programme: background and statistics. House of Commons Library Briefining Paper, 6340. Available from: http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN06340#fullreport

De Jong, P. (2012). Recent changes in Dutch disability policy. The Netherlands: APE. Available from: http://www.ape.nl/include/downloadFile.asp?id=75.

DeLeire, T. (2000). The wage and employment effects of the Americans with Disabilities Act. Journal of Human Resources, 693-715.

Derthick, M. (1979). Policymaking for social security. Brookings Institution Press. Martha Derthick. (1979). Policymaking for social security. Brookings Institution Press.

De Swann, A. (1988). In Care ofthe State: Health Care, Education and Welfare in Europe and the USA in the Modern Era. Amsterdam, Bakker.

Di Stasio, V., Bol, T. & Van de Werfhorst, H. (2015). What makes education positional? Institutions, overeducation and the competition for Jobs. Research in Social Stratification and Mobility. Elsevier Ltd.

Dorfman, D. (2016). Re- Claiming Disability: Identity, Procedural Justice, and the Disability Determination Process. Law & Social Inquiry.

Eghigian, G. (2000). Making security social: Disability, insurance, and the birth of the social entitlement state in Germany. University of Michigan Press.

Einerhand, M. Swart, E. (2010). Reform of the Dutch sickness and disability arrangements. Madrid: European Commission.

Emmenegger P, Häusermann S, Palier B,. and Seeleib-Kaiser. (2012) (eds) The Age of Dualization: The Changing Face of Inequality in Deindustrializing Societies. Oxford: Oxford University Press

Esping-Andersen, G. (1990). The three worlds of welfare capitalism. John Wiley & Sons.

Esping-Andersen, G. (1999). Social foundations of postindustrial economies. Oxford University Press.

Flora, P., & Alber, J. (1981), Modernization, democratization and the development of welfare states in Western Europe. In Peter Flora and Arnold Heidenheimer (eds), The Development of Welfare States in Europe and America, New Brunswick, NJ: Transaction Books: 37±80.

Ford, M. (2016). Rise of the Robots: Technology and the Threat of a Jobless Future. Basic Books.

Fowler, S. (2014). The Workhouse: The People, The Places, The Life Behind Doors. Pen and Sword.

Frey, C. B., & Osborne, M. A. (2017). The future of employment: how susceptible are jobs to computerisation?. Technological Forecasting and Social Change, 114, 254-280.

Gilbert, N. (2002). Transformation of the Welfare State, Oxford: Oxford University Press.

Gilbert, N. (2010). A Mother's Work: How Feminism, the Market, and Policy Shape Family Life. Yale University Press.

Gilbert, N. (2016). Never Enough: Capitalism and the Progressive Spirit. Oxford University Press.

Goldin, C. D., & Katz, L. F. (2009). The Race Between Education and Technology. Harvard University Press.

Gupta, N. D., Larsen, M., & Thomsen, L. (2015). Do wage subsidies for disabled workers reduce their non-employment? Evidence from the Danish Flexjob scheme. IZA Journal of Labor Policy, 4(1), 1-26.

Hacker, J. (2004). Privatizing risk without privatizing the welfare state: The hidden politics of social policy retrenchment in the United States. American Political Science Review, 98(02), 243-

260.

Haskins, R. (2016). TANF at age 20: Work still works. Journal of Policy Analysis and Management, 35(1), 224-231.

Henderson, W. (1975). The rise of German industrial power, 1834-1914. University of California Press.

Hogelund, J. (2003). In search of effective disability policy: Comparing the developments and outcomes of the Dutch and Danish disability policies. Amsterdam University Press.

Huntington, S. (1975). The democratic distemper. The Public Interest, (41), 9.

Iversen, T. (2001) "The dynamics of welfare state expansion: trade openness, deindustrialization and partisan politics", in Pierson, P. (ed.) The New Politics of the Welfare State, Oxford: Oxford University Press.

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. Econometrica: Journal of the Econometric Society, 263-291.

Kalleberg, A. L. (2009). Precarious work, insecure workers: Employment relations in transition. American sociological review, 74(1), 1-22.

Kapteyn, A., & Meijer, E. (2013). A Comparison of Different Measures of Health and their Relation to Labor Force Transitions at Older Ages. In Discoveries in the Economics of Aging (pp. 115-150). University of Chicago Press.

Katz, L. F., & Krueger, A. B. (2016). The rise and nature of alternative work arrangements in the United States, 1995-2015 (No. w22667). National Bureau of Economic Research.

Keiser, L. R. (1999). State bureaucratic discretion and the administration of social welfare programs: The case of social security disability. Journal of Public Administration Research and Theory, 9(1), 87-106.

Keiser, L. R. (2010). Understanding Street-Level Bureaucrats' Decision Making: Determining Eligibility in the Social Security Disability Program. Public Administration Review, 70(2), 247-257.

Kemp, P. (2008). The transformation of Incapacity Benefits, in Seeleib-Kaiser, M. (ed) Welfare State Transformations, Basingstoke: Palgrave Macmillan.

Kenworthy, L. (2011). Progress for the Poor. Oxford University Press.

Kersbergen, K., Vis, B., & Hemerijck, A. (2014). The Great Recession and Welfare State Reform: Is Retrenchment Really the Only Game Left in Town? Social Policy and Administration, 48(7), 883-904.

Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: his and hers. Psychological bulletin, 127(4), 472.

Korpi, W., & Palme, J. (1998). The paradox of redistribution and strategies of equality: Welfare state institutions, inequality, and poverty in the Western countries. American Sociological Review, 661-687.

Kostøl, A. R., & Mogstad, M. (2014). How financial incentives induce disability insurance recipients to return to work. The American Economic Review, 104(2), 624-655.

Kuhnle, S., & Saunders, A. (2010). The emergence of the western welfare state. The Oxford handbook of the welfare state, 1, 63-82.

Kvist (2015). ESPN Thematic Report on integrated support for the long-term unemployed: Denmark. Available from: http://ec.europa.eu/social/BlobServlet?docId=14251&langId=en

Marx, I., Salanauskaite, L., & Verbist, G. (2016). For the Poor, but Not Only the Poor: On Optimal Pro-Poorness in Redistributive Policies. Social Forces, 95(1), 1-24.

Moynihan, D. P., & Soss, J. (2014). Policy feedback and the politics of administration. Public Administration Review, 74(3), 320-332.

Lewis, J. (1992). Gender and the development of welfare regimes. Journal of European social policy, 2(3), 159-173.

Lewis, J. B., & Linzer, D. A. (2005). Estimating regression models in which the dependent variable is based on estimates. Political analysis, 345-364.

Liebman, J. B. (2015). Understanding the increase in disability insurance benefit receipt in the United States. The Journal of Economic Perspectives, 29(2), 123-149.

Liebman, J. & Smalligan, J. (2013) An evidence-based path to disability insurance reform. Brookings Institution.

Low, H. & Pistaferri, P. (2015). Disability Insurance and the Dynamics of the Incentive Insurance Trade-Off. American Economic Review, 105(10): 2986-3029.

Livermore, G. (2009). Work-oriented Social Security Disability beneficiaries: Characteristics and employment-related activities. Disability Policy Research Brief, (09-05).

Livermore, G., Wittenburg, D., & Neumark, D. (2014). Finding alternatives to disability benefit receipt. IZA Journal of Labor Policy, 3(1), 1.

Lødemel, I., & Trickey, H. (Eds.). (2001). 'An offer you can't refuse': workfare in international perspective. Policy Press.

Macnicol, J. (2013). A history of work-disability. In Disability Benefits, Welfare Reform and Employment Policy (pp. 33-53). Palgrave Macmillan UK.

Maestas, N., Mullen, K. J., & Strand, A. (2013). Does disability insurance receipt discourage work? Using examiner assignment to estimate causal effects of SSDI receipt. The American Economic Review, 103(5), 1797-1829.

Malter, F., & Börsch-Supan, A. (2013). SHARE compliance profiles–wave 4. Munich: MEA, Max Planck Institute for Social Law and Social Policy.

Mann, D. R., & Stapleton, D. C. (2011). Fiscal austerity and the transition to twenty-first century disability policy: A roadmap. Princeton, NJ: Mathematica Policy Research.

Marin, B. (2003). "Transforming Disability Welfare Policy. Completing a Paradigm Shift" in C. Prinz (ed.) European Disability Pension Policies: 11 Country Trends 1970- 2002. Aldershot: Ashgate.

Marin, B. (2013). Welfare in an Idle Society?. Reinventing retirement, work, wealth, health, and welfare. European Centre for Social Welfare Policy and Research. Vienna.

Marshall, T.H. (1950). Citizenship and Social Class and Other Essays, Cambridge, UK: Cambridge University Press.

McVicar, D. (2006). Why do disability benefit rolls vary between regions? A review of the evidence from the USA and the UK. Regional studies, 40(5), 519-533.

Mead, L. (2005). Welfare Reform and Citizenship, in Mead, L. and Beem, C. (eds.) Welfare Reform and Political Theory, New York, NY: Russell Sage Foundation

Milligan, K., & Wise, D. A. (2012). Introduction and Summary to" Social Security and Retirement around the World: Historical Trends in Mortality and Health, Employment, and Disability Insurance Participation and Reforms". In Social Security Programs and Retirement around the World: Historical Trends in Mortality and Health, Employment, and Disability Insurance Participation and Reforms (pp. 1-39). University of Chicago Press.

Mitra, S. (2009). Temporary and partial disability programs in nine countries: what can the United States learn from other countries?. Journal of Disability Policy Studies, 20(1), 14-27.

Morris, Z. (2015). Disability benefit reform in Great Britain from the perspective of the United States. International Social Security Review, 68(1), 47-67.

Morris, Z. (2016). Constructing the need for retrenchment: disability benefits in the United States and Great Britain. Policy & Politics, 44(4), 609-626.

Murray, C. A. (1984). Losing ground: American social policy, 1950-1980. New York, NY: BasicBooks.

Myles, J., & Quadagno, J. (2002). Political theories of the welfare state. Social service review, 76(1), 34-57.

Nielsen, M., Hansen, J., Aust, B., Tverborgvik, T., Thomsen, B., Bjoerner, J., Mortensen, O., Rugulies, R., Winzor, G., Orbaek,P., Helverskov,T., Kristensen, N., & Poulsen, O. (2014). A multisite randomized controlled trial of time to self-support among sickness absence beneficiaries. The Danish national return to work programme. European Journal of Public Health, 25 (1): 96-102.

O'connor, J. (1979). The fiscal crisis of the state. New York, NY: Transaction Publishers.

Orloff, A. S., & Skocpol, T. (1984). Why not equal protection? Explaining the politics of public social spending in Britain, 1900-1911, and the United States, 1880s-1920. American sociological review, 726-750.

OECD (2003) Transforming disability into ability. Paris: Organization for Economic Co-operation and Development.

OECD (2010) Sickness, disability, and work: Breaking the barriers. Paris: Organization for Economic Co-operation and Development.

OECD (2011). Society at a Glance 2011. OECD Social Indicators.

OECD (2013). Mental health and work: Denmark. Paris: Organization for Economic Co-operation and Development.

OECD (2014a). Mental health and work: United Kingdom. Paris: Organization for Economic Co-operation and Development.

OECD (2014b). Mental health and work: Netherlands. Paris: Organization for Economic Co-operation and Development.

OECD (2015). Pensions at a Glance. Paris: Organization for Economic Co-operation and Development.

Offe, C. (1982). Some contradictions of the modern welfare state. Critical Social Policy, 2(5), 7-16.

Olney, M. F., & Lyle, C. (2011). The Benefits Trap Barriers to Employment Experienced by SSA Beneficiaries. Rehabilitation Counseling Bulletin, 54(4), 197-209.

Osterweis, M., Kleinman, A, & Mechanic, D. (Eds.). (1987) Pain and disability: clinical, behavioral, and public policy perspectives. National Academies Press. Institute of Medicine.

Pateman, C. (2005). “Another Way Forward: Welfare, Social Reproduction, and a Basic Income”, in Mead, L. and Beem, C. (eds) (2005). Welfare Reform and Political Theory, Russell

Sage Foundation: New York.

Peck, J. (2001). Workfare States. New York: The Guilford Press

Pierson, P. (1996). The new politics of the welfare state. World politics, 48(02), 143-179.

Pierson, P. (2011). The Welfare State over the Very Long Run, ZeS-Arbeitspapier, No. 02/2011. https://www.econstor.eu/dspace/handle/10419/46215

Piven, F. F., & Cloward, R. (2012). Regulating the poor: The functions of public welfare. Vintage.

Poterba, J., Venti, S., & Wise, D. (2013). Health, Education, and the Postretirement Evolution of Household Assets. Journal of Human Capital, 7(4), 297-339.

Rabe-Hesketh, S., & Skrondal, A. (2008). Multilevel and longitudinal modeling using Stata. STATA press.

Rank, M. R., & Hirschl, T. A. (2014). The risk of developing a work disability across the adulthood years. Disability and health journal, 7(2), 189-195.

Rimlinger, G. V. (1971). Welfare policy and industrialization in Europe, America and Russia (p. 245269). New York: Wiley.

Rogers, N. T., Banks, J., Nazroo, J., & Steptoe, A. (2016). English Longitudinal Study of Aging (ELSA). In Encyclopedia of Geropsychology (pp. 1-10). Springer Singapore.

Ruggie, J. G. (1982). International regimes, transactions, and change: embedded liberalism in the postwar economic order. International organization, 36(02), 379-415.

Rupp, K. & Stapleton, D. (1998). "Introduction." In Growth in Disability Benefits: Explanations and Policy Implications, Kalman Rupp, and David C. Stapleton, eds. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, pp. 1–27.

Saleebey, D. (1996). The strengths perspective in social work practice: Extensions and cautions. Social work, 41(3), 296-305.

Schrecker, T., & Bambra, C. (2015). How politics makes us sick: neoliberal epidemics. Springer.

Seeleib-Kaiser, M. (Ed.). (2008). Welfare state transformations: comparative perspectives. Palgrave Macmillan.

Social Security Administration (2012). Annual statistical report on the Social Security Disability Insurance program. United States: Social Security Administration.

Skocpol, T. (1995). Protecting soldiers and mothers. Harvard University Press.

Soss, J., & Keiser, L. R. (2006). The political roots of disability claims: How state environments and policies shape citizen demands. Political Research Quarterly, 59(1), 133-148.

Stapleton, D., Mamun, A., & Page, J. (2014). Initial impacts of the Ticket to Work program: estimates based on exogenous variation in Ticket mail months. IZA Journal of Labor Policy, 3(1), 6.

Stapleton, D., O'Day, B., Livermore, G. & Imparato, A. (2006). Dismantling the poverty trap: Disability policy for the twenty-first century. Milbank Quarterly, 84(4), 701-732.

Starke, P., Kaasch, A., & Van Hooren, F. (2013). The welfare state as crisis manager: Explaining the diversity of policy responses to economic crisis. London: Palgrave Macmillan

Stegmueller, D. (2013). How many countries for multilevel modeling? A comparison of frequentist and Bayesian approaches. American Journal of Political Science, 57(3), 748-761.

Stone, D. (1984). The disabled state. Philadelphia, PA: Temple University Press.

Tait, R., Chibnall, J., Andresen, M., & Hadler, N. (2006). Disability determination: validity with occupational low back pain. The Journal of Pain, 7(12), 951-957.

Taylor-Gooby, P. F. (2004). New risks, new welfare: the transformation of the European welfare state. Oxford University Press.

Tilley, L., & Oxenham, M. F. (2011). Survival against the odds: Modeling the social implications of care provision to seriously disabled individuals. International Journal of Paleopathology, 1(1), 35-42.

Van Oorschot, W. (2006). Making the difference in social Europe: deservingness perceptions among citizens of European welfare states. Journal of European social policy, 16(1), 23-42.

Van Parijs, P. (2004). Basic income: a simple and powerful idea for the twenty-first century. Politics & Society, 32(1), 7-39.

Van Soest, A., Andreyeva, T., Kapteyn, A., & Smith, J. P. (2011). Self-reported disability and reference groups. In Investigations in the economics of aging (pp. 237-264). University of Chicago Press.

van Sonsbeek, J., & Gradus, R. (2011). Estimating the effects of recent disability reforms in the Netherlands. Discussion Paper No. 11-121/3, Tinbergen Institute.

Waddell, G., & Burton, A. K. (2006). Is work good for your health and well-being?. The Stationery Office.

Weather II, R., & Bailey, M. (2014) The Impact of Rehabilitation and Counseling Services on the Labor Market Activity of Social Security Disability Insurance (SSDI). Journal of Policy Analysis and Management, 33(3), 623-648.

Webb, S. & Webb, B. (1908). English Poor Law Policy, Longmans, Green and Co.

Wilensky, H. L., & Lebeaux, C. N. (1966). Industrial society and social welfare. Free Press.

Wilensky, H. L. (2002). Rich democracies: Political economy, public policy, and performance. Univ of California Press.

Wise, D. A. (Ed.). (2012). Social security programs and retirement around the world: Historical trends in mortality and health, employment, and disability insurance participation and reforms. University of Chicago Press.

Wixon, B., & Strand, A. (2013). Identifying SSA's Sequential Disability Determination Steps Using Administrative Data.

Wilson, C. M., & Oswald, A. J. (2005). How does marriage affect physical and psychological health? A survey of the longitudinal evidence.

World Health Organization (WHO). (2001). International classification of functioning, disability and health: ICF. World Health Organization.

Appendix

Table A1. First Principal Component Factor Scores

	Denmark	**Britain**	**Netherlands**
Difficulty picking up coin	.1620523	.1772255	.1359411
Difficulty climbing stairs	.356236	.3042224	.3527506
Difficulty getting up from chair	.356236	.3059301	.3527506
Difficulty with stooping, kneeling or crouching	.3007008	.2944164	.3206888
Difficulty walking 100 yards/meters	.243704	.3019324	.2661167
Difficulty pulling or pushing large objects	.2626865	.3163785	.2941814
Difficulty lifting or carrying	.296376	.3195193	.3006945
Diagnosed heart attack	.0941336	.0190447	.0794386
Diagnosed lung disease	.1109995	.097224	.0914039
Diagnosed high blood pressure	.0665109	.0807343	.0849832
Diagnosed stroke	.0771155	.0575835	.0930556
Difficulty sitting for 2 hours	.2801408	.287162	.2730347
Self-reported poor health	.2994203	.2625751	.2799182
Depressed*	.1883758	.1696466	.1743411
Reports an ADLA	.2826728	.3114835	.267106
Diagnosed cancer	.0395488	.0273451	.0455218
Diagnosed diabetes	.0734842	.0690487	.0891197
Whether bothered by pain	.2305108	.2596517	.2300387
Diagnosed arthritis	.1951993	.1806136	.1841551

Notes: *The ELSA uses the CES-D score for depression, while the SHARE uses the EuroD depression scale. As is commonly practiced, a score of a four or higher is labeled as depressed for both scales

Table A2. First Principal Component Factor Scores

	United States	**Germany**	**Britain**
Difficulty picking up coin	.1605916	.1972671	.1991173
Difficulty climbing stairs	.3000092	.3527822	.3158259
Difficulty getting up from chair	.3020293	.3527822	.3080011
Difficulty with stooping, kneeling or crouching	.295857	.3115859	.3008862
Difficulty walking 100 yards/meters	.326448	.2757671	.3140895
Difficulty pulling or pushing large objects	.3105931	.3007547	.3172552
Difficulty lifting or carrying	.3053171	.3069524	.3165377
Diagnosed heart attack	.14033	.1028565	.0553979
Diagnosed lung disease	.1500196	.0874676	.1023212
Diagnosed high blood pressure	.1409213	.0850901	.0918529
Diagnosed stroke	.1206564	.1214399	.0499982
Difficulty sitting for 2 hours	.2728459	.2799477	.3019967
Self-reported poor health	.264173	.2824285	.2762841
Depressed*	.2129853	.1931207	.2059845
Reports an ADLA	.2923933	.2756563	.3205613
Diagnosed cancer	.0536979	.0670725	.0363523
Arthritis	.2017187	.1624566	.1712248
Diabetes	.1179792	.1088176	.0887189

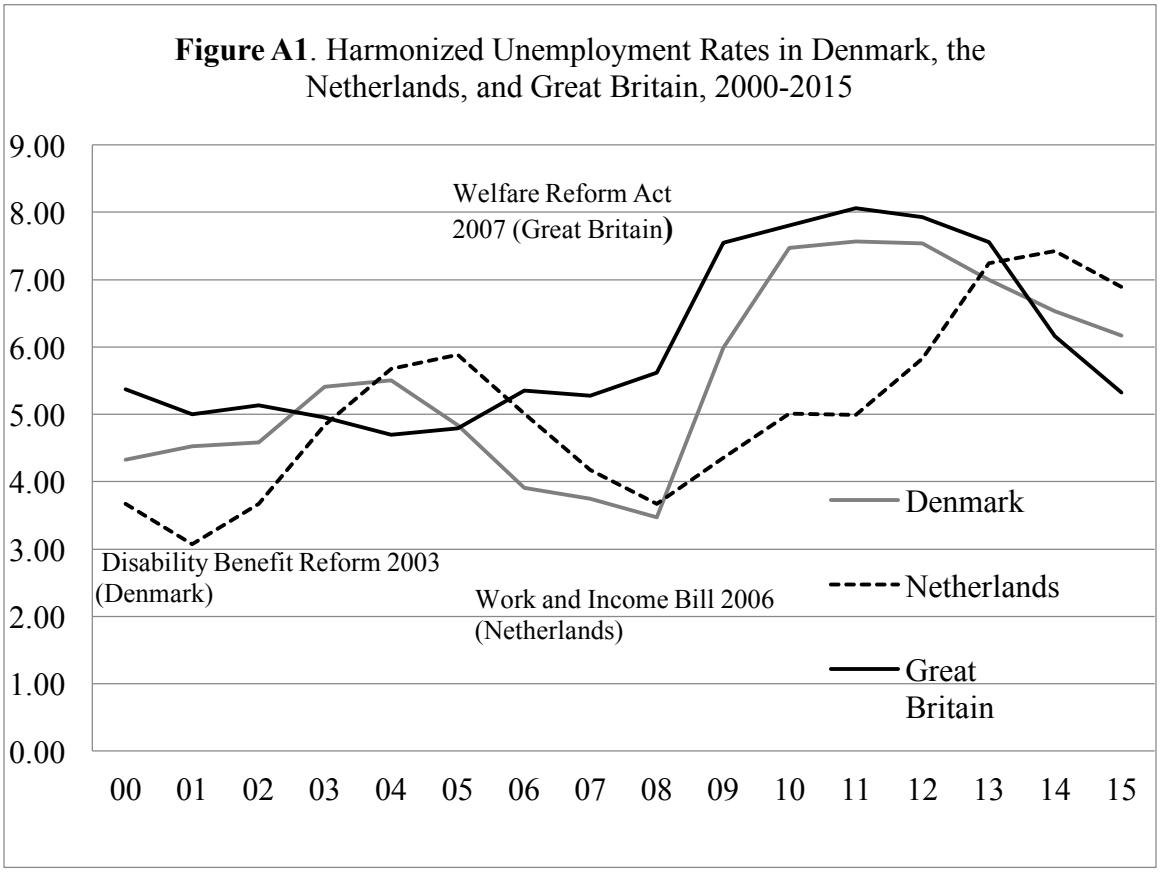
Notes: *The ELSA uses the CES-D score for depression, while the SHARE uses the EuroD depression scale. As is commonly practiced, a score of a four or higher is labeled as depressed for both scales.

Table A3. Classification of country-level variables examined: OECD descriptions

	5 points	**4 points**	**3 points**	**2 points**	**1 point**	**0 points**
Disability or work incapacity level for full benefit	<50%	50-61%	62-73%	74-85%	86-99%	100%
Comprehensiveness of vocational rehabilitation	Compulsory rehabilitation with large spending	Compulsory rehabilitation with low spending	Intermediary view, relatively large spending	Intermediary view, relatively low spending	Voluntary rehabilitation with large spending	Voluntary rehabilitation with low spending
Employer obligations for their employees and new hires	Major obligations towards employees and new applicants	Major obligations towards employees, less for applicants	Some obligations towards employees and new applicants	Some obligations towards employees, none for applicants	No obligations at all, but dismissal protection	No obligations of any kind
Work incentives for beneficiaries	Permanent in work benefit provided	Benefit continued for a considerable (trial) period	Income beyond pre-disability level allowed	Income up to pre-disability level, also partial benefit	Income up to pre-disability level, no partial benefit	Some additional income allowed

Source: OECD, 2010

Figure A1. Harmonized Unemployment Rates in Denmark, the Netherlands, and Great Britain, 2000-2015



Source: OECD statistics, 2016, available at http://stats.oecd.org/