

Gross Labor Market Flows and Entrepreneurship

Alexandre Gaillard¹

Sumudu Kankanamge¹

¹Toulouse School of Economics

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Motivation

Large interaction between labor market policies and self-employment occupational choice.

1. Unemployment insurance and self-employment (Røed et al. (2014), Hombert et al. 2020).
2. Labor and corporate income taxes and choice to become self-employed (Chen et al. (2019), Brüggemann (2020), ...)

→ No framework to study this interaction with consistent transitions between employment (W), self-employment (E), unemployment (U).

Motivation

We propose a *hybrid* framework that combines:

1. Occupational choice model: Quadrini (2000), Cagetti & De Nardi (2006),
2. Frictional labor market model: Diamond, Mortensen, Pissarides (1982-1985).

And assess its ability to account for key data features of the US:

1. Gross labor market flows comprising self-employment, in many dimensions: aggregate, ability, wealth.
 - ▶ Standard models produce inconsistent gross flows.
2. Responsiveness of gross flows to labor market policy change.
 - ▶ Account for observed responsiveness of flows to UI variations in the US.

Aggregate gross flows

Table 1: Aggregate quarterly occupational gross flows rate in the CPS (1995:I to 2015:IV).

From	Gross flow (%) to			Stock (%)
	Employed (W)	Self-employed (E)	Unemployed (U)	
Employed (W)	97.32 (0.45)	0.70 (0.11)	1.97 (0.43)	84.3
Self-employed (E)	6.30 (1.28)	92.26 (1.49)	1.45 (0.64)	10.3
Unemployed (U)	44.38 (10.24)	3.56 (1.19)	52.06 (10.47)	5.4

Standard deviations between brackets.

- ▶ Unemployed individuals are **5 times more likely** to select into self-employment. They represent **20% of the new self-employed**.
- ▶ **Large flow E to W**, suggesting important *"on the business"* transitions.

Responsiveness to UI variations.

Estimate elasticity of **occupational decision** out of U w.r.t. **UI generosity**.

- higher UI leads to moral hazard + liquidity effects → search ↓.
- + self-employment is *not* covered by the UI.

► UI generosity at the state level:

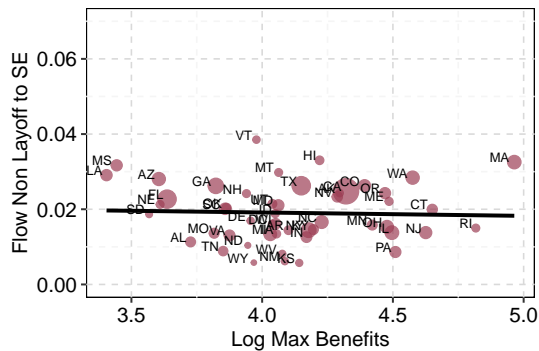
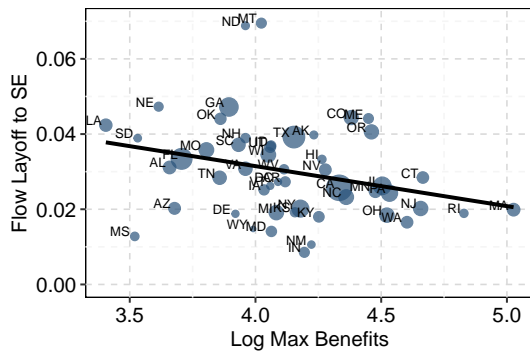
$$\text{UI generosity}_{st} = \text{Weekly Benefits Amount (WBA)}_{st} \times (\text{Regular UI duration}_{st} + \text{Extended duration}_{st})$$

► Identification relies on separating 2 groups of unemployed individuals:

1. **Eligible to UI:** unemployed due to involuntary job loss, looking for a job.
→ Affected by variations in UI generosity.
2. **Ineligible to UI:** all other unemployed individuals looking for a job.
→ Not directly affected.

Responsiveness to UI variations.

Figure 1: Average quarterly flow $U \rightarrow E$ and UI generosity (1994:2015)



Probability model

$$P(Occ.|U)_{ist} = \alpha + \gamma Layoff_{it} + \underbrace{\beta UI\ generosity_{st}}_{\text{effect on ineligible}} + \underbrace{\delta UI\ generosity_{st} \times Layoff_{it}}_{\text{effect on eligible unemployed ind.}} + \mathbf{X} + \epsilon_{ist}$$

	OLS		mLogit	
	U to SE	U to W	U to SE	U to W
log(UI generosity)	-0.115 (0.155)	0.057 (0.048)	-0.035 (0.193)	0.082 (0.053)
Layoff \times log(UI generosity)	-0.189*** (0.056)	-0.085*** (0.016)	-0.200** (0.080)	-0.056*** (0.022)
Individual & State-year controls	Yes	Yes	Yes	Yes
State and year FE	Yes	Yes	Yes	Yes
Observations	140,952			

Notes: *p<0.1; **p<0.05; ***p<0.01. Standard errors are adjusted for clustering at the state level.

- Self-employment decision more responsive than employment decision.

A frictional occupational choice model

- ▶ Account for main feature of the US labor market.
- ▶ Carefully model of UI system: duration, benefit amount and cap.

Key features: incomplete markets model with

1. Heterogeneous agents:

- a = wealth, key for liquidity effect (Chetty (2008)) + business investment.
- ϑ = ability, generate consistent heterogeneity in wages.
- z = business shock, match riskiness of self-employment businesses.
- j = remaining UI duration.

2. Three labor market states:

- self-employment/entrepreneurship $E(a, \vartheta, z)$,
- employment $W(a, \vartheta)$,
- insured unemployment $U_I(a, \vartheta, j)$, uninsured unemployment $U_\ell(a, \vartheta)$

Model: three occupations

Unemployed individuals:

- ▶ search s_e, s_w to find a business idea/job with prob. $\pi_e(s_e)$ and $\pi_w(s_w)$.
- ▶ Are monitored toward job search effort s_w at rate $\pi_m(s_w)$.

Workers:

- ▶ wage $wh(\vartheta)$, taxed τ_w .
- ▶ Separation rate $\eta(\vartheta)$. Becomes U_I **with max / UI periods**.
- ▶ search s_e to find a business idea *on-the-job* at rate $\pi_e(s_e)$.

Self-employment/Entrepreneurs:

- ▶ produce with: $\mathcal{Y}(k, \vartheta, z) = zg(\vartheta) [\varpi k^p + (1 - \varpi)\underline{l}^p]^{\nu/p}$, taxed τ_p .
- ▶ Can become U_ℓ **without UI**.
- ▶ search s_w to find a job *on-the-business* at rate $\pi_w(s_w)$.

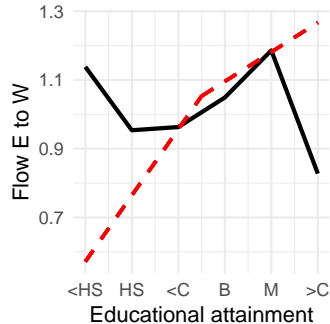
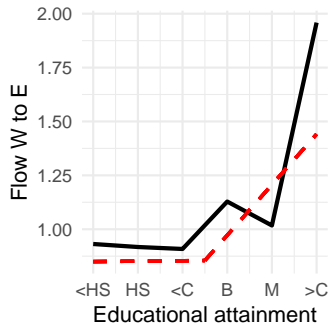
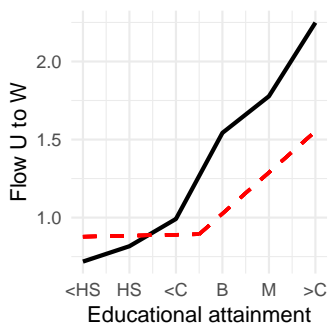
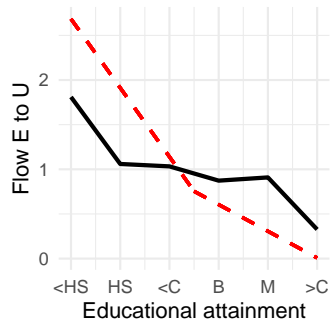
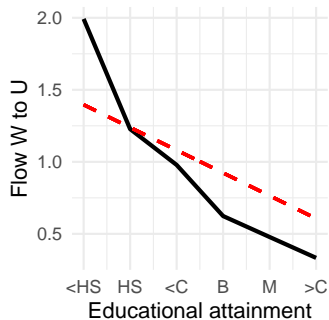
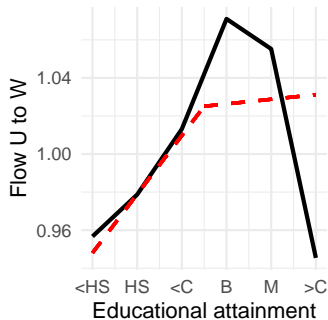
Results: aggregate growth flows

Table 2: Bimonthly gross flow between occupations in the data and the model.

From	Data (CPS)				Model			
	Stock	To			Stock	To		
		<i>W</i>	<i>E</i>	<i>U</i>		<i>W</i>	<i>E</i>	<i>U</i>
<i>W</i>	84.3	97.83	0.50	1.67	82.4	97.38	0.80	1.82
<i>E</i>	10.3	4.53	94.16	1.31	12.0	4.92	94.08	1.00
<i>U</i>	5.4	40.10	3.40	56.51	5.6	39.45	2.77	57.78

Data sources: authors' computations using CPS data from 1995:I to 2015:IV.

Results: growth flows by educational attainment



Results: growth flows by wealth quantile

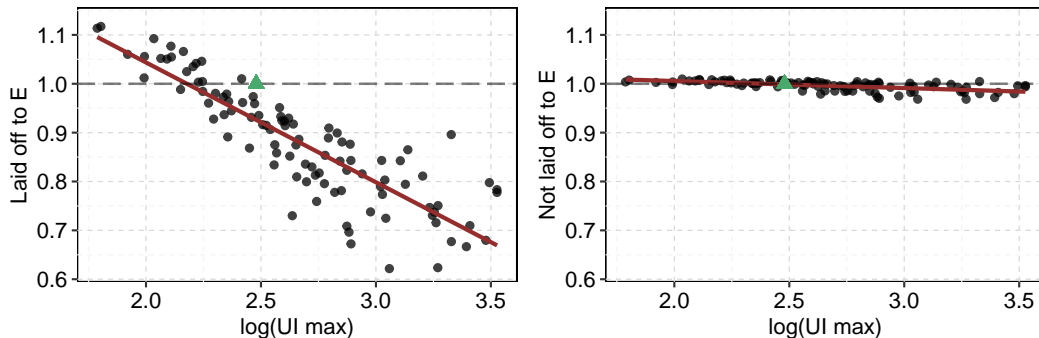
Table 3: Occupational flow rates by wealth quantiles in the SIPP (1996-2008) and the model.

Wealth quantile	Data (SIPP)			Model					
				Benchmark			No entrep. lab. supply \underline{l}		
				Q1	Q2	Q3	Q1	Q2	Q3
$W \rightarrow E$	0.64	0.86	1.50	0.31	0.55	2.14	0.00	0.18	2.82
$W \rightarrow U$	1.52	0.85	0.63	1.19	0.98	0.83	1.21	0.98	0.81
$E \rightarrow W$	1.17	1.03	0.80	1.52	0.93	0.55	2.48	0.31	0.21
$E \rightarrow U$	1.87	0.78	0.34	1.83	0.97	0.20	2.34	0.49	0.17
$U \rightarrow E$	0.70	0.96	1.34	0.51	0.87	1.62	0.00	0.42	2.58
$U \rightarrow W$	0.96	1.01	1.04	1.24	1.00	0.76	1.27	1.03	0.70

Results: responsiveness to UI change

Is the model able to generate the high responsiveness of $U_I \rightarrow E$ flows to UI variations?

Figure 2: UI generosity and model average flows from the insured and uninsured unemployed pools.



Note: the green triangle dot marks the current average regular UI provision in the US.

Results: responsiveness to UI change

Table 4: Elasticity of unemployment flows to UI generosity: model and data

Elasticity $\varepsilon_{X \rightarrow Y}$	Data ^a		Model (benchmark)		Model (no monitoring)	
	U to E	U to W	U to E	U to W	U to E	U to W
Insured unemp. workers	-0.200** (0.080)	-0.056*** (0.022)	-0.280*** (0.017)	-0.043*** (0.003)	-0.370*** (0.020)	-0.226*** (0.015)
Uninsured unemp. workers	-0.035 (0.193)	0.082 (0.053)	-0.014*** (0.002)	0.002*** (0.000)	-0.027*** (0.003)	0.003*** (0.000)

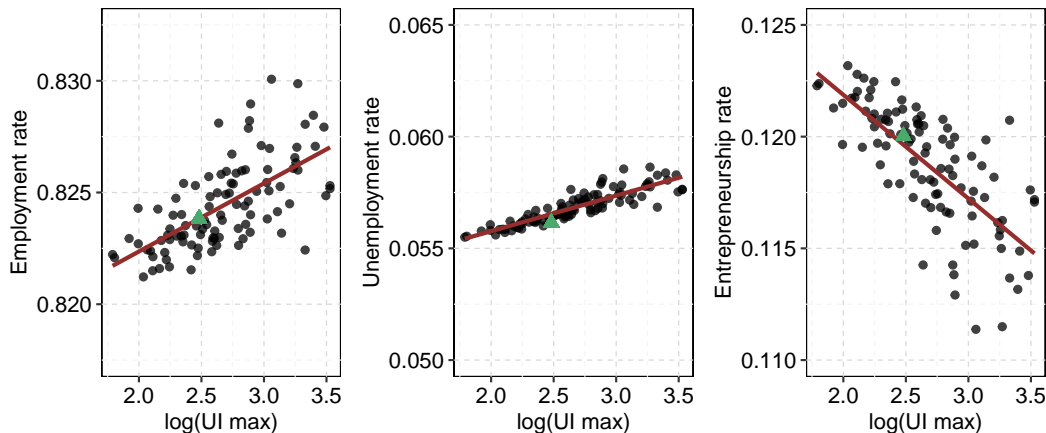
Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Standard errors are reported in parentheses.

^a Estimates for the data are taken from the mLogit results in the empirical section.

- ▶ Liquidity and moral hazard effect are strong in the model.
- ▶ New coverage effect: UI change the W/E relative riskiness.
- ▶ Monitoring: important to match the employment responsiveness.

Implied aggregate stocks

Figure 3: UI generosity and occupational masses.



Note: the green triangle dot marks the current average regular UI provision in the US.

- **Reallocation** btw occupations. Employment is better covered, self-employment becomes virtually riskier.
- Consistent with Chodorow-Reich et al. (2019) and Boone et al. (Forthcoming).

Conclusion

Hybrid parsimonious model with:

- ▶ Entrepreneurship in HA setup.
- ▶ Frictional labor market.

The model account for:

- ▶ Gross flows in three dimensions: aggregate, ability and wealth.
- ▶ The large (resp. low) responsiveness of self-employment (resp. employment) flows to UI variations.

→ We find that employment rate is nearly flat or increasing with respect to UI variations, once accounting for self-employment flow.

Taking the Model to the Data

- ▶ Separable utility function: $u(c, s_e, s_w) = \frac{c^{1-\sigma}}{1-\sigma} - s_w^{\psi_w} - s_e^{\psi_e}$,
- ▶ Job sep.: $\eta(\vartheta) = \alpha_\eta + \beta_\eta w \vartheta \rightarrow$ match separation / wage quantile
- ▶ Job/business finding rates: $\pi_e(s_e) = 1 - e^{-\kappa_e s_e}$, $\pi_w(s_w) = 1 - e^{-\kappa_w s_w}$, capture E rate and $U \rightarrow W$ flows.
- ▶ Entrepreneurial abilities $g(\vartheta)$ captures transition $W \rightarrow E$ by wage quantile relative to mean transition rate.
- ▶ Fixed cost c_f captures E exit rate, given z process
- ▶ other parameters endogenous parameters.