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Social Science & Medicine 64 (2007) 1420–1424

SOCIAL SCIENCE & MEDICINE

www.elsevier.com/locate/socscimed

Business cycles, migration and health

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Available online 28 December 2006

Abstract

We investigate the proposition that illness poses as an obstacle to one's ability to use migration to hedge the business cycle. We employ data on migration, regional unemployment rates and health status from 10 years (1984–1993) of the US Panel Study of Income Dynamics. Our results provide considerable for support this proposition. The evidence is the strongest for men, but we also find weaker evidence for married women. These results suggest that—*ceterus paribus*—aggregate health outcomes in an area should improve when the regional economy expands.

Keywords: Recessions; Health; Migration

Introduction

Blanchard and Katz (1992) show that one of the primary ways that people cope with the vagaries of the business cycle is migration. However, a person's ability to migrate as a means of heading against macroeconomic fluctuations may depend crucially upon their health status since illness often acts as an impediment to migration. In particular, it might be reasonable to expect that unhealthy people are unable to migrate out of economically depressed regions to other areas where the opportunities are better. To paraphrase Deaton (2002), in such a scenario, the sick will be doubly cursed.

To investigate this, we employ variables on intra-national migration within the United States, self-reported health status (SRHS) and county-level unemployment rates from 10 years of the Panel Study of Income Dynamics (PSID). Our results indicate that the healthy are much better able to migrate in response to the business cycle than the unhealthy. This result is the most pronounced among men. This suggests that aggregate health should improve when the economy expands holding all other factors equal.

The balance of this paper is organized as follows. The first section describes the data, we then formulate our identification strategy, and then give a summary of our results. The paper concludes with a discussion of how our results relate to recent work by Ruhm (2000, 2005) on the relationship between recessions and health.

Data

We use data on geographic mobility, SRHS, county-level unemployment rates and other control variables from the PSID. Because SRHS is not available prior to 1984 and unemployment rates are

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doi:10.1016/j.socscimed.2006.11.007

not available beyond 1993, our data cover the years 1984–1993. We restrict our analysis to household heads and their spouses (if they are married) since the PSID only has SRHS information on these individuals. Because we are interested in migration as a means of coping with employment shocks, we further restrict our sample to working-age people which we define to be younger than 65.

We include the Survey of Economic Opportunity (SEO), a sub-sample of economically disadvantaged people, in our analysis. It is important to note that the profession has not reached a consensus about the appropriate way of dealing with the SEO. Lillard and Willis (1978) recommend dropping the SEO as the selection into it is endogenous, while others such as Hyslop (1999) and Meghir and Pistaferri (2004) include the SEO. We also include it because we estimate a rather complicated regression equation in this paper with a large number of interaction terms which requires a substantial number of observations for precise estimation.

Table 1 reports the descriptive statistics from our sample. Our migration variable is a dummy variable indicating that the individual has changed states between the previous and the contemporaneous survey years. This migration variable is commonly used in the literature on internal migration within the US. We refer the reader to Gabriel and Schmitz (1994) and Borjas, Bronars, and Trejo (1992) for two examples. Our measure of health status is SRHS: a categorical variable that takes on integer values between one and five. One corresponds to the best category and five to the worst category. While these data are subjective measures, there is an extensive literature that has shown a strong link between SRHS and more objective health outcomes such as mortality and the prevalence of disease (Idler & Kasl, 1995; Kaplan & Camacho, 1983; Mossey & Shapiro, 1982; Smith, 2003).

Identification

Our identification strategy rests upon the equation:

$$\begin{aligned} M_{i,t} = {} & \alpha + B_{i,t}\beta + G_{i,t}\gamma + U_{i,t}\phi_0 + U_{i,t-1}\phi_1 \\ & + U_{i,t} * B_{i,t}\eta_0 + U_{i,t-1} * B_{i,t}\eta_1 + U_{i,t} * G_{i,t}\varphi_0 \\ & + U_{i,t-1} * G_{i,t}\varphi_1 + X_{i,t}\theta + \varepsilon_{i,t}. \end{aligned}$$

$M_{i,t}$ is the indicator for having changed states across time periods $t-1$ and t. $B_{i,t}$ is a dummy variable indicating that SRHS is either four or five at time t. $G_{i,t}$ is dummy variable indicating that SRHS is either one or two at time t. The omitted SRHS category is three. For the balance of this paper, we refer to $B_{i,t}$ as bad health and $G_{i,t}$ as good health. Provided that healthier people are more mobile, we would expect to see that $\beta<0$ and $\gamma>0$. $U_{i,t}$ is the unemployment rate in the individual's county of residence at time t. We include the unemployment rate at times t and $t-1$. If migration is used to hedge the impact of the business cycle, then we should observe that $\phi_1>0$ and $\phi_0<0$, so that people are migrating from places with high unemployment to places with low unemployment. To address any potential confounding omitted variables, we include $X_{i,t}$ which contains other control variables such as age, functions of lagged labor income and gender d, race d, education d, year d and state dummies. We use functions of lagged income to address the possibility that current migration decisions will affect future income. We estimate these models using ordinary least squares (OLS) and adjust all standard errors for clustering on individuals to allow for serial correlation in the residual within individuals. We also have a set of results that use Probit estimation which we do not report as they are very similar.

The interaction terms allow migratory responses to economic shocks to vary by health status. If healthier people are better able to use migration to buffer the impact of a regional economic lull, then we should see that $\varphi_0<0$ and $\varphi_1>0$ and that $\eta_0>0$ and $\eta_1<0$. To aid us in quantifying these effects, we define the following marginal effects:

$$\left.\frac{\partial M_t}{\partial U_t}\right|_{G_t=1} = \phi_0 + \varphi_0, \quad \left.\frac{\partial M_t}{\partial U_{t-1}}\right|_{G_t=1} = \phi_1 + \varphi_1,$$
$$\left.\frac{\partial M_t}{\partial U_t}\right|_{B_t=1} = \phi_0 + \eta_0 \quad \text{and} \quad \left.\frac{\partial M_t}{\partial U_{t-1}}\right|_{B_t=1} = \phi_1 + \eta_1.$$

We can now identify how a movement from bad health to good health impacts a person's ability use migration to hedge against the business cycle by calculating

$$\left.\frac{\partial M_t}{\partial U_t}\right|_{G_t=1} - \left.\frac{\partial M_t}{\partial U_t}\right|_{B_t=1} = \varphi_0 - \eta_0 \quad \text{and}$$
$$\left.\frac{\partial M_t}{\partial U_{t-1}}\right|_{G_t=1} - \left.\frac{\partial M_t}{\partial U_{t-1}}\right|_{B_t=1} = \varphi_1 - \eta_1.$$

Our hypothesis can now be formalized by H_0: $\varphi_0 - \eta_0 = 0$ versus H_a: $\varphi_0 - \eta_0 < 0$ and H_0: $\varphi_1 - \eta_1 = 0$ versus H_a : $\varphi_1 - \eta_1 > 0$. If both of these alternative