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Unemployment persistence: How important are non-cognitive skills?

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ABSTRACT

Using the 2000–2013 waves of the German SOEP, this paper shows that non-cognitive skills have a predictive power on unemployment transitions. The econometric approach is based on a dynamic random effects probit model that takes account of the unobserved individual heterogeneity and the state dependence that surrounds unemployment transitions. The estimation results show that the risk of unemployment depends positively on Agreeableness and External LOC, and negatively on Conscientiousness and Positive Reciprocity. These findings apply to men and women alike. Moreover, we find that the extent of unemployment state dependence also depends on specific traits, namely Openness, Positive reciprocity and External LOC. These results suggest that public policies aimed at preventing unemployment should give more importance to the moderating role of non-cognitive skills.

1. Introduction and background

There is growing evidence on the relationships between personality and a variety of life outcomes, including health, criminal activity and economic success. In the labor market non-cognitive skills are at least as relevant as cognitive abilities (Heckman, Stixrud, & Urzua, 2006) and have a predictive power on occupational choices (Ham, Junankar, & Wells, 2016) and earnings (Heineck & Anger, 2010; Mueller & Plug, 2006; Semykina & Linz, 2007).

This paper explores whether non-cognitive skills play a role in employment-unemployment transitions. Personality is associated with work-related preferences and attitudes that can affect job search intensity and may induce certain individuals to end up in occupations with less employment stability. Moreover, to the extent that these skills are part of an individual's set of productive traits they may affect the probability of maintaining a job or receiving a job offer. While the personal determinants of unemployment are an important economic issue, so far the literature has devoted little attention to the role of non-cognitive skills. Pioneering studies have found that unemployment prospects and job search strategies are related to personality (Caliendo, Cobb-Clark, & Uhlendorff, 2015; Mohanty, 2010; Uysal & Pohlmeier, 2011).

Using panel data from the 2000–2013 waves of the German Socio-Economic Panel dataset (SOEP), this paper exploits three different sets of personality measures: (i) the Big Five Inventory (BFI), a widely accepted approach to define personality; (ii) the degree of individuals' external Locus of Control, i.e., the extent to which individuals believe they are not in command of their life; and (iii) a measure on individual's positive and negative reciprocity, an important concept in social psychology capturing how individuals respond to other individuals' actions.[1] A feature of our analysis is that each personality measure is recorded more than once, insofar as the personality measures, first introduced in 2005, were asked again in the 2009, 2013 (BFI) and 2010 (LOC, reciprocity) waves of the SOEP. This allows us to extract a time invariant component of personality that is, at least partially, free from personality-changing life events.

To model individual unemployment status over time, the paper adopts a dynamic random effects model that exhibits three important features. First, it exploits the panel structure of

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[1] There is not a general agreement on whether reciprocity is a type of behavior or a stable trait. Evolutionary psychologists, for example, argue that reciprocity is hard-wired into human nature by natural selection (Cosmides and Tooby, 1993), while behavioral economists would typically model reciprocity as social preferences (Dohmen et al., 2009).

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the data to take account of the unobserved heterogeneity that surrounds unemployment transitions. Second, the paper adopts Wooldridge's (2005) approach to explicitly address the 'initial conditions' problem, i.e., the fact that unemployed individuals at the start of the observation period may be not a random sample of the population. If initially unemployed individuals are there because of an earlier history of unemployment (state dependence) or because of some unobserved characteristic affecting the arrival rate of job-offers or job retention rates, then a model that abstracts from the determinants of their initial condition is likely to generate biased estimates. Third, the model controls for unemployment state dependence, i.e., the fact that the probability of being unemployed at some point is largely influenced by a previous unemployment condition.[2]

Addressing these issues is of key relevance insofar as one of the major challenges in the literature since Heckman's (1981a) seminal work is the distinction between "true" and "spurious" duration dependence. Only true or genuine dependence implies hysteresis in unemployment. This could be due to the fact that past unemployment experiences change preferences, prices and/or constraints affecting the determination of current unemployment status (Heckman & Borjas, 1980). Alternatively, a history of high unemployment incidence could be used by employers as a signal of workers' low productivity (Blanchard & Diamond, 1994; Lockwood, 1991; Pissarides, 1992). By contrast, spurious duration dependence is a mere composition effect caused by unobserved heterogeneity that affects the propensity of certain individuals to be unemployed. If some workers, for instance, exit faster from unemployment due to unobservable personal characteristics, the remaining individuals would appear to exit slower and have longer unemployment spells. This would result in biased estimates of unemployment duration dependence. An econometric methodology that enables to disentangle the effects of unobserved heterogeneity from true state dependence is, therefore, of key relevance in this setting. This aspect has been already highlighted by previous work on labor market transitions (Cappellari & Jenkins, 2008; Stewart, 2007, for instance).

Moreover, controlling for unemployment state dependence is relevant due to important policy implications. Unemployment persistence may lead to considerable poverty, social exclusion and distress. Identification of the correct target groups becomes necessary, thus, for the design of appropriate employment-enhancing policies. An important matter in this respect is the lack of conclusive data on the causes of unemployment inertia. This has produced a lively debate pointing to several explanations: disincentive effects of unemployment insurance (Mortensen, 1986), reduced search effort because of discouragement (Clark, Georgellis, & Sanfey, 2001), decay of human capital (Pissarides, 1992), and stigma effects (Bikhchandani, Hirshleifer, & Welch, 1992; Kübler & Weizsäcker, 2003). Yet the potential role of (typically unobserved) personality traits has not been explored to date. Diverging inertia effects may be at work if, for example, low self-esteemed or pessimistic individuals are more conditioned by a previous unemployment spell. Whether these effects are at work is a question this paper addresses.

The results in this paper show that the unemployment risk depends positively on Agreeableness and External LOC, and negatively on Conscientiousness and Positive Reciprocity. Moreover, the influence of a previous unemployment condition on the current unemployment probability is affected by the individual's set of non-cognitive skills. Although the effects are modest, we find that the unemployment state dependence effect is significantly lower among individuals with a high score on Openness and Positive reciprocity and higher among external LOC individuals.

This paper is close in spirit to Uysal and Pohlmeier (2011). Nonetheless, it presents some methodological differences. While Uysal and Pohlmeier's results are based on a proportional hazard model that abstracts from the endogenous selection of people into initial unemployment and from unobserved heterogeneity, the present paper addresses the initial condition's problem and controls for idiosyncratic factors that may affect the propensity of unemployment. Another difference stems from the fact that we control for unemployment state-dependence and test whether it depends on individuals' non-cognitive skills. Finally, this paper includes additional traits in the analysis, namely LOC and reciprocity.

The rest of the paper is organized as follows. Section 2 reviews previous evidence on the relationship between personality and various labor market outcomes. Section 3 introduces the dataset and the set of non-cognitive skills measures used throughout the paper. The validity and temporal stability of these measures are also discussed. Section 4 outlines the econometric model. Section 5 presents the results and documents the impact of certain non-cognitive skills on the unemployment risk. Section 6 presents the concluding remarks.

2. Background and previous literature

An important field within personality research is the development of a taxonomy that allows categorizing individuals' personality into some domains. One of the most known and used measures within this literature is the Big Five Inventory (BFI) and Locus of Control (LOC), although other taxonomies of personality are also broadly accepted. The BFI is directed at measuring the different dimensions of humans' personality and represents a widely accepted approach to conceptualizing personality (Costa & McCrae, 1992). After aggregating across items, the BFI provides a single score for each of the five major traits that define human personality across cultures: Neuroticism, the tendency to experience negative emotions such as anxiety and depression; Extraversion, the tendency to be sociable, warm, active, assertive, cheerful, and in search of stimulation; Openness to experience, the tendency to be imaginative, creative, unconventional, emotionally and artistically sensitive; Agreeableness, the dimension of interpersonal relations, characterized by altruism, trust, modesty, and cooperativeness; and Conscientiousness, a tendency to be organized, strong-willed, persistent, reliable, and a follower of rules and ethical principles. On the other hand, LOC is a measure of the degree to which individuals feel the control of their life is on their own hands (internal) or depends of external factors (external). People with a high score in the items measuring external LOC believe that fate, luck, or any other external circumstances determine the course of their lives; while those with a high score on internal LOC perceive that their life depend on own behavior and efforts. The notion of LOC was developed by Rotter (1954) and since then it has become an important concept to define personality within psychology.

In a comprehensive survey, Almlund, Lee Duckworth, Heckman, and Kautz (2011) document important relationships between personality and a variety of life outcomes, including health, criminal activity, economic success and labor market outcomes. From organizational and industrial psychologists we know, moreover, that personality is related in meaningful ways to job performance (see Barrick & Mount, 1991, for a meta-analysis and, more recently, Judge at al., 2007), job satisfaction (Judge, Heller, & Mount, 2002) and career success (Kammeyer-Mueller, Judge, & Piccolo, 2008).

The evidence is suggestive of many channels driving these relationships. Personality might be thought of as part of an individual's set of productive traits just as general or specific education or job-related training. In this context, some personality

[2] Mühleisen and Zimmermann (1994), Arulampalam et al. (2000) and Knights et al. (2002), among others, provide ample evidence on this empirical regularity.