Limiting the Influence of Rich Voters on Elections: The Case of Democracy Voucher in Seattle

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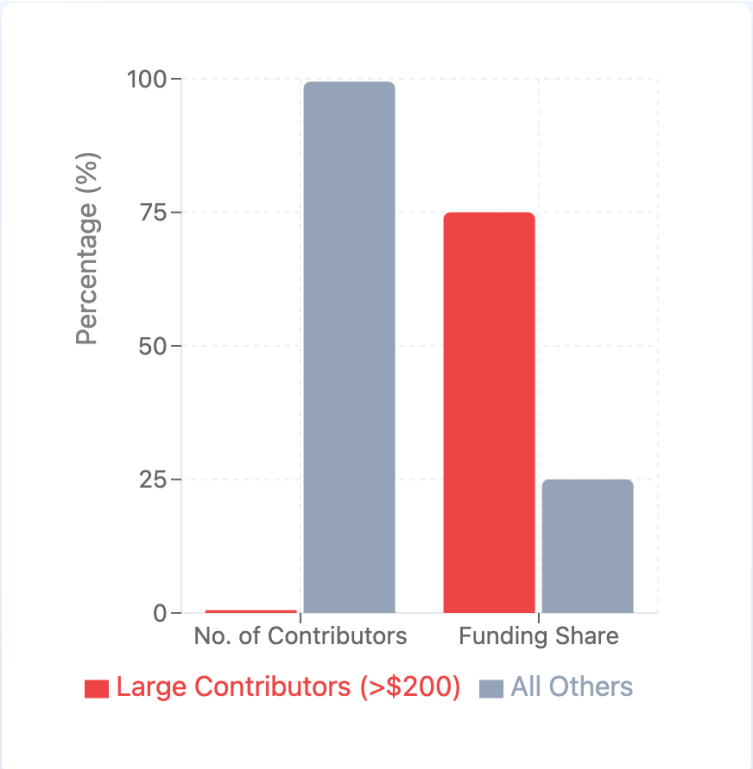
Political Donations in U.S. Federal Election Cycle 2021-22

- Less than 1% contributed more than $200,
- These donations accounted for 75% of total campaign funding.



Leveling the Playing Field

- Special interest groups can significantly shape the agendas of elected officials post-election.
- One proposed solution: using public funds to amplify the donations of lower-income individuals.
- The effects of such a policy remain little understood.

Research Question

- One important concern: the ability of public funds to restrict rich donors' impact.
- The response of donors to the new policy is part of the analysis of the efficiency of the new policy.
- Donors can be separated into two dimensions: income and political sides.
- The crowd-out/crowd-in effect may be heterogeneous across incomes and political positions.
- **Question: What is the effect of injecting public funds into elections on private donations in both dimensions?**

Preview of Results

- The private donation, conditional on contributing, decreases on average for all incomes and political groups.
  - Heterogeneity between income and political groups.
  - Smaller drop for rich donors to relatively right politicians.
- In theory, donors adjust their private donations after injecting public funds:
  - Being on the winning or losing side of this new policy.

Literature

- **The effect of public funding on private donations in elections**: Miller (2011), Malbin et al. (2012), Dowling et al. (2012), Griffith and Noonen (2022).
  - *Discussing the changes in private donations in different socio-political dimensions.*
- **Theories on political contribution**: Ben-Zion and Eytan (1974), Welch (1974), Bental and Ben-Zion (1975), Shieh and Pan (2010).
  - *Analyzing the public fund distribution policy.*
- **Contest models**: Tullock (2001), Cornes and Hartley (2003), Cornes and Hartley (2005), Chowdhury et al. (2013)
  - *Using the frameowrk to model political contribution.*

Democracy Voucher Program in Seattle

- There is a public funding system in Seattle called the "Democracy Voucher."
- Seattle Ethics and Election Committee (SEEC) distributes "Democracy Vouchers" to eligible Seattle registered voters.
- The program has been implemented since 2016 in three elections: the mayoral election, the city council election, and the city attorney election.
- In each election year, the SEEC sends four $25 vouchers (total of $100) to each registered voter.
- Unused vouchers expire if not used during the election year.
- Voters can send vouchers directly or indirectly to their desired campaigns.
- Candidates cannot use vouchers in other ways, e.g., reimbursing contributors for their donations.

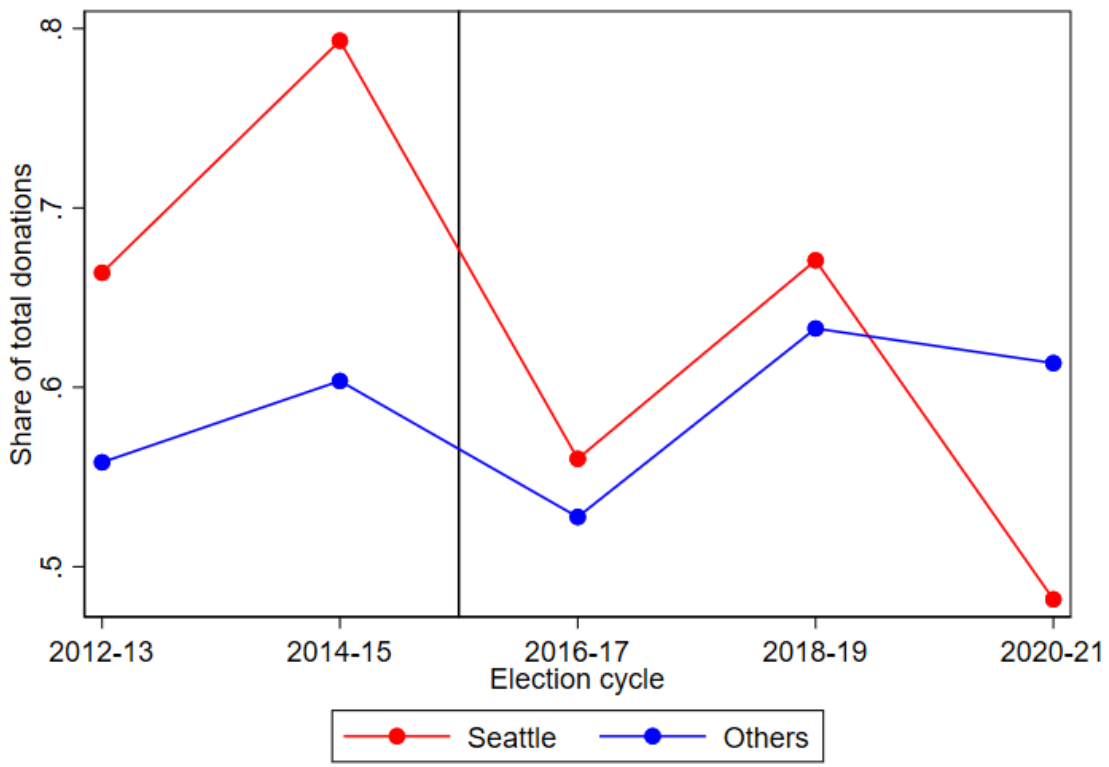
Data

- SEEC provides data on the 2017, 2019, and 2021 vouchers.
- Washington Public Disclosure Commission (PDC) provides political contributions in 111 cities in Washington.
- For the income level, I use the median income provided by the U.S. Census since 2011.
- The data is restricted to 2012-2021 and separated biannually.
- Most of the candidates in local elections do not have political associations
  - Estimating their political position using the donations of their contributors in state and national elections.

Summary

Average Share of Total Donation

Figure: Average Share of Total Donation to Right-leaning Candidates



Private Donors and Private Donations

Figure: No. of Private Donors

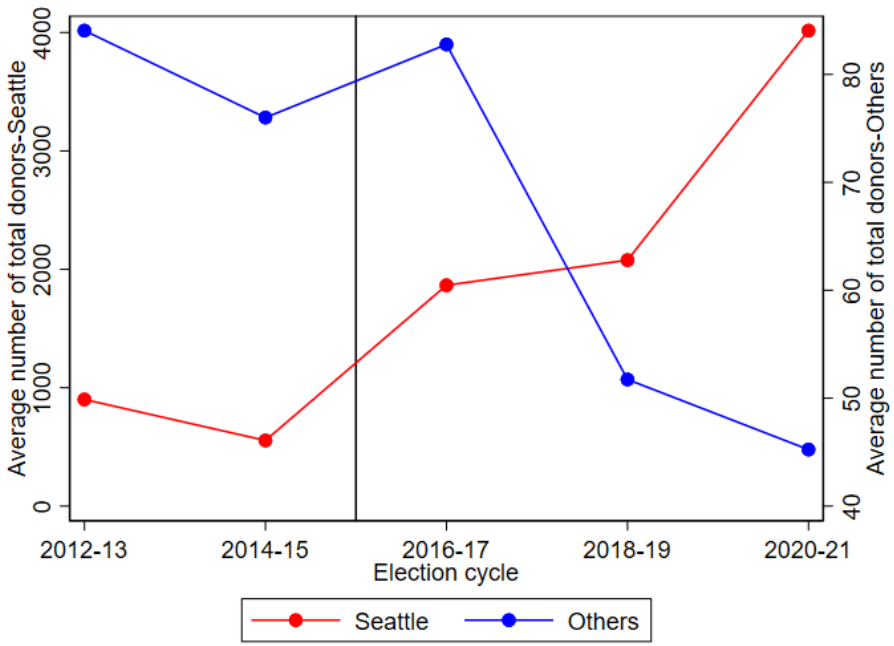
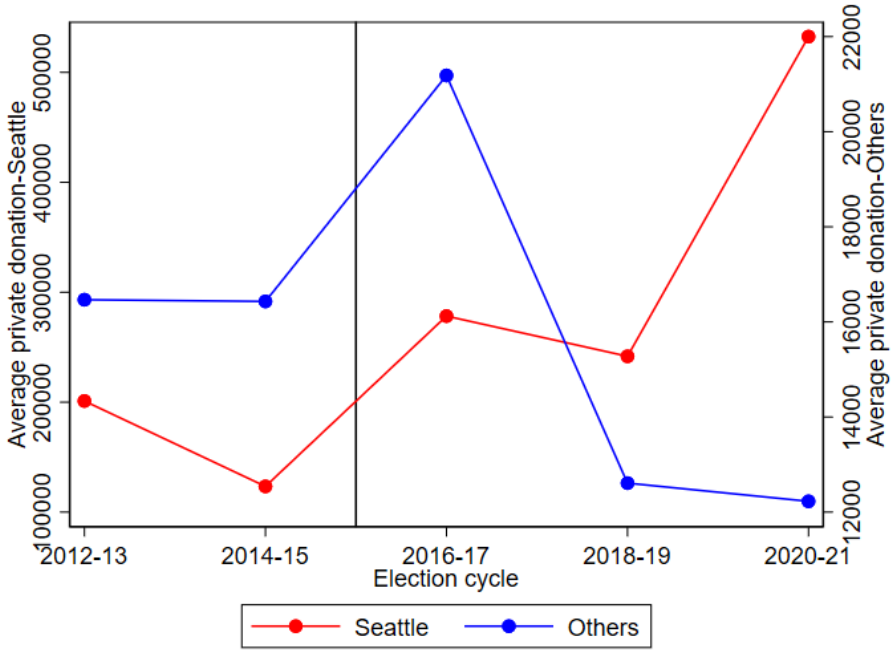


Figure: Amount of Private Donations



Specification

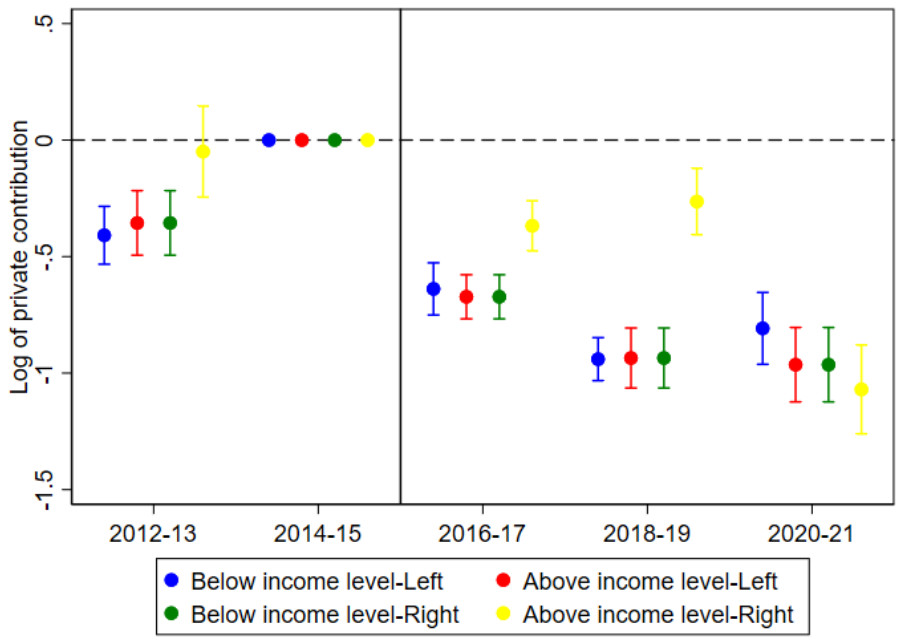
- DDD specification (Olden and Møen (2022)):

$$d^J_{i,c,t} = \alpha^J_{i,c} + \lambda^J_t + \sum_{t=2012-13}^{2020-21} \theta^J_t S^J_{i,c} \times T^J_t + \sum_{t=2012-13}^{2020-21} \gamma^J_t I^J_{i,t} \times S^J_{i,c} \times T^J_t + \varepsilon^J_{i,t} \quad (1)$$

- $d^J_{i,c,t}$: logarithm of the private donation of the contributor i,
- $S^J_{i,c}$: dummy variable for Seattle,
- T^J_t: the election cycles.

DDD with Income and Political Heterogeneity

Figure: Changes in Private Contribution for Different Groups Across Election Cycles (Income Level: 90th Pct.)



RI Test

Setup

- Two political candidates, L and R, announcing their policy as $y_L = \frac{1}{2} - \frac{\Delta}{2}$ and $y_R = \frac{1}{2} + \frac{\Delta}{2}$.
- Voters are heterogeneous in two dimensions: **ideal political position**, $x_i \in X = \{0, 1\}$, and **wealth**, $w_i \in W = \{w_p, w_r\}$ s.t. $w_p < w_r$.
- There are $n_{x,w} > 1$ voters with $w_i \in W$ and $x_i \in X$.
- To simplify, I assume that $n = n_{0,p} + n_{1,p} + n_{0,r} + n_{1,r}$ and the share of each group in the population is defined as $s_{x,w} = \frac{n_{x,w}}{n}$.
- Each voter receives a voucher of value v, which can be used only for political contributions.

Setup

- Voter i chooses her level of consumption c_i and political donation to candidate L, d_i^p, and to candidate R, d_i^r, to optimize her expected utility:

$$\max_{c_i, d_i^L, d_i^R} \pi^L[-\gamma_i(x_i - y_L)^2 + \ln c_i] + \pi^R[-\gamma_i(x_i - y_R)^2 + \ln c_i]$$
$$s.t. \quad c_i \leq w_i - \max\{0, d_i - v\} \tag{2}$$
$$d_i = d_i^L + d_i^R$$

- π^L and π^R: the winning probabilities of candidates L and R, respectively.
- γ_i: marginal utility of the policy.

Timing

1. Candidates announce their policies.
2. Each voter chooses their level of consumption and donation to the candidates.
3. The winner of the election is determined through a Tullock contest:

$$\pi_R = \frac{\sum_{i \in N_1} d_i^R}{\sum_{i \in N_1} d_i^R + \sum_{i \in N_0} d_i^L} \quad \pi_L = \frac{\sum_{i \in N_0} d_i^L}{\sum_{i \in N_1} d_i^R + \sum_{i \in N_0} d_i^L} \tag{3}$$

Theorems

Theorem 1

There exists a level of $\bar{\gamma}_r$ and $\bar{v}$ which for all $v \leq \bar{v}$ and $\gamma_r \geq \bar{\gamma}_r$ a unique equilibrium exists, which is either $d_i^L = 0$ and $d_i^R > 0$, or $d_i^R = 0$ and $d_i^L > 0$.

Theorem 2

In the equilibrium described in theorem 1, if $v = 0$ and $s_{1,r} w_r + s_{1,p} w_p > s_{0,r} w_r + s_{0,p} w_p$, then $\hat{\gamma}_r$ exists that for all $\gamma_r > \hat{\gamma}_r$ the equilibrium winning probability of candidate R is $\pi_R > \frac{1}{2}$.

Theorem 3

In the equilibrium described in theorem 1, if $\pi_R > \frac{1}{2}$, $s_1 < s_0$ then:
$\frac{\partial \delta_r^R}{\partial \tau} - \frac{\partial \delta_r^L}{\partial \tau} > 0$

Share of Donation Probabilities Donations' Difference

Conclusion

- The crowd-out effect in terms of intensive margin depends on:
  1. The share of the population of each socio-political group,
  2. The wealth gap between two groups.
- Special interest groups show smaller crowd-out if the policy is against them.
- What are the possible extensions?
  1. Studying extensive margin,
  2. Studying the changes in the political agenda of candidates.

Thank You!

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Summary Statistics

Table: Summary Statistics of the Data

	Mean	SD	Min	Max	N
Total donation	147.3	349.0	0.01	130470.0	355789
Private donation	165.7	404.8	1.0	130470.0	257436
Median Income	87776.5	26509.6	11838.9	250000	354005
Political position	0.32	0.11	0	1	355427

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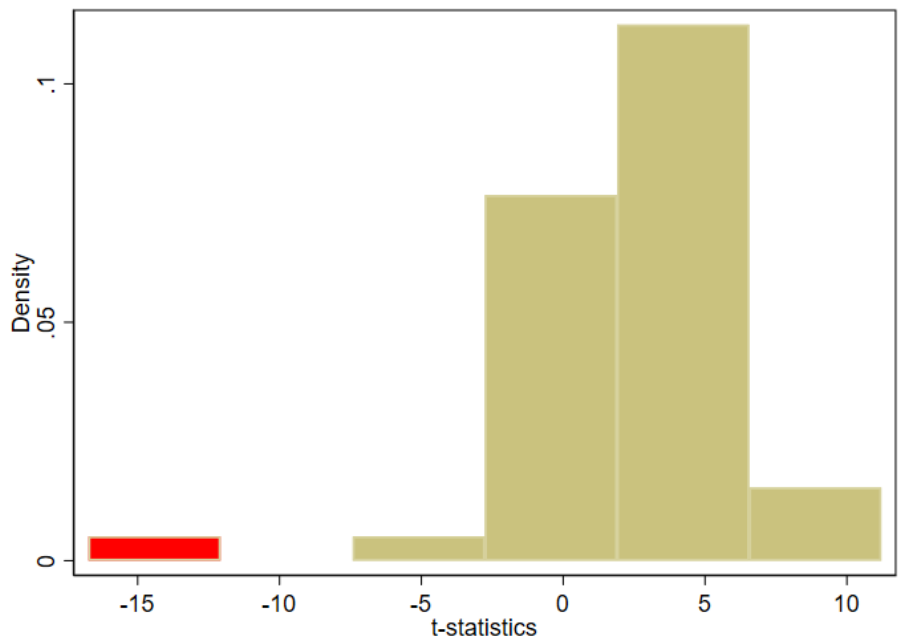
Appendix

- Olden and Møen (2022) discusses the "few treated clusters inference" issue in DDD estimations.
- I use Randomization Inference based on t-statistics in MacKinnon and Webb (2020)



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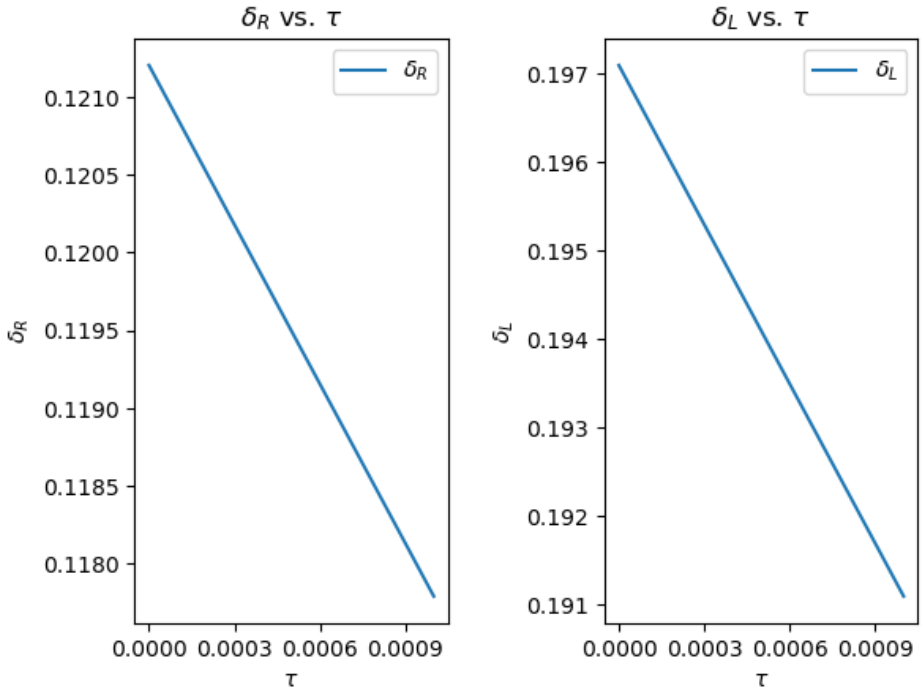
Appendix

- Suppose that $n = 1000$, $s_{0,r} = 0.02$, $s_{1,r} = 0.08$, $s_{0,p} = 0.52$, $s_{1,p} = 0.38$, $\gamma = 100$, $\xi = 0.11$, $\theta = 0.1$, $\Delta = 0.5$.



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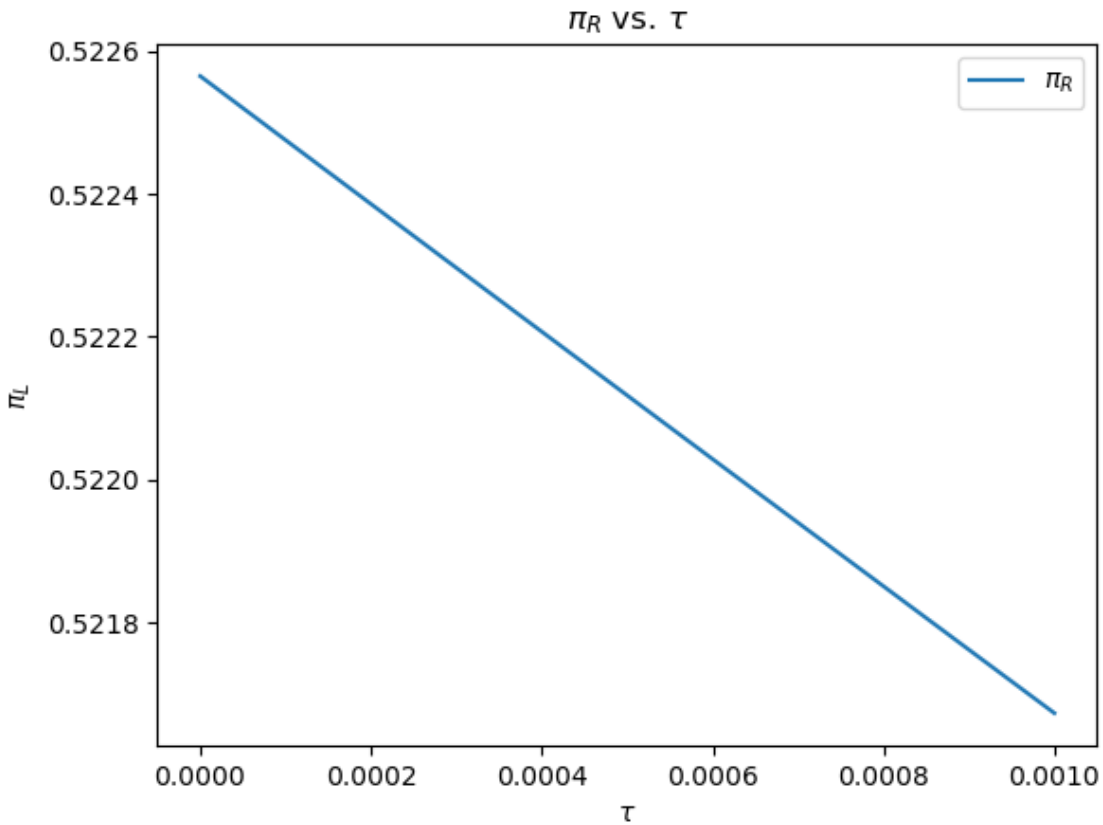

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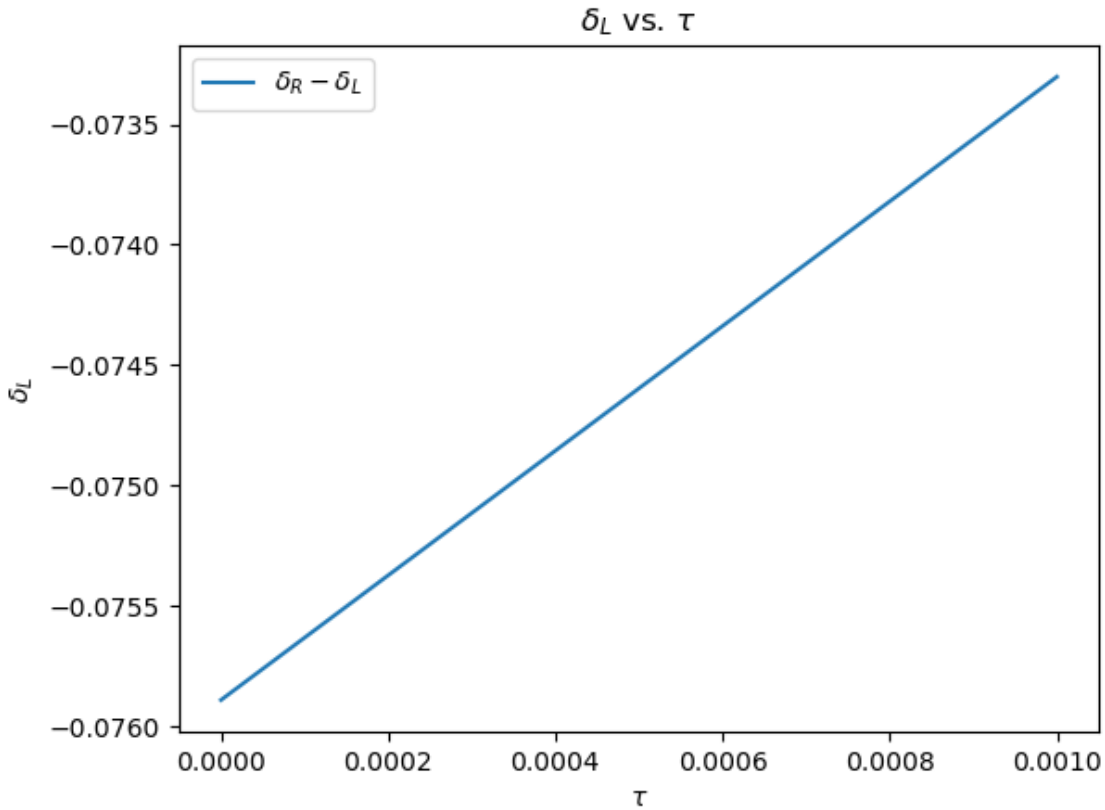
Appendix

Figure: Difference of Donations



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