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## Essays in Labor Economics

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This dissertation consists of three independent essays. The first essay analyses the relationship between Schumpeterian growth and subjective well-being. The second essay investigates whether more generous unemployment insurance (UI) leads job seekers to be more selective in the job they are looking for. In particular, it estimates the elasticity of the reservation wage and of other dimensions of job selectivity with respect to the potential duration of benefits. The third essay studies whether there remains a causal nonpecuniary effect of job loss on health when the income shock is well insured by UI. It looks at whether exogenous job losses driven by establishment closures in Denmark in the 2000s had any effect on prescription drug purchases, doctors' visits, hospital diagnoses, and mortality.

## Chapter 1

### Creative Destruction and Subjective Well-Being

(coauthored with Philippe Aghion, Ufuk Akcigit, and Angus Deaton)

This chapter analyses the relationship between turnover-driven growth and subjective well-being (SWB). The existing empirical literature on happiness and income looks at how various measures of SWB relate to individual income, GDP per capita, or GDP growth, but without looking in further detail at what drives the growth process and at how the determinants of growth affect well-being. This paper provides a first attempt at filling this gap. More specifically, we look at how an important engine of growth—namely, Schumpeterian creative destruction with its resulting flow of entry and exit of firms and jobs—affects SWB differently for different types of individuals and in different types of labor markets.

In the first part of the paper we develop a simple Schumpeterian model of growth and unemployment to organize our thoughts and generate predictions on the potential effects of turnover on life satisfaction. In this model, growth results from quality-improving innovations. Each time a new innovator enters a sector, the worker currently employed in that sector loses her job and the firm posts a new vacancy. Production in the sector resumes with the new technology only when the firm has found a new suitable worker. Life satisfaction is captured by the expected discounted valuation of an individual's future earnings. In the model, a higher rate of turnover has both direct and indirect effects on life satisfaction. The direct effects are that, everything else equal, more turnover translates into both a higher probability of

becoming unemployed for the employed, which reduces life satisfaction, and a higher probability for the unemployed to find a new job, which increases life satisfaction. The indirect effect is that a higher rate of turnover implies a higher growth externality and therefore a higher net present value of future earnings: this enhances life satisfaction. Overall, a first prediction of the model is that a higher turnover rate increases well-being more when controlling for aggregate unemployment than when not. A second prediction is that job creation increases and job destruction decreases well-being. A third prediction is that job destruction has a less negative effect on well-being when the unemployment benefits are more generous. A fourth prediction is that job creation increases future well-being more for more forward-looking individuals.

In the second part of the paper we test the predictions of the model using cross-sectional metropolitan statistical area (MSA)-level U.S. data. To measure creative destruction we follow Davis, Haltiwanger, and Schuh (1996) and use their measure of job turnover, defined as the job creation rate plus the job destruction rate. The data come from the Census Bureau's Business Dynamics Statistics and are at the MSA level. In addition, we also use from the Census Bureau the Longitudinal Employer-Household Dynamics (LEHD) data, which provide information on hires, separations, employment, and thus turnover, also at the MSA level. To measure SWB, we use the Cantril ladder of life from the Gallup Healthways Well-Being Index (Gallup), which asks individuals about both current and future well-being. The Cantril ladder is based on the following questions: "Imagine a ladder with steps numbered from 0 at the bottom to 10 at the top; the top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time? And which level of the ladder do you anticipate to achieve in five years?" For robustness purposes, we also use the life satisfaction question from the Behavioral Risk Factor Surveillance System.

We investigate whether Schumpeterian creative destruction affects these measures of well-being positively or negatively by regressing our measures of SWB on our creative destruction variables. The empirical analysis using cross-sectional MSA-level data on SWB and job turnover vindicates the theoretical predictions. Namely, we find that the effect of creative destruction on well-being is positive when we control for MSA-level unemployment and less so if we do not; the effects of job creation and job destruction on well-being are positive and negative, respectively; and job destruction has less negative effect when unemployment benefits are higher. Moreover, we find some evidence that job creation has a more positive impact on future well-being for more forward-looking individuals when we use income, age, and education to proxy for patience. These results are not only consistent with the theory, but they are also remarkably

robust. They hold whether looking at well-being at the MSA level or the individual level, or whether using the Business Dynamic Statistics or the LEHD data to construct our proxy for creative destruction.

The paper relates to two main strands of literature; first, to the literature on innovation-led growth, job turnover, and unemployment. Aghion and Howitt (1994, 1998) and Mortensen and Pissarides (1998) point to two opposite effects of growth on unemployment. One is a “capitalization” effect whereby more growth reduces the rate at which firms discount the future returns from creating a new vacancy: this effect pushes toward creating more vacancies and thus toward reducing the equilibrium unemployment. The counteracting effect is a “creative destruction” effect whereby more growth implies a higher rate of job destruction, which in turn tends to increase the equilibrium level of unemployment. We contribute to this literature by looking at the counteracting effects of innovation-led growth on SWB.

Second, the paper contributes to the literature on SWB. Despite a now large literature on self-reported well-being, there is no general consensus on how seriously these SWB measures should be taken, or on exactly what they mean. Indeed, some of the most exciting recent work (e.g., see Benjamin et al. [2012, 2014]) is investigating these fundamental questions. In this paper, we find that life satisfaction responds to the future growth prospects that are inherent in creative destruction, even despite the related short-run unemployment effects, and at the same time we provide some evidence of the validity and usefulness of self-reported well-being as a measure of expected future material well-being. Such findings have not been documented in the relevant literature so far, and they provide further evidence of the usefulness of these well-being measures.

## *Chapter 2*

### **Unemployment Insurance and Reservation Wages: Evidence from Administrative Data**

(coauthored with Thomas Le Barbanchon and Roland Rathelot)

This chapter investigates whether more generous UI leads job seekers to be more selective in their job search. In standard job search models, unemployed workers receive job offers that they accept if the value of the offered job is higher than the value of unemployment (McCall 1970). Their search strategy can be summarized by one key concept, the reservation wage, which is the lowest wage of an acceptable job offer. Although the reservation wage plays a central role in job search models, it is rarely observed. Thus, empirical evidence on the determinants of reservation wages, including key policy variables such as UI, is scarce.

In theory, more generous UI increases the value of unemployment, and thus also increases reservation wages. A recent strand of the empirical literature documents modest—either positive or negative—UI effects on accepted wages (Card, Chetty, and Weber 2007; Le Barbanchon 2016; Nekoei and Weber 2017; Schmieder, von Wachter, and Bender 2012, 2016). However, reemployment wages are the equilibrium outcome of both the job seekers’ preferences and wages offered by employers. A vast empirical literature has documented that a more generous UI system increases the time that job seekers spend in nonemployment (see the review by Schmieder and von Wachter [2016]), which in turn tends to decrease their job prospects and the wages they are offered. This negative duration-dependence channel can come from skill depreciation, firms’ discrimination against long-term unemployed or heterogeneity. At the same time, job seekers’ preferences should push in the other direction. Indeed, as we explained, job seekers should become more selective in the wages they are willing to accept because staying unemployed is less costly when the system is more generous. These two offsetting effects would be consistent with modest effects on reemployment wages despite a strong effect of UI on job seekers’ preferences. To make progress on this question, we need both direct data on reservation wages and an exogenous source of variation in the generosity of UI.

This paper takes advantage of unique administrative data on reservation wages and of a quasi-experimental research design. In France, when newly unemployed job seekers register at the public employment service to claim UI benefits, they have to declare their reservation wage and other information on the job they are looking for, such as commuting time/distance, desired number of hours and type of labor contract (temporary vs. long-term). Our main identification strategy relies on a reform that altered the potential benefit duration (PBD)—the maximum number of days of benefits—for some claimants while leaving it unchanged for others, depending on their previous work tenure. Using this natural experiment, we compute difference-in-differences estimates of the elasticity of reservation wages with respect to PBD. Our results point to the lack of responsiveness of reservation wages and other dimensions of job selectivity to the potential duration of benefits. We obtain very similar results using an alternative identification strategy, based on the discontinuity of the PBD schedule at age 50.

While the previous literature on reservation wages is based on survey data (Feldstein and Poterba 1984; Koenig, Manning, and Petrongolo 2014; Krueger and Mueller 2016), we use administrative data on reservation wages. Our data thus have several strengths: large sample size, no missing values due to nonresponse, and precise measures of UI-related policy variables and past labor outcomes, such as past tenure or past wages. The question is stated in these terms: “What minimum gross wage do you ask for?” We check that the distribution of this self-reported measure of reservation

wage makes sense and is correlated with sociodemographic characteristics in a meaningful manner, for a given pre-unemployment wage. Moreover, the data also enable us to follow workers over multiple claims so that we observe repeated measures of reservation wages for a given worker. We verify that, consistent with the theoretical definition of the reservation wage, claimants stating higher reservation wages remain unemployed for a longer time period, holding constant the claimants' and the claims' characteristics, and controlling for unobserved time-invariant heterogeneity of claimants (fixed effects models). This first result confirms that the reservation wage stated by claimants to the UI agency is meaningful.

Our main identification strategy relies on a UI reform, which occurred in 2009. The reform was not triggered by the Great Recession. Its main objective was to simplify the rules according to which the potential duration of benefits is computed. In France, PBD is mainly determined by the claimant's previous work duration. Before the 2009 reform, PBD was a step function of past tenure. The 2009 reform simplified the rule and made it linear, entitling claimants to as many days of benefits as days of work in the previous two years. The overall generosity of the system was not affected, but some tenure groups benefited from the reform while others lost. Some tenure groups were unaffected and can be used as control groups in a difference-in-differences setting.

Whatever the statistical specification we use, we cannot reject that the elasticity of reservation wages with respect to PBD is zero at the 5 percent level. Our results are very precise and, in our favorite specification, rule out elasticities greater than 0.006: a 10 percent increase in potential benefit duration cannot trigger an increase of the reservation wage of more than 0.06 percent. The elasticity of the actual duration of benefits with respect to PBD, estimated at 0.3, is in line with most results of the literature. Importantly, we also find that more generous benefits slow down job finding, even at the beginning of the spell when claimants declare their reservation wages.

Looking at other dimensions of job selectivity, we do not find any significant effect of PBD on the maximum commuting time/distance that job seekers are willing to accept. Nor do we find any effect of PBD on the number of hours or on the type of contract job seekers are looking for. The absence of responsiveness in all dimensions of job selectivity is a strong result. While the nonresponsiveness of reservation wages could have been explained by strong wage rigidity and low mobility across jobs, the fact that the willingness to find open-ended contracts and to ensure that job security does not change with PBD suggests that rigid labor markets are unlikely to be the only explanation to our results.

While the elasticity of reservation wages is zero on average, we find that it amounts to a significant 0.01 for job seekers with the lowest past tenure. These job seekers are entitled to short PBD, and the date when their benefits could

elapse is close to their registration date, when they declare their reservation wages. Consistently, we also find that the elasticity of actual benefit duration is higher for these short tenure claimants. We do not find any significant heterogeneity of the PBD elasticity of reservation wages across gender or past wage groups.

We can check the robustness of our main results using another identification strategy, a Regression Discontinuity Design (RDD). When an unemployed worker is over 50 years old at the separation date from his previous employer, he benefits from more generous PBDs, which are on average 30 percent longer. We find some manipulation of the separation date around the 50-year-old cutoff. Consequently, we adopt a "donut" RDD strategy, which excludes observations in a window around the cutoff of the running variable. As with our main difference-in-differences strategy, we cannot reject that the PBD elasticity of reservation wages is equal to zero, while the elasticity of actual benefit duration is around 0.2. Claimants in the RDD strategy are different from those of the difference-in-differences; in particular, they are more attached to the labor force and older, yet results are very similar.

Lastly, we discuss the theoretical relation between the elasticities of unemployment duration and the reservation wage with respect to PBD. In partial equilibrium, we can decompose the elasticity of unemployment duration into two components: one due to the elasticity of the reservation wage (scaled by the slope of the wage offer distribution taken at the level of the reservation wage) and the other one due to the elasticity of the job offer arrival rate (or search effort). Taking the upper bound of the 95 percent confidence interval of the estimate of the reservation wage elasticity, we find that the reservation wage margin accounts, at most, for 6 percent of the elasticity of unemployment duration, the rest being attributed to the elasticity of search effort.

Our paper is, to the best of our knowledge, the first one to obtain precise quasi-experimental estimates of the effect of more generous UI on self-reported reservation wages and other dimensions of job selectivity. Most previous contributions could not rely on credible exogenous variations in UI generosity and find mixed results. Feldstein and Poterba (1984) find a large elasticity of reservation wages to benefit levels, while Krueger and Mueller (2016) cannot reject that this elasticity is equal to zero.

As I mentioned, our findings on reservation wage responsiveness shed light on the current debate on the effect of UI on accepted wages. Our results show that changes in PBD have no significant effect on job selectivity at the beginning of the job-search spell for the average job seeker. The absence of selectivity effect is in line with the conclusion of Schmieder, von Wachter, and Bender (2016) that reservation wages are not binding in Germany. When we focus on job seekers with short potential benefit duration, who are more comparable to claimants in the Austrian sample of Nekoei

and Weber (2017), we find an estimate of the elasticity of reservation wages around 0.01, which has a magnitude similar to the estimate Nekoei and Weber (2017) find on the elasticity of accepted wages with respect to PBD (0.016).

Our results have some policy implications. The Great Recession has revived a debate about how UI should react to an increase in the unemployment rate. Increasing potential benefit duration improves the insurance provided to workers facing more instability but bears the cost of lengthening non-employment duration. These benefits and costs may weigh differently in good and bad times. Part of the literature argues that UI should be countercyclical, which is more generous in crisis times (Landais, Michaillat, and Saez 2016; Marinescu 2017). Others suggest that increasing the generosity during bad times amplifies the crisis by pushing job seekers to be more selective: the cost of labor increases and the number of jobs further shrinks (Hagedorn et al. 2013). The evidence we bring does not support this last argument. If job seekers are not pickier when they are more protected, increasing the generosity of UI during crises should not lead to any substantial loss of jobs.

### *Chapter 3*

#### **The Causal Effect of Job Loss on Health: The Danish Miracle?**

The third and last chapters study the causal effect of job loss on health. Job loss can affect health both through the income shock and through nonpecuniary channels like the loss of self-esteem or the loss of a structured schedule. I investigate whether there is still a causal effect of job loss on health in a setting where the unemployment risk is well-insured by policy through generous UI, active labor market policies, and public health insurance with universal coverage. Using Danish administrative data and a difference-in-differences design, I compare the health of roughly 25,000 high-tenure workers who are at an establishment that closes between 2001 and 2006 to that of a control group of workers matched on observables who do not experience a closure. I find that in such a setting job losses do not cause large significant effects on health, whether looking at mental health proxies such as antidepressant purchases, severe physical health outcomes that require inpatient care, or mortality. I can rule out effect on most health outcomes of the order of 1 or 2 percent. For mortality I can rule out effects of 15 percent. My results taken together with prior literature suggest that it is possible, presumably through an adequate set of policies, to make the causal effect of job loss on health negligible.

The seminal work in sociology on the unemployed community of Mienthal, a small town in Austria where the main factory closed in 1930 and left many people unemployed for a long time, shows how desperate the unemployed

and their families can become and the many dimensions in life that can be affected, from standards of living to the loss of a sense of purpose or of a social identity (Lazarsfeld, Jahoda, and Zeisel 1933). Fortunately, since the Great Depression, developed countries have implemented some policies to alleviate the burden of unemployment, particularly UI. But job loss might also entail some nonpecuniary aspects against which policy cannot provide insurance.

This paper investigates whether there remains a causal effect of job loss on health, particularly mental health and substance abuse, in a setting where UI is generous, active labor market policies are available, and health insurance is universal. The identification strategy relies on establishment closures, which lead to job losses that are arguably exogenous to employees' health. The context is that of Denmark after the implementation of flexicurity policies. The replacement rate of UI is 90 percent (with a cap, which in 2015 was roughly equivalent to US\$628 per week), and the maximum potential duration of unemployment benefits, though it has been gradually reduced, remains long: four years during 2001–2010, the relevant period for this study. Active labor market policies are in place since 1994. Moreover, health insurance is publicly provided with universal coverage.

Using a difference-in-differences design and Danish administrative data, I compare the health of roughly 25,000 workers who experience an establishment closure to that of a control group matched on observables. I find that on average in Denmark, job losses due to establishment closures that occurred between 2001 and 2006 did not cause large significant health problems.

I focus on people strongly attached to their jobs: my sample consists of men and women aged 25–60 who have at least five years of tenure at their establishment; 25 percent of my treatment group goes through a period of unemployment in the year of the closure, as opposed to 4 percent in the control group. They are also more likely to leave the labor force. However, despite a long-lasting effect on their wage earnings, they experience only a 6 percent drop in post-tax, posttransfer household income. In terms of health, the treatment group is not significantly more likely to purchase antidepressants or other anti-anxiety drugs, which I use as a proxy for mental health. I can rule out effects on the order of 2 percent. I do not observe any change in their regular health care consumption, such as the number of visits to the General Practitioner, or any effect on severe physical health outcomes that requires inpatient care at the hospital, for which I can rule out, respectively, effects of the order of 1 and 4 percent. Mortality is also not significantly affected. The two exceptions for which I find a marginally significant effect are visits to the hospital for alcohol issues, but results are not very precisely estimated, as well as purchases of diabetes-related drugs, which may well be a false positive.

This paper is related to several lines of research. The most closely related papers, which I discuss in further detail in

the paper, are those looking at the effect of mass layoffs or plant closures on some health outcomes. Results from this literature are mixed: while some papers find strong effects, especially on mortality for males (Browning and Heinesen 2012; Eliason and Storrie 2009a; Rege, Telle, and Votruba 2009; Sullivan and Von Wachter 2009), others find a relatively precise zero (Browning, Dano, and Heinesen 2006; Kuhn, Lalive, and Zweimuller 2009). Part of the variety of the results comes from differences in the precise definition of the treatment and of the control groups as well as sample restrictions and outcomes of interest (for instance, many papers focus on mortality for males, and although I do find positive point estimates for mortality for males, they are not significant or large) or on some methodological differences (whether one includes the deaths that occur in the year of displacement can make a difference).<sup>1</sup> But another part presumably has to do with the fact that the effect of job loss on health depends on the institutional context, and it is hard to compare results across countries.

I contribute to the literature by looking at a wide set of health outcomes with a long period of observation, which allows me to give a comprehensive picture. Moreover, I am able to provide direct visual evidence that the treatment and control groups were on parallel trends in terms of health in the five years before the job loss shock. I interpret my results as showing that it is possible, presumably through an adequate set of policies, to make the causal effect of job loss on health very small, if not negligible.

The paper also relates to work on unemployment and subjective well-being (Winkelmann and Winkelmann 1998). This literature has shown that unemployment is associated with lower subjective well-being. My paper adds to this literature by focusing on job losses that are arguably exogenous and by aiming at capturing more objective but also more severe health conditions. Unemployment may well lead to lower satisfaction in Denmark as well, but if it is not to the point that people start taking antidepressants or find themselves to be in worse health, it may not require any further involvement from policy.

This paper also relates to work on income-health gradients, particularly recent work by Cesarini et al. (2016) on the causal effect of wealth on health and child development in Sweden. They find that an exogenous increase in wealth (from winning a lottery) has no overall effect on health, neither on mortality nor on health care utilization. This evidence is totally in line with what I find: nowadays in Scandinavian countries, the cross-sectional association between health and economic variables seems mostly driven by selection.

Finally, the paper can relate to rising concerns in the United States about addiction to painkillers and the increase in mortality from poisoning, suicide, and alcohol-related deaths highlighted by Case and Deaton (2015). Data from the International Narcotics Control Board show that Denmark also experienced rising trends in painkillers consumption. My

data allow me to test whether job loss makes people more likely to develop addiction to such substances, to engage in excessive alcohol drinking, or to commit suicide. Despite a strong association in the cross-section between unemployment and purchases of opioid painkillers, I do not find any effect on such purchases following an exogenous layoff.

### Note

1. As I show in the paper, there is a strong significant difference in death hazard of treatment vs. control group in the year of displacement, but some of these deaths could be the cause of the establishment closure rather than caused by the closure. This reverse causality concern seems more relevant because the difference is entirely driven by the smallest establishments. Thus, though I show results both with and without the deaths of year 0, my preferred estimates are, as in Sullivan and von Wachter (2009), the ones that focus on deaths that occurred from year one onward.

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