

# Job Displacement Insurance and Consumption Smoothing

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# Outline

Why 'Job Displacement Insurance'?

Overview: incentive-insurance trade-off

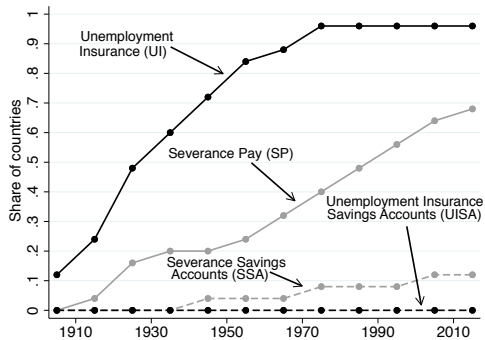
Evidence: consumption smoothing gains of JDI

Implications for policy design

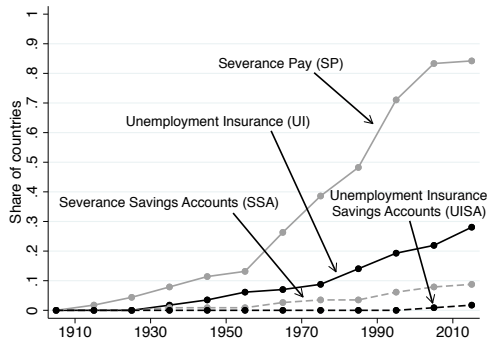
## Why 'Job Displacement Insurance' (JDI)?

- ▶ Definition: government-mandated (or provided) programs aiming to financially support workers displaced from a job
- ▶ Types of Job Displacement Insurance Policies (Parsons, WP 2016)
  - ▶ **Unemployment Insurance** (UI): state-contingent; insurance
  - ▶ (Government mandated) **Severance Pay** (SP): lump-sum; insurance
  - ▶ **Severance Savings Account** (SSA): lump-sum; savings
  - ▶ **Unemployment Insurance Savings Account** (UISA): state-contingent; savings

Figure: Government-mandated job displacement insurance



(a) West Europe, USA, CAN, AUS, NZ



(b) Africa, Asia, Rest of the Americas

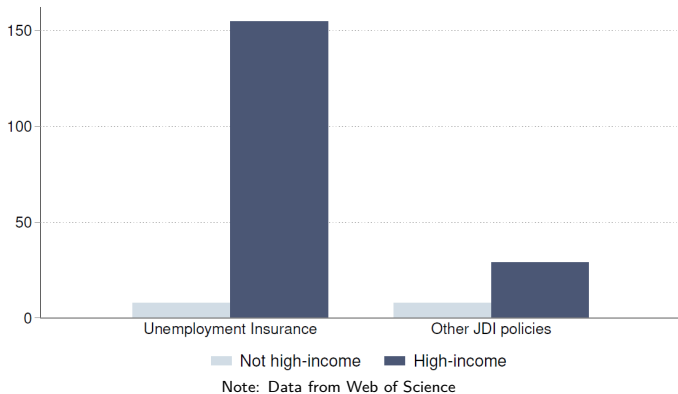
Gerard & Naritomi (2021): (a) 25 countries; (b) 114 countries

- ▶ UI and SP programs: increasingly common across countries and often co-exist; SP relatively more common in developing countries
- ▶ Expanded analysis and dataset soon: Gerard, Gonzaga & Naritomi (*In progress*; Handbook Chapter)

# Top econ publications on JDI

Gerard, Gonzaga & Naritomi (*In progress*; Handbook Chapter)

- ▶ Last 20 years: vast literature on **UI** in top journals; much less on **SP/UISA/SSA**
- ▶ Very little evidence outside high-income countries ▶ journals



- ▶ Baily (1978) actually discusses both UI and lump-sum schemes

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## Quick overview of normative discussion

- ▶ Reasons for government provided or mandated insurance for unemployment risk:
    - ▶ **Asymmetric information**: risk types not observable → competitive equilibrium may be inefficient and fail to exist
      - ▶ Government advantage: cannot observe types either, but can mandate that worker buy insurance (payroll contributions)
    - ▶ **Aggregate risk**: private insurance relies on idiosyncratic shocks and cross-sectional risk sharing
      - ▶ Government advantage: can use debt to smooth shocks across generations
    - ▶ **"Internatilies"**: e.g. present-biased workers may not self-insure enough through savings
      - ▶ Government advantage: can create forced savings accounts
  - ▶ How much social insurance to provide?
    - ▶ Insurance (social or private) creates incentive effects that increase the cost of providing insurance
    - ▶ Governments have no clear advantage with **moral hazard**
- ⇒ Full insurance may not be efficient: trade-off between **insurance** and **incentives**

## Quick overview of normative discussion

- ▶ Usual formula for optimal benefits (Baily, 1978; Chetty, 2006):

$$\frac{E[u'(c_{ben})] - E[u'(c_{tax})]}{E[u'(c_{tax})]} = Fiscal\ Externality \left( \equiv \frac{\text{Behavioral Cost (BC)}}{\text{Mechanical Cost (MC)}} \right)$$

$c_{tax}$  is consumption employed and contributing,  $c_{ben}$  unemployed with benefits

- ▶ **insurance value:** gain of transferring \$1 from high to low state
- ▶ **incentive effect:** additional cost of transferring \$1 due to behavioural responses
  - ▶ **BC:** increase in cost due to reduced re-employment rates (Moral Hazard)
  - ▶ **MC:** workers draw additional benefits absent of behavioral responses
- ▶ Optimum = partial insurance:  $c_{ben} < c_{tax}$  if  $FE > 0$ 
  - ▶ generosity increases with curvature of utility function (i.e., how risk adverse workers are) and size of consumption gap
  - ▶ decreases with  $FE$  (i.e., size of moral hazard)
- ▶ Behavioral frictions can affect both sides of trade-off, and the formula (see Spinnewijn, BPE Bootcamp '22)



# Policy design: UI vs SP

- ▶ Policy design: usual incentive-insurance trade-off
  - **Incentive**: distorting incentives to find a new job
  - **Insurance**: helping workers smooth consumption against (1) risk of displacement, and (2) risk of remaining non-employed
- ▶ **UI (State-contingent)**:
  - ▶ Worse for incentives: more distortionary (income + substitution effects)
  - ▶ Better for insurance: insure against both types of risks
- ▶ **SP (Lump-sum)**:
  - ▶ Better for incentives: less distortionary (only income effect)
  - ▶ Worse for insurance: only insure against risk of displacement

## Incentive vs. Insurance: evidence

### ▶ Incentive effects:

- ▶ UI: large empirical literature that estimates impacts of benefits on unemployment duration (e.g. see Schmieder and von Wachter, 2016)
- ▶ SP: providing cash-on-hand to workers at lay-off can increase duration if workers are liquidity constrained (e.g. Chetty, 2008)
  - ▶ But re-employment effects of UI are indeed larger than SP

### ▶ Insurance value: harder to estimate, but recent advances due to various new sources of high frequency panel data on consumer spending

### ▶ Consumption-based approach: consumption wedge $\times$ risk aversion (e.g. Gruber, 1997)

$$\frac{u'(c_{ben}) - u'(c_{tax})}{u'(c_{tax})} \simeq \gamma \frac{\Delta c}{c}$$

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## Insurance value: consumption smoothing gains

- ▶ Need for insurance: can workers smooth consumption across states of the world?
  - ▶ Brazil: sharp drop in consumption spending after job loss for workers not covered by JDI (Gerard and Naritomi, 2021)
  - ▶ U.S.: sharp drop in consumption spending after job loss in the U.S. and further drop after UI exhaustion (Ganong and Noel, 2019)
  - evidence of potential insurance value of more JDI benefits
- ▶ But the consumption approach implemented in the in Brazil and the U.S. also reveal that standard models of behavior cannot explain the data
  - ▶ UI literature meets behavioral household finance
  - ▶ large literature on excess sensitivity to cash-on-hand (e.g. payday effects in Shapiro 2005)
  - ▶ but it is a priori unclear whether the same sensitivity will hold in a negative shock context
  - important implications for policy design

# JDI and consumption smoothing in Brazil

Gerard and Naritomi (2021)

- ▶ Brazil: workers that receive a SP+SSA lump-sum at layoff and UI
- ▶ Incentives to smooth are particularly strong
  - ▶ Positive transitory income shock: lump-sum liquidity
  - ▶ Negative permanent income shock: lay-off (e.g., Stephens 2001, Hendren 2017)
  - ▶ 75 % of workers remain without a job at month 5 (end of max UI duration)
- ▶ Study consumption profile of displaced workers in São Paulo, Brazil
- ▶ Combine high-frequency longitudinal data on consumption and employment from administrative records ( $\simeq 400,000$  workers)

# Job displacement insurance in Brazil

- ▶ JDI benefits for a worker with at least 12 months of tenure at lay-off

## 1 State-contingent: UI

- ▶ Must apply within 4 months of layoff (30-day waiting period)
- ▶ Potential duration: 4 or 5 months of UI if more than 12 or 24 months of employment
- ▶ Benefit level: depends on wage at layoff (average 0.75 replacement rate)

## 2 Lump-sum: SSA and SP

- ▶ Can withdraw from Severance Savings Account (“FGTS account”)
  - ▶ Employer deposits 8% of monthly wage in employee’s FGTS account
  - ▶ Employee can withdraw everything within 15 to 90 days after layoff (otherwise account illiquid until retirement)
- ▶ Receive additional Severance Pay (SP):
  - ▶ At layoff, employer must pay a “fine” equal to 40% of the FGTS amount + a monthly wage as “advance notice” of layoff
- ▶ 4.73 monthly wage in our sample
- ▶ Workers who are **fired** (for cause): none of these benefits

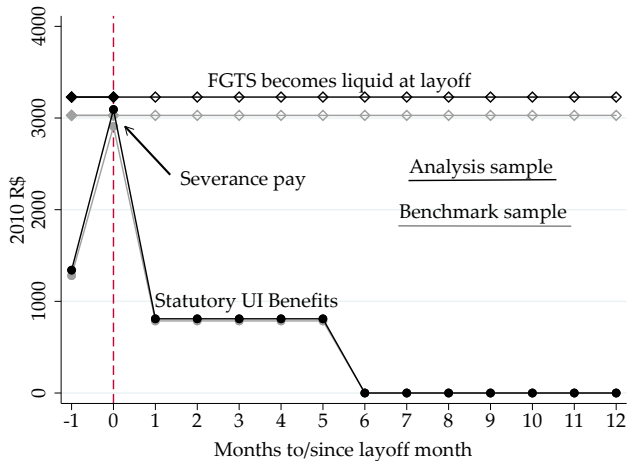
## Novel source of data to measure consumption

- ▶ Anti tax evasion program for VAT in São Paulo (Naritomi, 2019)
  - ▶ Incentives for consumers to give SSN to sellers (lottery, VAT rebate)
  - ▶ Sellers must report all transactions to state tax authority, including SSN
  - ▶ Consumers can open online accounts at tax authority to check info
  - ▶ Substantial take up: > 18 million people with online accounts⇒ create administrative high-frequency expenditure data
  
- ▶ Key variables of expenditure data we have access to (2010-2015)
  - ▶ Date, total value, number of items for each transaction
  - ▶ Sector of seller (to identify type of purchases and get at consumption)  
4722-9/01 Retail of meat (butchery)

*(NB: paper in this literature focus on non-durable spending; consumption and expenditure are not the same, more so at high-frequency)*

# Job displacement insurance in Brazil

(a) Average statutory benefits

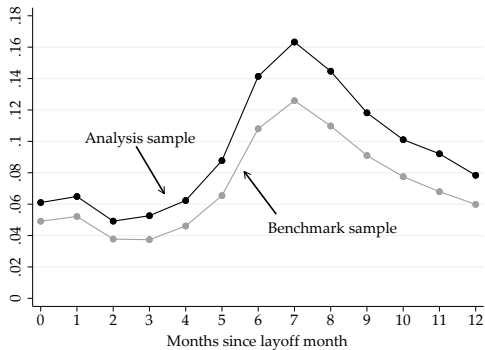




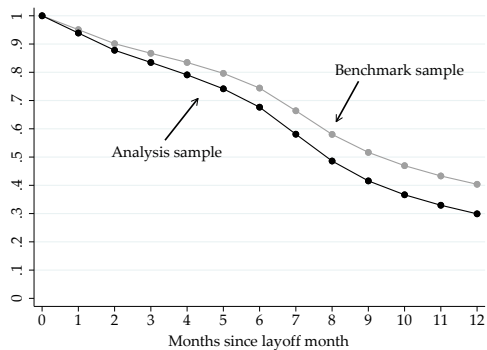
# Hazard rates and Survival rates

Gerard and Naritomi (2021)

(c) Hazard rate of formal reemployment

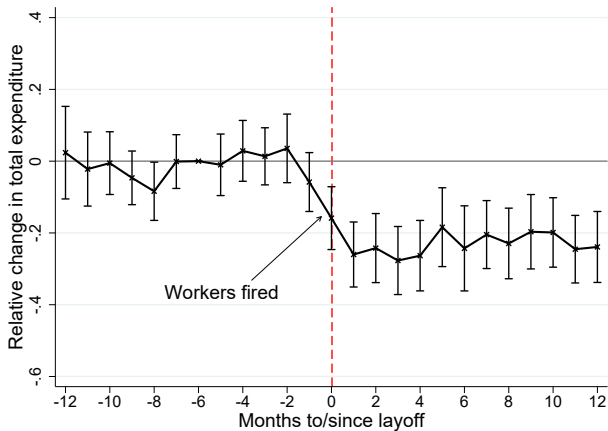


(d) Survival rate without a formal job



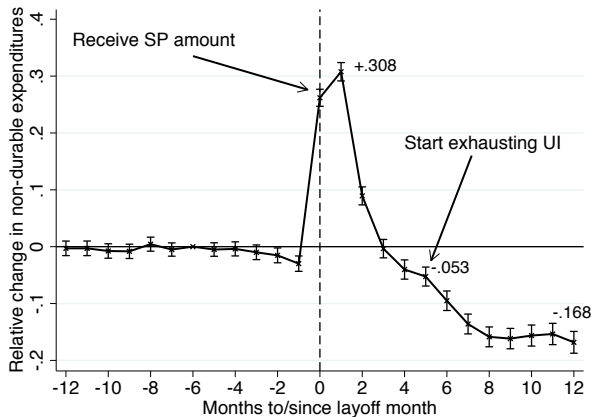
# Consumer spending profile without JDI

Gerard and Naritomi (2021)



Stacked diff-in-diff comparing fired workers with similar workers that stayed in the job

## JDI and (the lack of) consumption smoothing in Brazil



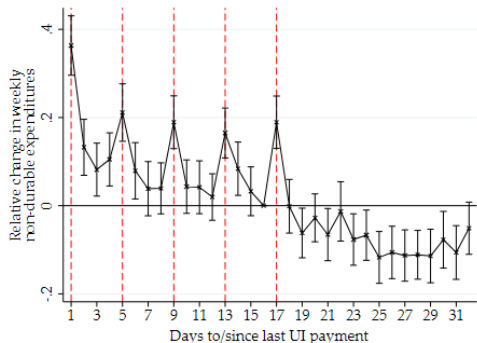
DD estimates - Non-durables (survival sample)

Stacked diff-in-diff comparing laid-off workers with similar workers that stayed in the job

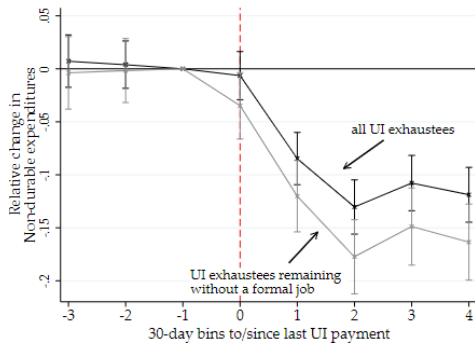
# Insurance value: what if there is excess sensitivity to cash-on-hand?

- ▶ Expenditures very sensitive to timing of payment
- ▶ Lack of smoothing in anticipation of expected drop in income at UI exhaustion

(a) Around UI payday within a month



(b) Around the month of UI exhaustion

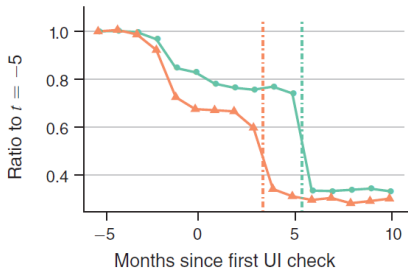


# Workers do not smooth predictable income drops

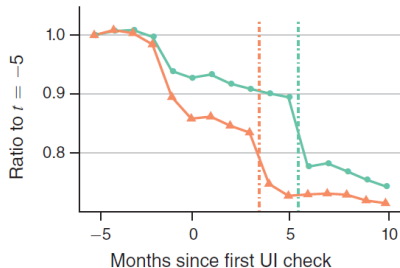
The U.S. case (Ganong and Noel, 2019)

- ▶ U.S. bank data to track consumer spending and arrival of UI check
- ▶ Policy variation: states in the US have different UI benefits and workers are laid-off at different months across time

Panel A. Income (labor + UI) if stay unemployed



Panel B. Spending if stay unemployed



Potential UI duration  
—●— 6 months —▲— 4 months (Florida)

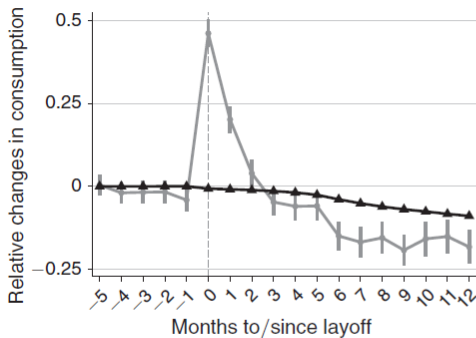
## Potential mechanism: present bias

Gerard and Naritomi (2021)

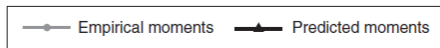
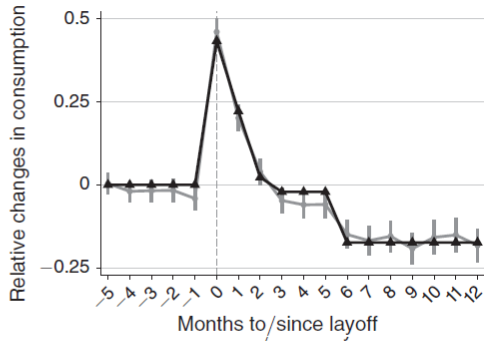
- ▶ Findings at odds with standard models of job-search and consumption with liquidity constraints and forward-looking agents (Card et al, QJE 2007, Chetty, JPE 2008)
- ▶ Adding present bias → high propensity to consume out of liquidity and low propensity to save in anticipation of negative shock
- ▶ Sophisticated  $\beta - \delta$  mechanism supported by survey of UI applicants
  - ▶ Brazil: 60% say they would not want to get all UI benefits in lump-sum fashion at layoff ("control expenditures" or "not spend it all at once")
  - ▶ Ethiopia: 50% prefer monthly payment over lump-sum of additional liquidity at layoff to "help control expenditures" (Abebe et al, in progress)
- ▶ Saving constraints (kinship taxation, no savings technology) would explain our findings, but do not seem to be relevant for Brazil

## Model fit: benchmark vs. present-bias

Panel A. Benchmark:  $\delta = 0.995$ ;  $\beta = 1$



Panel D. Sophisticated  $\beta\delta$ :  $\delta = 0.995$ ;  $\hat{\beta} = 0.70$



- ▶ Consumption profile if remain without a job (survival sample)
- ▶ A job search model with present bias predicts well the empirical findings ▶ model
- ▶ In particular, reasonable parameter values for sophisticated  $\beta - \delta$

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## Implications for JDI policy design

SP vs. UI (Gerard, Gonzaga & Naritomi; *In progress Handbook Chapter*)

- ▶ SP vs. UI usually focused on the **contingency policy**: UI targets better workers that are unemployed for longer, but generates more efficiency costs
- ▶ To illustrate standard framework: consider a reform that reduces SP by \$1 to provide more UI to those who reach max UI duration  $P$ .
- ▶  $S_t$  is the share of workers remaining without a job in each month  $t$  since job loss
- ▶ Additional UI affect only a share  $S_P$  of workers but each will receive  $1/S_P$ , so the consumption-smoothing gains are:

$$S_P \times E \left[ u'(c_{ben}^P) \right] \times \frac{1}{S_P} - E \left[ u'(c_{ben}^{SP}) \right] = E \left[ u'(c_{ben}^P) \right] - E \left[ u'(c_{ben}^{SP}) \right]$$

where  $E \left[ u'(c_{ben}^P) \right]$  and  $E \left[ u'(c_{ben}^{SP}) \right]$  captures the average marginal utility among mechanical beneficiaries for the increase in UI and the decrease in SP

# Implications for JDI policy design

## SP vs. UI

- ▶ Workers who remain without a job  $P$  periods after job loss are likely worse off on average than displaced workers as a whole ( $E [u'(c_{ben}^P)] > E [u'(c_{ben}^{SP})]$ )
- ▶ The survival group only includes workers who do not find jobs until  $P$  and may need more financial support
  - ▶ If most workers find jobs quickly  $\rightarrow$  UI will be better targeted than SP
  - ▶ If most workers take a long time to find jobs  $\rightarrow$  targeting difference matters less
- ▶ Another key (but overlooked) difference is **disbursement** policy: lump-sum (SP) vs. tranche payments (UI)
- ▶ Standard framework: disbursement should not matter much  $\rightarrow$  a lump-sum can be dissaved slowly, and tranche payments can be saved (e.g., if need to buy larger items)
- ▶ But clear evidence of excess sensitivity to cash on hand  $\rightarrow$  **additional insurance advantage** of UI over SP as UI disbursement aids consumption smoothing ( $E [u'(c_{ben}^{SP})]$  is much smaller)

# Counterfactual JDI policies

Gerard and Naritomi (2021)

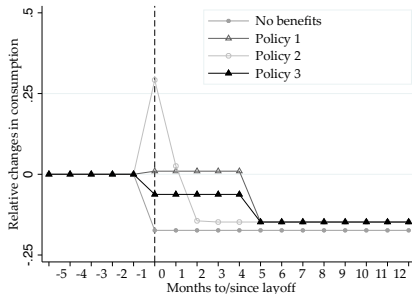
- ▶ Using the sophisticated  $\beta - \delta$  job search model with liquidity constraints, we consider 3 policies:
  0. Benchmark: no benefits
  1. UI: same average benefit level as in the estimation sample for a potential UI duration of five months after layoff
  2. SP: paid lump- sum at layoff
  3. SP: same total amount as 2. in five monthly installments irrespective of workers' reemployment status
- ▶ This third (untested) policy highlight the role of **disbursement** policies
- ▶ The three are designed such that their mechanical cost is the same (cost assuming the same search efforts as with no benefits)

# Policy counterfactuals

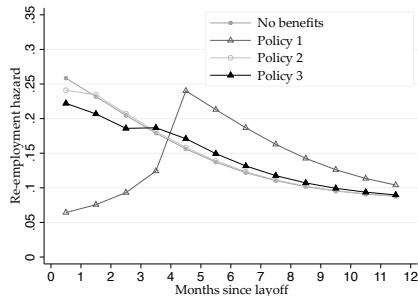
Gerard and Naritomi (2021)

Figure 10. : Counterfactual policies using the sophisticated present-bias model

(a) Consumption profile



(b) Hazard rates of reemployment



	$\Delta$ Welfare Insurance Value	$\Delta$ Welfare Incentive effect	$\Delta$ Welfare Additional
	[1]	[2]	[3]
—▲— Policy 1: 5 months of UI	0.22	-0.37	-0.37
—○— Policy 2: equivalent SP paid lump-sum at layoff	0.05	0.00	-0.04
—▲— Policy 3: equivalent SP paid in 5 monthly installments	0.15	0.00	-0.11

## Implications for policy design

- ▶ Policies that target the high marginal utility state of the world more effectively will lead to higher welfare gains
  - ▶ Excess sensitivity to cash-on-hand will affect the which states should be targeted
- 1. Insurance value of lump-sum schemes limited
  - ▶ more money is spent when marginal utility already lower (than if they were smoothing)
  - ▶ Does not imply that lump-sum transfers should be avoided
    - ▶ Forced savings + lump-sum could be useful for present-biased agents for lumpy investments (e.g., Casaburi & Macchiavello 2019)
    - ▶ But not if the goal is to provide job displacement insurance
- 2. Helping workers save (e.g., forced savings) can improve welfare
  - ▶ ... but why disburse lump-sum if goal is to help them smooth consumption?
- 3. UI *duration* becomes a particularly relevant policy decision (Ganong and Noel 2019)
  - ▶ Duration extensions are better targeted than benefit level increases
  - ▶ U.S. case: consumption smoothing gains from extending the duration of UI benefits are four times as large as from raising the level of UI benefits

## Broader lessons and avenues for future research

- ▶ This behavioral consumption patterns appears stable across quite different contexts (U.S. and Brazil)
  - UI exhaustion effect particularly striking in Brazil given the amount of liquidity at lay-off
- ▶ Interesting parallel: remarkably similar evidence on  $1/n$  repayment of credit card balances in Mexico (Ponce et al. 2017) and the UK (Gathergood et al. 2019)
- ▶ Reassuring that we seem to be learning that these features of household decision-making are relatively institution-invariant
- ▶ There is still many gaps in the JDI literature. Some examples:
  - ▶ studying policies beyond UI and outside high-income countries
  - ▶ learning more about how other behavioral frictions - e.g. biased beliefs, salience, defaults, mental accounting - affect incentives and insurance of different JDI policies

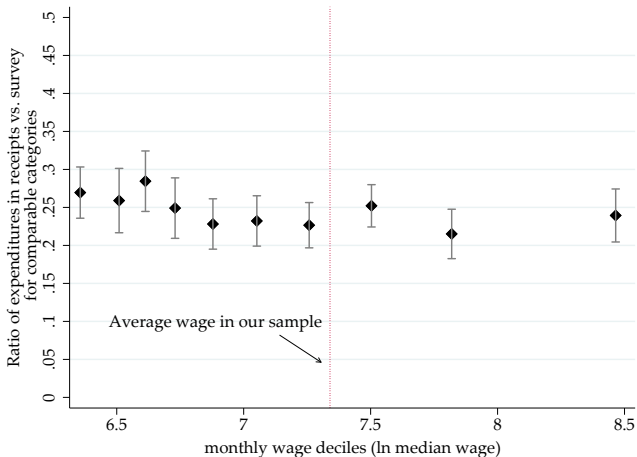
Thank you!

## Expenditure data coverage

- ▶ VAT receipts: many expenditure categories, all means of payment
- ▶ VAT only levied on goods: data cannot cover VAT-excluded items (e.g., services, housing costs)
- ▶ Among purchases taxed by the VAT: only those with SSN provided
- ▶ Average monthly expenditures prior to layoff  $\simeq$  30% of average wages  $\Rightarrow$  economically relevant
- ▶ Yet, incomplete so rely on “constant-coverage” assumption
  - ▶ Show that holds in cross-section of income for employees [▶ back](#)

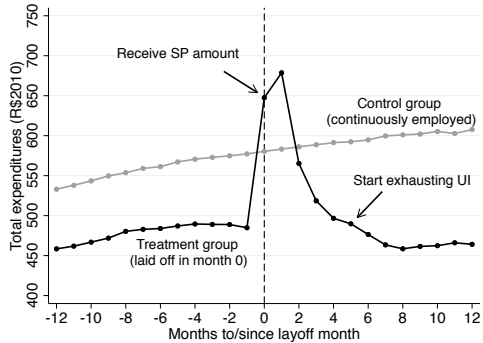


Figure: Wage-expenditure gradient in our data vs. survey data



Note: workers in our sample re-weighted to to match survey covariates (quartiles of age, gender, high school ); expenditures in our sample is 26% of household expenditures for same categories in survey; slight negative correlation [▶ back](#)

Figure: Treatment vs. control (raw data; unconditional sample)

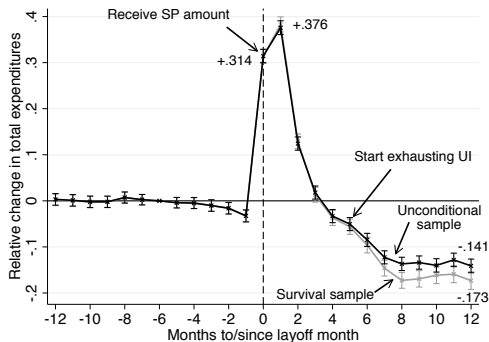


Treatment: displaced in month 0 (77,862 layoff events)

Control: workers continuously employed for 25 months (220,160 placebo events)

Note: raw data (netting out month fixed effects) [▶ back](#)

Figure: DD estimates (unconditional and survival samples)



Specification:  $y_{ikt} = \alpha_i + \alpha_k + \alpha_t + \delta_k \cdot Treatment_i + \varepsilon_{ikt}$  for worker  $i$  observed  $k$  months before/after event in month  $t$  (s.e. clustered by individual)

All samples reweighed to match distribution (wage, SP amount, expenditures pre-layoff) in overall treatment group. Report  $\hat{\delta}_k$  divided by level in reference month (% change) [▶ back](#)

## Model

- ▶ Partial-equilibrium job-search model with borrowing constraint (Card et al 2007; Chetty 2008)
- ▶ Discrete time, layoff from a job with wage  $w^e$  in period  $t = 0$
- ▶ When reemployed: new job with wage  $w^r < w^e$  until  $T$
- ▶ When non-employed: choose search effort  $h_t$  (=reemployment probability) at cost  $\psi_i(h_t) = \kappa \cdot h_t^{1+\theta}/(1 + \theta)$ ;  $\kappa_0$  and  $\kappa_1$  search costs
- ▶ Choose consumption subject to:  $c_{i,t} = a_{i,t} + y_{i,t} - \frac{a_{i,t+1}}{1+r}$  and  $a_{i,t} > \bar{a}$ 
  - ▶ Income  $y_{i,t}$  from SP ( $f$ ), UI ( $b_t$ ), and reemployment wage ( $w^r$ )
  - ▶ Also fixed spousal income ( $w^e$ ) with the couple pooling all resources
  - ▶ Also choice of “informal” earnings at cost  $\phi(l_{i,t}) = \chi \cdot l_{i,t}^{1+\lambda}/(1 + \lambda)$
  - ▶ Assumptions for asset accumulation:  $a_{i,0} = 0$ ,  $r = 0$ ,  $\bar{a} = 0$
- ▶ Assume relative change in non-durable expenditures in data capture relative change in consumption in model
  - ▶ But possible demand for lump-sum (Casaburi and Macchiavelo, 2018) separate from purpose captured in model (repay debt, buy durables)
  - ▶ So allow share  $\omega \in [0, 1]$  of lump-sum  $f$  used for consumption

# Top Journals

Journal	Journal categorization
American Economic Journal: Applied Economics	Top general interest or field
American Economic Journal: Economic Policy	Top general interest or field
American Economic Journal: Macroeconomics	Top general interest or field
American Economic Review	Top 5
Econometrica	Top 5
Economic Journal	Top general interest or field
Journal of Development Economics	Development economics - top field
Journal of Econometrics	Top general interest or field
Journal of Labor Economics	Top general interest or field
Journal of Political Economy	Top 5
Journal of Public Economics	Top general interest or field
Journal of the European Economic Association	Top general interest or field
Labour Economics	Top general interest or field
Review of Economic Studies	Top 5
Review of Economics and Statistics	Top general interest or field
The Quarterly Journal of Economics	Top 5
World Bank Economic Review	Development economics - top field
World Bank Research Observer	Development economics - top field
Journal of Monetary Economics	Top general interest or field