

Skills, Tasks, and Occupational Choice

Hugh Cassidy
The University of Western Ontario

JOB MARKET PAPER

November 13, 2012

Abstract

of this occurring is denoted with u_t . If a worker is not exogenously put into unemployment, he chooses either employment or unemployment. Given the choice of employment, the worker chooses the occupation-level in which to work. Denote occupation choice as $j \in J$, where J is the number of occupations.

The law of motion for skills is:

$$s_{i,t+1}^k = s_{it}^k + R^k j_{it}^k \quad k; k \in \{fc; mg\} \quad (2)$$

where R^k is a scalar which determines the impact of task usage of skill k on the growth of

Lastly, there is a random wage component, ϵ_{jt} . This stochastic variable is a $J + 1$ vector with a value for each occupation-level and the non-employment state. It affects the worker's wage in the t th period.

benefit is relatively high, due to the effect such a decision would have on their continuation value.

3 Data

To investigate the validity of this occupational aggregation, I perform two sets of regressions using the GQCS data on task usage. The first regression controls for level and

and conditional on their education level. Next, given their education level, I assign each worker a labor market entry age using the fourth random number. Again, this assignment is done such that the distribution of labor market entry ages resembles the distribution in the observed data.³⁴ Given these values, I can then simulate each worker's labor market history.

by their initial skills and the occupation-level prices. Since some workers might enter the sample much later than labor market entry, I restrict my sample to those whose first year employed is observed before age 25. Specifically, I use the coefficients from a Mincerian wage regression, with initial earnings as the dependent variable:

$$w_{i,1} = \beta_0 + \beta_1 educ_i + \beta_2 COL_i + \beta_3 fl_i = \beta_0 + \beta_1 educ_i + \beta_2 COL_i + \beta_3 fl_i + u_{i,t}^1 \quad (7)$$

where $educ_i \in \{HS, COL\}$

adds 18 moments to the auxiliary model.

4.2.3 Moments: Unemployment-Related Moments

Unemployment-related parameters are estimated using three separate regressions. First, I

and $undur_{it}$

The occupational human capital returns are both positive and economically significant. An important difference between occupation-specific returns, β_1 and β_2

mobility and the persistence of unemployment.

There is the potential that these results are driven in part by the aggregation of employed states to a relatively small number. Future work will address this concern by expanding the

Table 1: Summary Statistics, Estimation Sample

	All	Level 1	Level 2
	Mean/s.d.	Mean/s.d.	Mean/s.d.
Demographics			
HS	0.732 (0.443)	0.872 (0.334)	0.363 (0.481)
COL	0.268 (0.443)	0.128 (0.334)	0.637 (0.481)
Labour Market			
Age	38.943 (9.087)	38.011 (9.381)	41.399 (7.747)
Tenure	10.093 (9.262)	9.266 (9.110)	12.269 (9.305)
Experience	16.561 (9.711)	16.394 (9.987)	17.002 (8.927)
Net Labour Income	1962.290	1605.876	2900.859

NBlue-Collar-482770.651 0.3656-2394(0.1270)TJ 103.386 -13.549 Td [(0.

Table 2: Summary Statistics, Task Usage

	All Mean/s.d.	Blue-Collar Mean/s.d.	White-Collar Mean/s.d.
Cognitive	0.580	0.273	0.927
	0.494	0.445	0.260
Research	0.153	0.076	0.239
	0.360	0.265	0.426
Plan	0.114	0.053	0.183
	0.318	0.225	0.387
Law3	0.027	0.024	0.286
	0.354	0.152	0.452
Calculate	0.163	0.031	0.311
	0.369	0.173	0.463
IT	0.128	0.022	0.248
	0.334	0.146	0.432
Cognitive			

Table 4: Task Usages

	Cognitive	Cognitive	Manual	Manual
White-Collar	0.461 (72.26)	0.276 (34.79)	-0.418 (-65.60)	-0.189 (-25.03)
2.Level	0.184 (37.58)	0.176 (33.38)	-0.109 (-22.33)	-0.0514 (-10.26)
Constant	0.198	0.229	1.025	0.9471TJ/7.97010500TJ/F307.96.249-227118

Table 6: Parameter Estimates

Parameters	Values
Skill Growth: R^c, R^m	0.0731, 0.0537
Skill Growth (School): R_e^c, R	

Figure 1: Wage Level: Overall

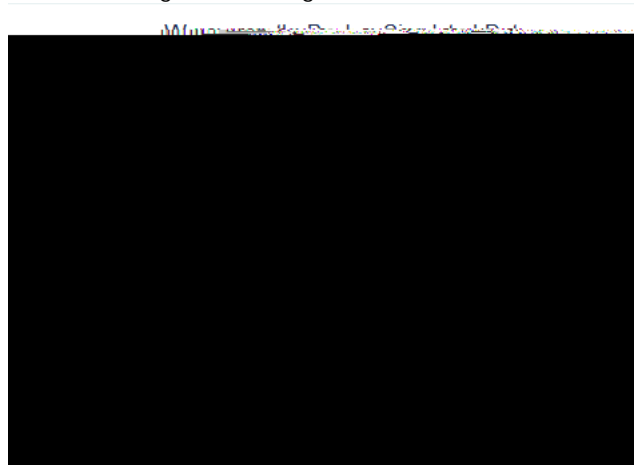


Figure 2: Wage Level: By Occupation

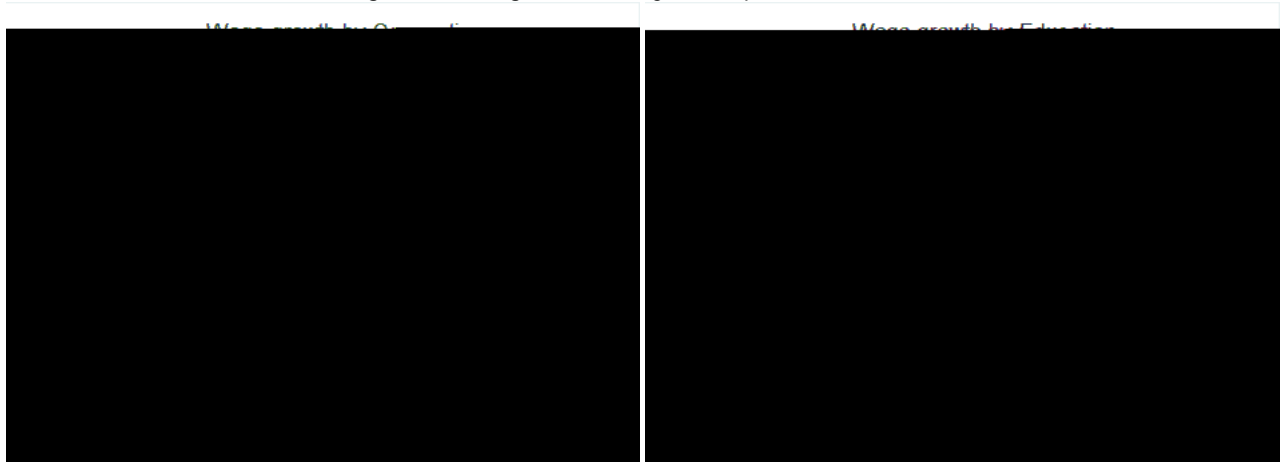


Figure 3: Occupation Composition: Blue-Collar and White-collar



Figure 4: Unemployment Composition and Transition

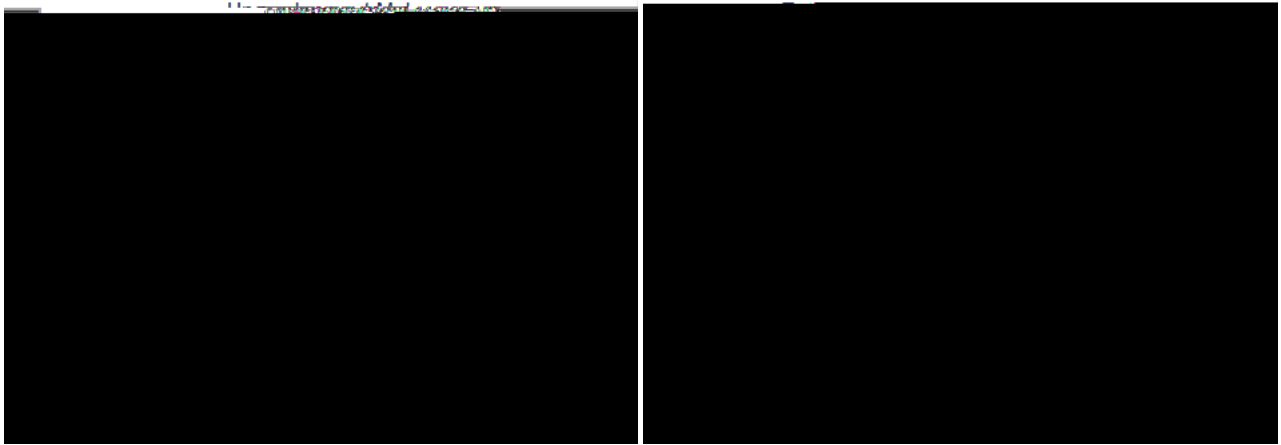


Figure 5: Level Composition



Appendix: Hierarchical Level Assignment

References

Acemoglu, D. and D. Autor (2011): "Chapter 12 - Skills, Tasks and Technologies: Implications for Employment and Earnings," in *HANDBOOK OF LABOR ECONOMICS, VOL 4B*

Guvenen, F. and A. a. Smith (2010): "Inferring Labor Income Risk from Economic Choices: An Indirect Inference Approach," *Working Paper*.

Ingram, B. and G. Neumann (2006): "The returns to skill," *Labour Economics*, 13, 35-59.

Kambourov, G. and I. Manovskii (2009): "Occupational Specificity of Human Capital," *International Economic Review*, 50, 63-115.

Keane, M. and A. Smith

