

## SELF-EMPLOYMENT RENTS: EVIDENCE FROM JOB SATISFACTION SCORES\*

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Accepted April 2008

### *Abstract*

Previous studies have pointed to the existence of barriers at the entry of self-employed sectors, such as liquidity constraints. In many countries, policies are directed toward removing these barriers in order to promote entrepreneurial activity. This paper examines whether such barriers exist by examining the amount of rent enjoyed by self-employed workers; if there are no barriers between the self-employed sector and the salary/wage sector, self-employed workers should not enjoy rents. Examination of the rent associated with self-employment, however, cannot simply be accomplished by comparing the incomes of self-employed and salary/wage workers. This is because self-employed workers may enjoy higher utility due to their work environment, with such benefits as autonomy and flexibility of work schedules. To overcome the difficulty of measuring self-employment rents, I use self-reported job satisfaction from the National Longitudinal Survey of Youth 79 (NLSY79) to capture workers' overall satisfaction with their jobs. The results robustly indicate that self-employed workers are more satisfied with their jobs than salary/wage workers, even after allowing for the time-invariant individual heterogeneity in their reported job satisfaction. This result suggests that there are barriers at the entry into self-employment and that self-employed workers enjoy rents.

*Keywords:* Self-Employment; Job Satisfaction

*JEL Classification:* J23; J31

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\* This is a revised version of a chapter from my Ph.D. dissertation submitted to Michigan State University. I am especially grateful to David Neumark, who chaired my dissertation committee, for his guidance and encouragement. I also would like to thank Scott Adams, Jeff Biddle, Ali Berker, Paul Frijters, John Godderis, Yoshiaki Omori, Gerard Pfann, Shinichi Sakata, John Strauss, and Jeffrey Wooldridge, as well as seminar participants at Michigan State, IZA, the Midwest Economic Association annual meeting, the Joint Statistical Meeting, the European Association of Labour Economists annual meeting, and the Japanese Economic Association annual meeting for helpful comments. I thank Donna Maurer for her editorial assistance. All remaining errors are, of course, my own. Research for this paper was partly financed by the Japan Society for the Promotion of Science through a grant-in-aid for scientific research youth (B) 16730161.

## I. *Introduction*

Self-employed workers comprised 7.1% of the total U.S. non-agricultural workforce in November 2003.<sup>1</sup> Despite this large share of self-employed workers, self-employment did not attract much attention from labor economists until recently, and the workings of the self-employed workers' labor market are still largely unknown. One of the remaining policy-relevant questions about self-employed workers is whether there are barriers to entering into the self-employment sector. Based on the presumption that there are barriers to setting up new businesses due to market imperfection, governments in many countries have launched policies to remove such barriers by offering special loans directed to small businesses and training programs for potential entrepreneurs (OECD (2003)).

Several studies have offered evidence for the existence of barriers to the entry into the self-employment sector. For example, Evans and Leighton (1989), Holtz-Eakin, Joulfaian, and Rosen (1994), Lindh and Ohlsson (1996), Blanchflower and Oswald (1998) and Taylor (2001) provided evidence that liquidity constraints are an obstacle that potential entrepreneurs must overcome. These studies have explained workers' current self-employment status or transition into self-employment by the amount of assets that workers hold.

This paper attempts to offer further evidence for the existence of a barrier at the entry to self-employed jobs, using an alternative method suggested by Blanchflower and Oswald (1998). They argued that if there are barriers at the entry to self-employed jobs, such as liquidity constraints, then self-employed workers will enjoy higher job satisfaction, which presumably represents the workers' total utility for their jobs, due to the rents accrued to the jobs from the existing barriers. They found a higher level of job/life satisfaction among self-employed workers using the job/life satisfaction variable available in the British National Child Development Survey.

Although their evidence offered significant insight about the barrier at the entry to self-employed jobs, as the authors admitted in their paper, there is a possibility that "self-employed people may be intrinsically more optimistic," and the higher job/life satisfaction among self-employed workers may be due to their intrinsic characteristics. Several psychological studies, in fact, have revealed that people with positive attitudes toward life are more likely to be self-employed.<sup>2</sup>

In addition, Blanchflower, Oswald, and Stuuzeer (2001) found higher reported job satisfaction among self-employed workers using cross-sectional micro data from 16 European countries. They found that reported high job satisfaction is robust across countries, but it is still unclear whether there is a causal relationship between self-employment and higher reported job satisfaction. This paper attempts to overcome this shortfall, using job satisfaction scores available in the National Longitudinal Survey of Youth 79 (NLSY79). The panel structure of these data enabled me to examine the change in job satisfaction associated with the transition from salary/wage jobs to self-employed jobs, and this allowed for the heterogeneity of baseline job satisfaction across individuals.

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<sup>1</sup> Based on the November 2003 Current Population Survey. For recent trends of self-employment in the U.S., refer to Manser and Picot (1999).

<sup>2</sup> See Brockhaus and Horwitz (1986) for a review of the literature.

The rest of this paper is organized as follows: Section II explains why job satisfaction should be used to measure self-employment rent. Section III briefly describes the data, discusses the job satisfaction scores in the data and implements a descriptive analysis. Section IV describes a simple model of the determination of job satisfaction among salary/wage and self-employed workers and estimates the model's parameters. Section V extends the analysis in Section IV, relaxing the imposed assumptions. Section VI provides a summary and conclusion.

## II. *Measurement of Self-Employment Rent*

Several studies report that self-employed workers are worse off in terms of earnings as compared with their salaried and wage-earning counterparts (Hamilton (2000), Krashinski (2004) and Carrington, McCue, and Pierce (1996)). In addition to lower median or average earnings, Carrington, McCue, and Pierce (1996) and Kawaguchi (2003) report that self-employed workers' earnings are more volatile than those of their salary/wage earning counterparts. Moreover, Moskowitz and Vissing-Jorgensen (2002) report that self-employed workers tend to invest a large portion of their assets in their own businesses. As a result, self-employed workers' portfolios are riskier than those of salary/wage workers, whose assets are invested in more diversified funds. At the same time, the average return on portfolios held by self-employed workers is almost equivalent to the average return on portfolios held by salary/wage workers. I should also note that self-employed workers enjoy fewer fringe benefits, such as employer-provided health insurance, than salary/wage workers, as pointed out by Hamilton (2000).

Looking at the results reported above, self-employed workers seem to be worse off than salary/wage earning counterparts in terms of earnings and tangible fringe benefits. However, the rents accrued to self-employed jobs are not simply measured by their earnings because self-employed workers may obtain utility from their jobs through more flexible work hours or being their own boss. Thus, it is important to consider the job satisfaction that presumably captures the utility obtained from both monetary and non-monetary aspects of jobs.

## III. *Data*

I used The National Longitudinal Survey of Youth (NLSY79) in this study. This panel data started with 12,686 individuals whose ages were between 14 and 22 in 1979. The sample years were restricted to the period between 1985 and 1998, mainly to exclude individuals of school age. I further restricted the sample to white males to be consistent with most of previous studies. Individuals who worked for money and were out of school were included in the sample. Individuals were dropped if their job classifications were unknown. The construction of the analysis sample is tabulated in Table 1. The descriptive statistics for the main analysis sample (Sample (3) in Table 1) are shown in Table 2.

The main survey item used in this study is global job satisfaction. The question reads

How [do/did] you feel about your job with [name of employer]? [Do/Did] you (1) like it very much, (2) like it fairly well, (3) dislike it somewhat, or (4) dislike it very much? (CODE ONE ONLY.)

TABLE 1. SAMPLE CONSTRUCTION

	Total	Salary/ Wage workers	Self- employed Workers
Original NLSY79, 1985-1998	152232	—	—
Non-Black and Non-Hispanic Male	90120 45480	— —	— —
Employed + out of school	24756	—	—
Work in private, government, and self-employed	24580	—	—
Valid answer for job satisfaction: <b>Sample (1)</b>	24533	22095	2438
Employed + out of school for two consecutive interviews	19893	—	—
Valid class + tenure variables	19406	—	—
Work in private, government, and self-employed for two consecutive interviews	19302	—	—
Valid answer for job satisfaction: <b>Sample (2)</b>	19226	17269	1957
Sample (1) + valid covariate + more than 2 years of observation: <b>Sample (3)</b>	20455	18586	1869

*Note:* The tenure variable is used to identify job change. Sample (1) is used in the analysis of Table 3. Sample (2) is used in the analysis of Table 4. Sample (3) is used in the analysis of Table 2 and Table 5.

TABLE 2. DESCRIPTIVE STATISTICS FOR SAMPLE (3)

	Salary/ Wage workers	Self- employed Workers	SE-SW
Married and spouse present	0.561 (0.496)	0.589 (0.492)	0.028 (0.012)
Highest grade completed	13.075 (2.500)	13.018 (2.422)	-0.057 (0.060)
Actual years of job experience	10.110 (4.337)	11.281 (4.311)	1.171 (0.105)
Years of job tenure	3.843 (3.850)	4.668 (4.170)	0.826 (0.094)
N	18586	1869	20455

*Note:* Sample means are reported. Standard deviations are in parentheses under the sample mean. Standard errors are in parentheses under the differences of the sample means between salary/wage and self-employed workers.

TABLE 3. JOB SATISFACTION AMONG SALARY/WAGE AND SELF-EMPLOYED WORKERS  
Sample: Sample (1), 1985-1998 pooled.

Type	Like very much Row %	Like fairly well Row %	Dislike somewhat Row %	Dislike very much Row %	Total observation
Salary/Wage	43.00	48.24	6.89	1.87	22095
Self-employed	65.67	30.60	2.63	1.11	2438

TABLE 4. TRANSITION OF JOB SATISFACTION ASSOCIATED WITH JOB CHANGE (Percentages)  
(SE: Self-Employment Job, SW: Salary and Wage Job)  
Sample: Sample (2)

	<u>Job Satisfaction in Previous Year</u>			
	Like Very Much	Like Fairly Well	Dislike Somewhat	Dislike Very Much
<b>Job Satisfaction in Current Year</b>				
<b>SW in previous year</b>				
<b>Panel A: Job Stayers</b>				
<b>(salary/wage-salary/wage) N=13912</b>				
Like very much	67.6	21.5	16.1	14.7
Like fairly well	29.4	68.1	49.3	40.7
Dislike somewhat	2.3	7.9	27.1	23.2
Dislike very much	0.7	1.5	7.5	21.5
<b>Panel B: Job Stayers</b>				
<b>(SE-SE) N=1327</b>				
Like very much	79.5	34.5	19.2	20.0
Like fairly well	19.7	61.8	38.5	40.0
Dislike somewhat	0.8	2.6	30.8	20.0
Dislike very much	0.1	1.05	11.5	20.0
<b>Panel C: Job Changers</b>				
<b>(salary/wage-salary/wage) N=2839</b>				
Like very much	60.6	41.8	36.1	42.3
Like fairly well	34.6	50.9	49.3	38.3
Dislike somewhat	3.6	5.7	12.2	12.8
Dislike very much	1.2	1.6	2.3	6.4
<b>Panel D: Job Changers</b>				
<b>(SE-SE) N=41</b>				
Like very much	91.3	33.3	50.0	0.0
Like fairly well	8.7	66.7	50.0	50.0
Dislike somewhat	0.0	0.0	0.0	100
Dislike very much	0.0	0.0	0.0	0.0
<b>Panel E: Job Changers</b>				
<b>(wage/salary-SE) N=589</b>				
Like very much	82.6	54.2	47.5	50.0
Like fairly well	14.6	40.2	42.5	40.0
Dislike somewhat	2.4	4.4	7.5	10.0
Dislike very much	0.4	1.2	2.5	0.0
<b>Panel F: Job Changer</b>				
<b>(SE-salary/wage) N=518</b>				
Like very much	64.04	34.8	64.3	33.3
Like fairly well	30.60	59.1	21.4	50.0
Dislike somewhat	3.79	3.9	14.3	16.7
Dislike very much	1.6	2.2	0.0	0.0

The distribution of responses for this question is shown in Table 3.<sup>3</sup> An examination of Table 3 reveals that about 66% of self-employed workers chose “like it very much,” while only about 43% of salary/wage workers chose this answer. It is also notable that only about 4% of

<sup>3</sup> When the responses are tabulated by years, this distribution remains nearly constant over time.

self-employed workers chose “dislike” (“dislike somewhat” and “dislike very much” combined), while about 9% of salary/wage workers chose these answers. This rough examination of the distribution clearly indicates that self-employed workers report more satisfaction with their jobs than their salary/wage counterparts.

One of the main drawbacks of using the job satisfaction score is the difficulty in making interpersonal comparisons of subjective measures (Ferrer i Carbonell and Frijters (2004)). This study attempts to overcome this difficulty by using panel data because panel data enables me to examine the change in job satisfaction associated with job change. In the following analysis, the job satisfaction score is assumed to be comparable within each individual over time. This assumption is much weaker than the assumption of interpersonal comparability of subjective measures.

As a simple way to examine the change in job satisfaction associated with job change, the transition matrices of job satisfaction for job stayers and job changers appear in Table 4. Findings from these matrices are summarized as follows:

- Among job stayers, self-employed workers are more likely to stay in the “like very much” category as compared with wage/salary workers. (Panel A and Panel B)
- Job changers who move from salary/wage jobs to self-employed jobs are more likely to experience a positive transition and less likely to experience a negative transition of job satisfaction than job changers within salary/wage jobs. (Panel C and Panel E)
- This positive transition of job satisfaction is less likely to occur among those who change from self-employed jobs to wage/salary jobs than among those who do the opposite. (Panel E and Panel F)

These findings suggest that self-employed jobs are more satisfying than salary/wage jobs. However, other demographic characteristics that also might affect job satisfaction, such as marital status, may vary at the time of job change and this may have contributed to the findings above. To address this possibility, the effects of workers’ observed and unobserved characteristics on job satisfaction are controlled in the following analysis.

#### IV. *Higher Job Satisfaction among Self-employed Workers*

To examine whether self-employed workers enjoy rents, this section tests whether self-employed workers have higher job satisfaction.

I assume that workers’ latent job satisfaction is determined by both earnings and non-monetary aspects of self-employment:

$$js^*(w(s_{it}, x_{it}), s_{it}, x_{it}), \quad (1)$$

where  $w$  is the level of earnings that is the function of self-employment status  $s_{it}$  and the worker’s characteristics  $x_{it}$ . If there are no barriers to moving between salary/wage and self-employed jobs, job satisfaction in the two sectors should be equal in equilibrium, given each worker’s characteristics  $x_{it}$  (i.e.  $js^*(w(s_{it}=1, x_{it}), s_{it}=1, x_{it}) = js^*(w(s_{it}=0, x_{it}), s_{it}=0, x_{it})$ ). If there are some barriers at the entry of self-employed jobs, then the job satisfaction of self-employed workers will be systematically higher.

To examine whether self-employed workers enjoy higher job satisfaction, I regressed the

reported job satisfaction score on the self-employment dummy and other explanatory variables. The link between the job satisfaction score and utility is specified as

$$js_{it} = \begin{cases} 4 & \text{if } js_{it}^* \geq \mu_3, \\ 3 & \text{if } \mu_3 > js_{it}^* \geq \mu_2, \\ 2 & \text{if } \mu_2 > js_{it}^* \geq \mu_1, \\ 1 & \text{if } \mu_1 > js_{it}^*, \end{cases} \quad (2)$$

where  $js_{it}$  is a categorical variable indicating worker  $i$  at time  $t$ 's response to the job satisfaction question (1: "Dislike Very Much" - 4: "Like Very Much"), whereas  $js_{it}^*$  is the latent, continuous variable of job satisfaction and  $\mu_k$  ( $k = 1, 2, 3$ ) are the thresholds of job satisfaction that determine the answer for the job satisfaction question. Although many factors may affect a worker's job satisfaction, I focus on the causal effect of self-employment status on job satisfaction. I made several assumptions to identify this causal effect.

First, as the shape of the job satisfaction function, a linear latent function was assumed as a first-order approximation. Several demographic variables also were assumed to affect job satisfaction. Moreover, unobserved factors that may affect job satisfaction were assumed to be independent of self-employment status and demographic variables, and these factors were assumed to be normally distributed. This assumption resulted in

*Assumption 1* (Linear latent job satisfaction function)

$$js_{it}^* = \theta_0 + \theta_1 s_{it} + x_{it} \theta_2 + c_i + e_{it}, \quad e_{it} | s_{it}, x_{it}, c_i \sim N(0, 1), \quad (3)$$

where  $s_{it}$  is the dummy variable for self-employment status,  $x_{it}$  is the vector of a worker's attributes, and  $c_i$  is individual heterogeneity in utility level. Specifically,  $x_{it}$  contains a marital status dummy; educational background; and labor market experience. This equation does not include wage rate because this is the reduced form equation of (1). I attempted to examine whether self-employed workers enjoy higher job satisfaction, including their earnings aspects, holding workers' attributes represented by  $x_{it}$  constant.

To simplify the econometric model, two additional assumptions that will be relaxed later were made:

*Assumption 2* (Independence of Heterogeneity)

$$c_i \perp s_i, x_i. \quad (4)$$

where  $s_i = [s_{i1}, s_{i2}, \dots, s_{iT}]$  and  $x_i = [x_{i1}, x_{i2}, \dots, x_{iT}]$ . This assumption ensures that individual heterogeneity is independent of observable variables and that the heterogeneity does not cause any inconsistency of the pooled, ordered probit estimator.

*Assumption 3* (Strict Exogeneity of Idiosyncratic Error)

$$e_{it} | s_i, x_i, c_i \sim N(0, 1). \quad (5)$$

This assumption ruled out the feedback from current shock on job satisfaction to future self-employment status through job change, since if the feedback exists, the distribution of current  $e$  depends on future  $s$ .

These three assumptions resulted in the pooled, ordered probit model, and the parameters in (3) could be estimated using sample (3) in Table 1. The results of the estimation appear in Table 5, Columns 1 and 2. The result that appears in Column 1 is the specification that only

TABLE 5. THE RESULTS OF THE ORDERED PROBIT ESTIMATION

Dependent variable:

“Like very much”=4, “like fairly well”=3, “dislike somewhat”=2, “dislike very much=1”

Sample: Sample (3)

	(1)	(2)	(3)	(4)
	Pooled Ordered Probit	Pooled Ordered Probit	“Fixed Effect” Ordered Probit	Test of Weak Exogeneity
Self-employed	0.515 (0.050)	0.507 (0.050)	0.439 (0.046)	0.445 (0.051)
Married	—	0.061 (0.026)	-0.046 (0.025)	-0.056 (0.028)
Education	—	0.041 (0.006)	0.052 (0.030)	0.054 (0.036)
Experience	—	0.025 (0.005)	0.020 (0.009)	0.022 (0.010)
Mean (self-employed)	—	—	0.126 (0.085)	0.066 (0.100)
Mean (married)	—	—	0.174 (0.046)	0.186 (0.049)
Mean (education)	—	—	-0.012 (0.031)	-0.016 (0.036)
Mean (experience)	—	—	0.003 (0.009)	0.001 (0.010)
Self <sub>t+1</sub>	—	—	—	0.058 (0.042)
Year dummies?	Yes	Yes	Yes	Yes
3rd Cut Point	-2.093 (0.037)	-1.444 (0.085)	-1.400 (0.093)	-1.437 (0.098)
2nd Cut Point	-1.369 (0.032)	-0.715 (0.083)	-0.670 (0.091)	-0.691 (0.096)
1st Cut Point	0.147 (0.031)	0.814 (0.085)	0.860 (0.092)	0.840 (0.097)
Observations	20455	20455	20455	17794
Log likelihood	-19618	-19489	-19473	-16930

Note: Panel clustering robust standard errors are in parentheses for the pooled ordered probit estimates.

Standard errors are in parentheses for “Fixed Effects” effect ordered probit estimates. The married dummy is one if married and spouse present, zero otherwise.

includes the self-employment dummy variable. The coefficient for self-employment is 0.515 (*s.e.* = 0.050).

The results essentially did not change when marital status, educational attainment, and job experience were included in the specification, as reported in Column 2 of Table 5. The effect of being self-employed on job satisfaction was as large as the effect of 12.4 years of education.



## V. Extensions

Next I consider the possible estimation bias of the effect of self-employment on job satisfaction. To do so, I will relax the assumptions made so far one by one. As partly suggested in the analysis of the transition matrices of job satisfaction, workers who become self-employed seem to have a positive attitude toward their jobs that is independent from self-employment status. If this is the case, the coefficient for self-employed workers is overestimated in the pooled probit model, since  $c_i$  and  $s_{it}$  are positively correlated. Considering this heterogeneity or other possibilities that unobserved heterogeneity in job satisfaction is dependent upon observable characteristics, *the assumption 2* (Interpersonal comparability of job satisfaction) is replaced with

*Assumption 2'* (the “Fixed Effects” assumption)

$$c_i | s_i, x_i \sim N(\gamma_1 \bar{s}_i + \bar{x}_i \gamma_2, \sigma_c^2). \quad (6)$$

This assumption allows dependence between  $c_i$  and  $s_i$  or  $x_i$  in a restrictive way, where  $\bar{s}_i$  and  $\bar{x}_i$  are the means of  $s_i$  and  $x_i$  respectively. This specification assumes that individual heterogeneity is a function of the average tendency of individual  $i$  to be self-employed and the other individual averages of the explanatory variables. Using this assumption, I attempted to allow for the dependence between having a positive attitude toward one’s job and self-employment status. Under this assumption,  $\theta_i$  in equation (3), is identified from the observations that changed the self-employment status during the sample period. In this sense, the effect of self-employment status in the fixed effects specification is identified by the change in job satisfaction associated with the transition from self-employment to salary/wage job and vice versa.<sup>4</sup> The consistent estimators were obtained through a pooled, ordered probit estimation of the model that included the individual means of the independent variables. The importance of assumption 3 should be emphasized here. If current shock to job satisfaction,  $e_{it}$ , affects the future value of self-employment status through job change behavior,  $e_{it}$  and  $\bar{s}_i$  is dependent and a consistent estimator cannot be obtained.

The results of the estimation appear in Table 5, Column 3. The coefficient for self-employment slightly decreased as expected from the positive correlation of  $c_i$  and  $s_{it}$ .

As confirmed in previous studies (Freeman (1978), Clark, Georgellis, and Sanfey (1998), Frijters (2000) and Clark (2001)), job quitting tends to follow low job satisfaction. In light of this fact, ruling out the feedback from  $e_{it}$  to  $s_{it+1}$  is a strong assumption. In particular, if salary/wage workers experience low job satisfaction because of some shock (after conditioning on individual heterogeneity) and become self-employed workers, we tend to overestimate the effect of self-employment on job satisfaction. In contrast, if self-employed workers who experience negative shock on job satisfaction become salary/wage workers, then the effect of self-employment on job satisfaction is underestimated. Thus, we cannot determine the direction of bias a priori. To take care of this possibility, feedback effects are allowed through the assumption,

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<sup>4</sup> Wooldridge (2001) explains this approach in the context of probit estimation (pp. 487-490) and tobit estimation (pp. 540-542). The estimator under this assumption is called a fixed effect estimator because this assumption allows dependent, unobserved heterogeneity.

*Assumption 3'* (Existence of feedback from current shock on job satisfaction to future job change)

$$e_{it} | s_i, x_i, a_i \sim N(\delta_0 s_{it+1}, 1), \quad (7)$$

This model allows feedback from current shock to future self-employment status in  $t+1$ . The model is estimated with a pooled, ordered probit model with the individual means of the independent variables and  $s_{it+1}$  as independent variables.

The estimated results of the “fixed effects” probit model with feedback effects appear in Table 5, Column 4. The estimated coefficients for the future self-employment dummy is not significant, and we cannot reject the null hypothesis that self-employment status is strictly exogenous. Thus, I take the fixed effects estimate, which is  $\hat{\theta}_1 = 0.439$  (*s.e.* = 0.046), as the most preferable estimate for the causal effect of self-employment on job satisfaction. The effect is about equivalent to 8.44 years of education.

## VI. Conclusion

In this paper, I examined whether there are significant barriers to entering the self-employment sector, such as liquidity constraints. If such barriers exist, we expect rents to be accrued to self-employed workers due to the barriers. However, self-employment rent cannot be fully captured by monetary compensation because self-employed workers are said to enjoy the non-monetary aspects of their jobs, such as autonomy. I attempted to measure the self-employment rents using job satisfaction scores in NLSY79 that presumably capture job satisfaction from both monetary and non-monetary compensation.

The analysis showed that self-employed workers are more satisfied with their jobs than salary/wage workers are. This finding is preserved even when individual heterogeneity, which is potentially correlated with self-employment status, and the feedback effect, which runs from current job satisfaction to future job change, are considered.

The estimated high valuation of self-employment status in terms of job satisfaction suggests that rents are accrued to self-employed jobs. The self-employment rent measured by the job satisfaction is as large as the one obtained by 8.5 additional years of education. Entry barriers to self-employment, such as liquidity constraints, explain this rent.

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