Discussion of "New Keynesian Employment Multipliers" by Baiyou Chen and Huw Lloyd-Ellis

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(Short) Summary

- Research Question: How big are the employment/fiscal multipliers from sector-specific demand shocks?
- Answer using NK-IO-SAM model
- **Main Findings**:
  1. Large heterogeneity in "employment multipliers"
  2. Less (but still significant) heterogeneity in fiscal multipliers
  3. Multipliers notably lower than those from "fixed price multiplier" (FPM) model

My Discussion

Nice paper! Rich framework for understanding sectoral heterogeneity in fiscal/employment multipliers

My comments:

1. Do workers move across sectors and how should we model this?
   - Yes. And not at random
2. How to calibrate the model and interpret the results?
   - Perhaps too much heterogeneity in labour market parameters?
   - How to understand what is causing large differences in multipliers across sectors?
3. Other
   - How to relate to a/(the?) FPM model?
   - Relation to prior literature (empirical and theoretical)

How Much Mobility Across Sectors?

- I use U.S. CPS microdata (2010-2019)
- Collapse to 20 2-digit sectors ($\approx$ same as in the paper)
- Look at probability of switching sectors for various types of transition

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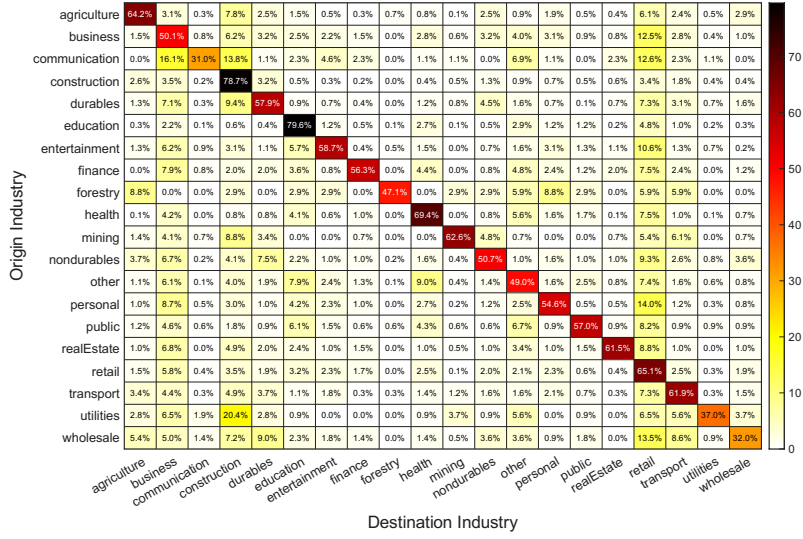
- Look at probability of switching sectors for various types of transition
- **Result:** Switching 2-digit sectors is very common

Transition Type	Share Switching Sectors (%)
E-E	48
E-U-E	37
E-N-E	37
E-U-U-E	44
E-U-N-E	51
E-N-U-E	47
E-N-N-E	41

How Much Mobility Across Sectors? (II)

- What sectors do these switchers move to?
- Let's look at the fraction of workers from each industry that move to each other industry after an E-U-E transition
- May help to suggest best way to model sector switching

How Much Mobility Across Sectors? (II)



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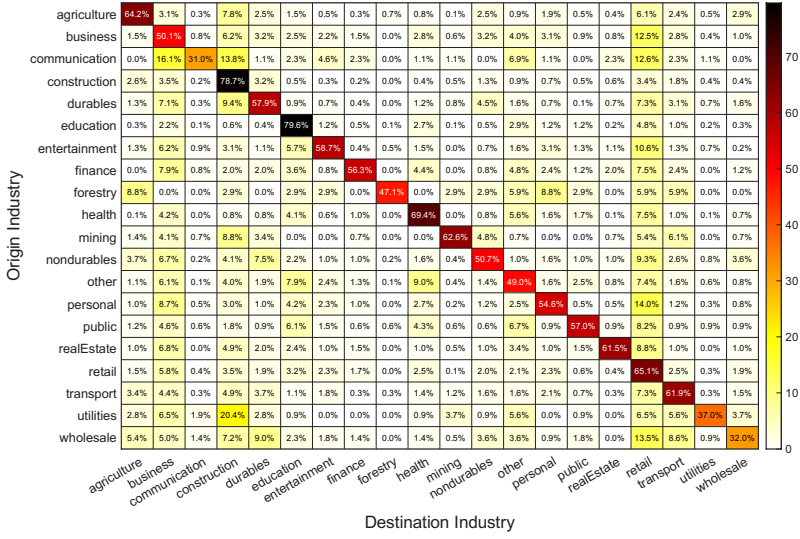

- Heterogeneity **on** diagonal: Some sectors are less mobile?

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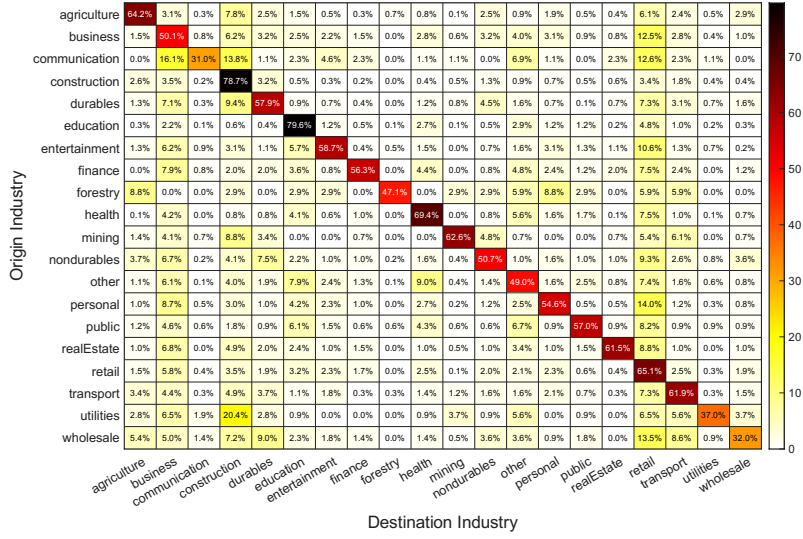

- Heterogeneity **off** diagonal: Suggests industry links - related to production network?

How Much Mobility Across Sectors? (II)

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- Let's look at the fraction of workers from each industry that move to each other industry after an E-U-E transition
- **Result:** Switching sectors does not appear to be "random"
  - If plan is to implement switching following Artuç et al (2010), could switching costs/taste shocks take this into account?

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- **Result:** Switching sectors does not appear to be "random"
  - If plan is to implement switching following Artuç et al (2010), could switching costs/taste shocks take this into account?
- Komatsu & Dhyne (2023) find that the production network explanation is very important in Belgium:
  "more than 40 percent of job-to-job movers find their next employers among the buyers and suppliers of their current employers"

How to Calibrate the Model?

- Current method for calibrating labour market parameters is as follows:
  1. Take sector-specific separation and unemployment rates from the Canadian LFS
  2. Back out job-finding rate in each sector: $\bar{U} = \frac{s}{s+f}$
     (But we know this doesn't hold...)
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  3. Calibrate sector-specific matching function elasticity such that all sectors have same elasticity of wages with respect to employment
- There is a lot of heterogeneity across sectors in separation rates and *implied* job-finding rates
- This necessitates a lot of heterogeneity in the matching function for all sectors to match the same wage elasticity

How to Calibrate the Model?

Table 5: Labour market parameters

Sector	w	ε_m	v_n/w	κ	e	ρ	η
MANU	0.220	0.488	0.987	0.011	0.446	0.727	0.717
MAND	0.225	0.481	0.988	0.011	0.452	0.737	0.720
MIN	0.371	0.540	0.986	0.018	0.395	0.659	0.701
AGR	0.088	0.388	0.986	0.004	0.574	0.815	0.725
FOR	0.314	0.750	0.981	0.015	0.152	0.271	0.647
FIS	0.114	0.827	0.975	0.006	0.055	0.117	0.639
WHO	0.287	0.398	0.989	0.014	0.522	0.828	0.753
INF	0.173	0.570	0.983	0.008	0.388	0.595	0.677
TRA	0.195	0.478	0.988	0.010	0.451	0.743	0.724
UTI	0.288	0.328	0.994	0.014	0.512	0.914	0.833
FIN	0.276	0.384	0.992	0.014	0.492	0.862	0.788
PRO	0.183	0.413	0.988	0.009	0.526	0.805	0.735
CON	0.207	0.554	0.983	0.010	0.408	0.617	0.679
RET	0.111	0.523	0.987	0.005	0.413	0.681	0.705

- Matching function is:

$$M_i(S_i, J_i) = \phi[S^{-\chi_i} + (\tau J)^{-\chi_i}]^{-\frac{1}{\chi_i}}$$

$$\chi_i = \frac{1 - \epsilon_m^i}{\epsilon_m^i}$$

- κ is vacancy posting cost
- e is job-finding rate
- ρ is job-filling rate

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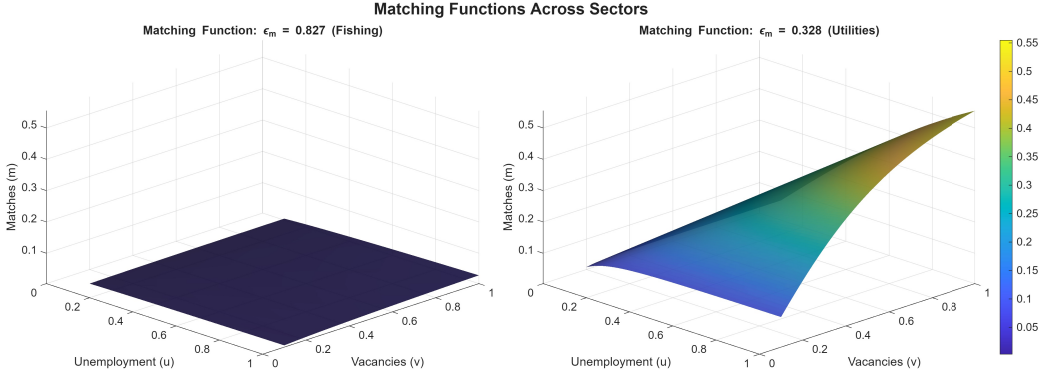


How to Calibrate the Model?

My suggestion: remove heterogeneity that we are not confident in

- Assume all sectors have the same matching function and recruitment costs (and job-finding rates?)
- Calibrate (aggregate) ϵ_m and κ to match responsiveness of wages and recruitment cost shares *on average*
- More broadly, it would be nice to see features of the model added one-by-one (starting from a FPM model?)

Results

- Why would I prefer to start with less heterogeneity? It is currently hard to understand why the multipliers differ across sectors

Table 6: Employment response to persistent final demand shock

	1 quarter			4 quarters			16 quarters		
	Direct	Indirect	Multiplier	Direct	Indirect	Multiplier	Direct	Indirect	Multiplier
MANU	1.047	1.015	1.969	1.267	0.651	1.514	1.335	0.885	1.663
MAND	1.480	0.911	1.617	1.707	0.594	1.348	1.713	0.656	1.383
MIN	0.574	1.121	2.958	0.721	0.769	2.065	0.778	0.819	2.053
AGR	1.854	1.243	1.671	2.116	0.900	1.425	2.187	1.089	1.498
FOR	1.089	1.626	2.492	1.647	1.038	1.630	1.993	1.021	1.513
FIS	1.033	0.207	1.200	1.842	-0.299	0.838	2.665	0.677	1.254
WHO	2.013	0.239	1.119	2.229	-0.640	0.713	2.279	-0.181	0.921
INF	3.448	-0.056	0.984	4.009	-0.815	0.797	4.150	-0.070	0.983
TRA	2.861	0.704	1.246	3.306	0.024	1.007	3.408	0.225	1.066
UTI	1.421	-0.733	0.484	1.639	-1.792	-0.093	1.688	-1.151	0.318
FIN	2.651	-1.549	0.416	2.932	-3.412	-0.164	3.012	-2.768	0.081
PRO	5.610	0.645	1.115	5.815	-0.237	0.959	5.731	-0.351	0.939
CON	2.096	0.547	1.261	2.478	-0.158	0.936	2.619	0.401	1.153
RET	6.672	-2.021	0.697	7.637	-2.995	0.608	7.992	-1.083	0.864
REA	0.959	0.494	1.515	1.206	-0.194	0.839	1.302	0.426	1.328

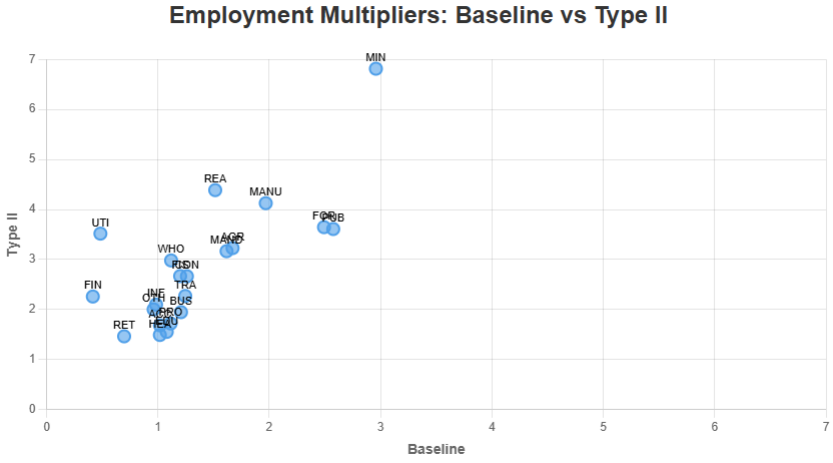
Results

- Why would I prefer to start with less heterogeneity? It is currently hard to understand why the multipliers differ across sectors

Table 7: GDP response to persistent final demand shock

	1 quarter			4 quarters			16 quarters		
	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
MANU	0.295	0.466	0.761	0.325	0.453	0.778	0.339	0.425	0.763
MAND	0.268	0.350	0.619	0.303	0.325	0.627	0.313	0.292	0.604
MIN	0.642	0.347	0.990	0.675	0.341	1.016	0.702	0.318	1.020
AGR	0.383	0.478	0.861	0.398	0.481	0.879	0.410	0.456	0.866
FOR	0.292	0.511	0.803	0.385	0.440	0.825	0.436	0.374	0.810
FIS	0.487	0.394	0.881	0.546	0.366	0.912	0.582	0.317	0.899
WHO	0.600	0.420	1.020	0.655	0.401	1.056	0.696	0.350	1.047
INF	0.508	0.409	0.917	0.568	0.383	0.951	0.599	0.335	0.933
TRA	0.456	0.430	0.886	0.513	0.401	0.914	0.546	0.349	0.895
UTI	0.691	0.361	1.052	0.745	0.343	1.088	0.790	0.282	1.072
FIN	0.705	0.371	1.076	0.762	0.366	1.128	0.810	0.306	1.115
PRO	0.618	0.377	0.995	0.681	0.351	1.032	0.724	0.308	1.032
CON	0.394	0.461	0.855	0.452	0.442	0.894	0.477	0.410	0.886
RET	0.504	0.529	1.033	0.588	0.488	1.075	0.621	0.413	1.034
REA	0.597	0.432	1.029	0.618	0.439	1.058	0.637	0.411	1.047

Employment Multipliers: Comparisons with FPM



- Multipliers are all lower than in the "FPM" model, but not uniformly
- Would be very interesting to see these differences unpacked

Other Comments

- What actually is a FPM model?!
  - Particularly the one used as a comparison
  - Is this FPM model nested in current model?
- Relation to previous literature:
  1. Empirical
     - Barratieri et al (2023)
       "Employment increases significantly in recipient industries and in sectors supplying intermediate inputs to these industries, while employment decreases downstream"
  2. Theoretical
     - Chodorow-Reich & Wieland (2020) - Multi-sector NK-SAM (no IO)
     - Proebsting (2022) - NK-IO (no SAM)
- More calibration thoughts:
  1. Do we really want large differences in mark-ups across sectors? Is this just capital intensity?
  2. Would like to see results with heterogeneity in price stickiness across sectors

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