Transferability of Skills across Sectors and Heterogeneous Displacement Costs - Online Appendix

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1   Selection Model

The full selection model is given below. Given that we only focus on one origin sector (manufacturing), we omit the o subscripts for simplicity. The number of potential destination sectors is 9.

$$
\begin{aligned}
\Delta \ln wage_{id} &= X_i'\beta_d + \Delta K_i'\gamma + \epsilon_{id} \\
V_{id} &= X_i'\tilde{\beta}_d + \Delta K_i'\tilde{\gamma} + \sum_{s=1}^{9} \gamma_d^s CN_{is} + \eta_{id} \quad (d=1,\ldots,9) \\
D_{id} &= \begin{cases} 1 & \iff V_{id} = \max(V_{i1},\ldots,V_{i9}) \\ 0 & otherwise \end{cases}
\end{aligned}
\tag{1}
$$

$\Delta \ln wage_{id}$ represents the log change in wages for worker i moving from manufacturing to destination sector d. V_{id} represents the utility worker i obtains in sector d, which is determined by pecuniary and non-pecuniary factors. The latter include our coworker selection instruments CN_{is} (the number of worker i's past coworkers present in sector s at the time of worker i's displacement). Workers sort into the sector that maximizes their utility V_{id}.

We assume the error terms in the selection equation (η_{id}) are i.i.d extreme value type I. Furthermore, we impose the following linearity assumption on the structure of the error terms:

$$
E[\epsilon_{id}|\eta_{i1}\ldots\eta_{i9}] = \sigma \frac{\sqrt{6}}{\pi} \sum_s r_d^s (\eta_{is} - E[\eta_{is}])
$$

These assumptions are based on work by Dubin and McFadden (1984) and described in detail in Bourguignon et al. (2007), and allow us to write the outcome equation in the following manner:

$$
\Delta \ln wage_{id} = X_i'\beta_d + \Delta K_i'\gamma + \lambda_d(p_{i1}\ldots,p_{i9}) + \omega_{id}
$$

where $\lambda_d(\bullet)$ represents the selection correction function with the probabilities p_{is}'s (that indi-

vidual i from moves to sector s) as arguments. Dubin and McFadden (1984) show that under our assumptions this correction function takes the form:

$$\lambda_d\left(\bullet\right) = \sigma \frac{\sqrt{6}}{\pi} \left[\sum_{s \neq d} r_d^s \left(\frac{p_{is} \ln p_{is}}{1 - p_{is}} \right) - r_d^d \ln p_{id} \right]$$

2 List of Sectors and Sample Descriptives

Table A.1: List of Sectors

#	Sector
1	Agriculture, mining, utilities
2	Manufacturing
3	Construction
4	Retail
5	Transportation
6	Hotel, restaurants, low skill svcs
7	Communication, finance, prof svcs
8	Office and business support svcs
9	Education, hospitals, personal svcs

Table A.2: Sample Descriptives (by destination sector)

Industry	Age	Experience	$\triangle log(wage)$	Coworker Network Size	N
Agriculture, mining, utilities	27.1	8.6	0.08	55.8	1,207
Manufacturing	27.9	9.9	0.09	42.7	115,713
Construction	25.8	7.6	0.14	30.3	7,651
Retail	27.3	8.8	0.10	54.2	13,169
Transportation	26.7	8.3	0.07	75.5	2,059
Hotel, restaurants, low skill svcs	23.7	5.6	0.03	13.6	966
Communication, finance, prof svcs	29.2	10.4	0.04	109.7	5,076
Office and business support svcs	28.6	9.9	-0.04	68.9	4,410
Education, hospitals, personal svcs	29.7	11.3	-0.12	71.4	2,750
Total	27.8	9.6	0.08	46.9	153,001

Notes: Experience measured in years. Coworker network size includes coworkers in all potential destination sectors (after applying the restrictions described in Section I)

3 First Stage Results

The first stage estimates are presented in Table A.2. Each column represents a potential destination sector d. Each cell contains the estimated coefficient γ_d^s for CN_{is} (the number of coworkers

with jobs in sector s at the time of worker i's switch). Hence, the entries on the diagonal indicate that having coworkers in sector d increases the probability that worker i moves to d.

Table A.3: MULTINOMIAL LOGIT MODEL

	1	2	3	4	5	6	7	8	9
CN_{i1}	0.00819***	0	0.00156	-0.00174	0.00522**	-0.00933	-0.00437	0.00368*	-0.00650
	(0.00183)	(.)	(0.00363)	(0.00353)	(0.00196)	(0.0386)	(0.00272)	(0.00179)	(0.00555)
CN_{i2}	-0.000261	0	-0.000853*	-0.000528**	0.000312*	-0.00169	-0.000105	-0.000154	-0.000200
	(0.000341)	(.)	(0.000357)	(0.000161)	(0.000128)	(0.00317)	(0.000109)	(0.000145)	(0.000156)
CN_{i3}	0.00123	0	0.0121***	0.00590**	0.00355	-0.00840	0.00387	-0.00248	-0.00226
	(0.00385)	(.)	(0.00238)	(0.00204)	(0.00207)	(0.0228)	(0.00212)	(0.00274)	(0.00306)
CN_{i4}	-0.00113	0	-0.00131	0.00383***	0.00174*	-0.00751	0.000354	0.00310***	0.00284***
	(0.00143)	(.)	(0.00169)	(0.000439)	(0.000840)	(0.00732)	(0.000525)	(0.000657)	(0.000626)
CN_{i5}	0.000537	0	0.000633	0.000376	0.00118*	0.00260	0.000368	0.0000765	0.000550
	(0.00137)	(.)	(0.00255)	(0.00232)	(0.000469)	(0.00239)	(0.000590)	(0.000914)	(0.000637)
CN_{i6}	0.00697	0	0.0115	-0.00369	-0.00668	0.0549**	-0.00368	-0.00804	-0.0147*
	(0.0134)	(.)	(0.00843)	(0.00527)	(0.00620)	(0.0178)	(0.00434)	(0.00631)	(0.00643)
CN_{i7}	-0.000292	0	0.000751**	0.0000138	-0.00281***	0.00165*	0.00321*	-0.000861**	-0.000614
	(0.000291)	(.)	(0.000247)	(0.000217)	(0.000852)	(0.000696)	(0.00138)	(0.000308)	(0.000517)
CN_{i8}	-0.0125	0	-0.0162	0.00241	0.00717***	0.0108	0.000169	0.00814***	-0.0000996
	(0.00952)	(.)	(0.0117)	(0.00144)	(0.00204)	(0.00616)	(0.000111)	(0.00218)	(0.00272)
CN_{i9}	0.0112***	0	-0.00319	-0.00567*	0.00175	-0.0700*	0.00471**	0.000927	0.0124***
	(0.00216)	(.)	(0.00349)	(0.00261)	(0.00331)	(0.0300)	(0.00159)	(0.00208)	(0.00281)
χ^2	69.429		40.128	132.077	105.846	55.402	127.160	120.516	105.802
	[0.0000]		[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
N					153001				

Notes: First-stage estimates for coworker network regressors. Each column represents a potential destination sector d. Each cell contains the estimated coefficient γ_d^s for CN_{is} (the number of coworkers with jobs in sector s at the time of worker i's switch). χ^2 statistics test for joint significance of coefficients γ_d^s (for $s = 1, ..., 9$). Robust standard errors in parenthesis, p-values in brackets. Base outcome=manufacturing. Names of sectors listed on Table A.1.

4

References

Bourguignon, F., Fournier, M., and Gurgand, M. (2007). Selection Bias Corrections Based On The Multinomial Logit Model: Monte Carlo Comparisons. *Journal of Economic Surveys*, 21(1):174–205.

Dubin, J. A. and McFadden, D. L. (1984). An Econometric Analysis of Residential Electric Appliance Holdings and Consumption. *Econometrica*, 52(2):345–62.