Power Consolidation in Groups

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Introduction

Research Question: What allows – or indeed prevents – *power* and *resources* from falling into the hands of a few?

Motivation: Inequality has been rising globally – especially in large countries – yet its underlying dynamics are not fully understood.

- **Key reason:** The role played by power has been underexplored.

Motivation

As inequality continues to rise in the US, so have economists' concerns that it is drifting towards oligarchy.

- Piketty (2014, 2015), Stiglitz (2011, 2016), Krugman (2020), World Bank (2006, 2017), UN (2020), Callander et al. (2022), Deaton (2024), and Acemoglu (2012, 2024).

Not exceptionally American: rising inequality has also been observed in

- other OECD countries (OECD 2008, 2011, 2012, 2015,2021)
- other major economies such as Russia, China, and India
  - *World Inequality Report* (2022); Brookings Institution (2023).

Other global trends causing concern:

- Expanding authoritarian rule (Freedom House, 2022; UN, 2023; *Reuters*, 2023)
- Democratic backsliding (Freedom House 2020, 2024; Thurau, 2024)

Motivation

Understanding how *political* inequality evolves is critical for understanding how *economic* inequality evolves.

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Modeling Perspective

▸ Model Details ▸ Timing

I construct a theory of how a society's distribution of political power evolves.

Key elements of the model:

- (Lineages of) players compete by accumulating and passing along *power*.
- Power is modeled as an asset that increases the probability of winning conflicts over public resources endowed each period.

Two standard assumptions play a central role.

▸ Details

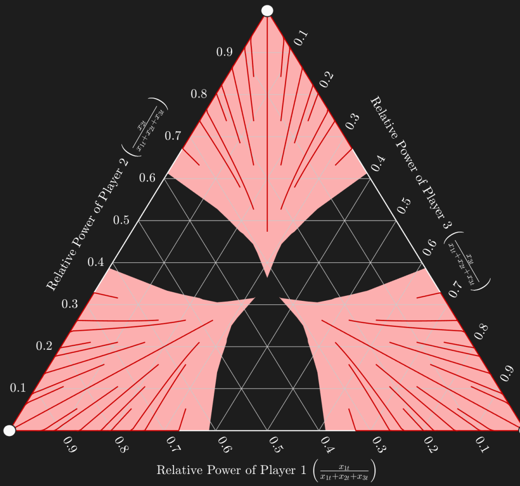
1. Convex power accumulation costs.
2. Difference-form contest success function (CSF).

First Results: Power Distribution Dynamics (Propositions 1-3)

Unique predictions for whether a society is headed towards an inclusive, oligarchic, or dictatorial regime.

- Where power is equally shared among all players, a subset of players, or held by just one player.

Three Player Dynamics – Paths to Dictatorship



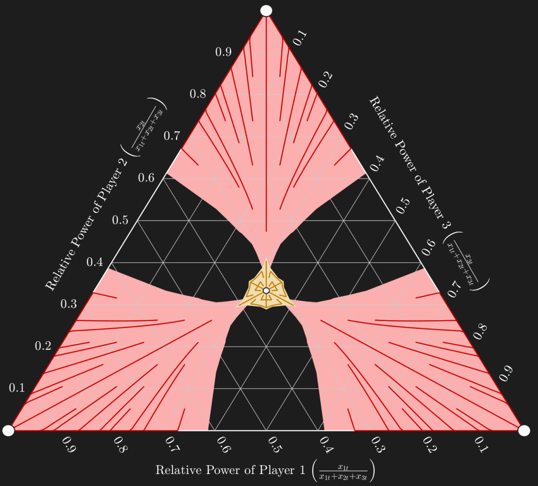
Player i outmatches the rest

- Weak power accum. incentives
- Convex costs prevent weaker players from catching up.

↓

Player i accumulates power faster than the rest.

Three Player Dynamics – Paths to Inclusivity

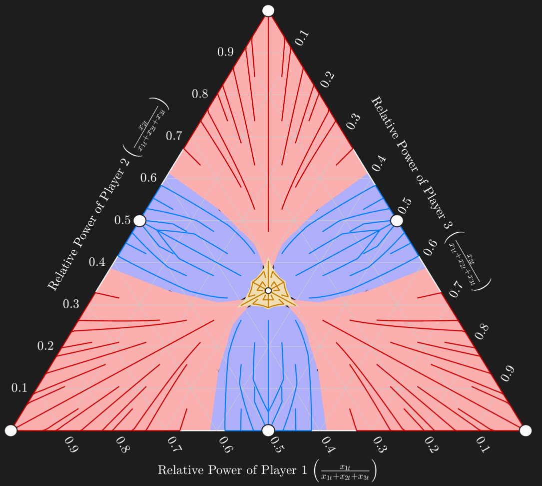


All players closely matched

- Similar, strong incentives to accumulate power
- Convex costs prevent any player from outrunning the rest

All accumulate power at similar rates

Three Player Dynamics – Paths to Oligarchy



Players i and j start closely matched, but each outmatch player ℓ.

- Players i and j *compete* like the players in the inclusive case.
- Players i and j *outrun* player ℓ like in the dictatorial case.

Main Results (Propositions 4 & 5)

Power and resources **inevitably** fall into the hands of a few in large societies, in the absence of external intervention.

- Only **dictatorships** and sufficiently concentrated **oligarchies** are stable when the number of players is above a certain threshold.

Intuition: players' power accumulation incentives are strongest when they are evenly matched with their *aggregate* competitors.

- **Strong** incentives when facing a **few** closely-matched competitors.
- **Weak** incentives when facing **many** closely-matched competitors.

The Iron Law: a Century-Old Open Question

Michels' (1915) Iron Law of Oligarchy: power and resources inevitably fall into the hands of a few in large groups, regardless of democratic norms.

- Still considered an empirical puzzle (Diefenbach (2019); Leach (2005, 2015))
- I provide a rigorous explanation based on standard economic assumptions.

Implication: Michels had good reason to worry.

- The trends taking place around the world today will *not* self-correct.

Note that this result is quite robust to economic growth.

- Details found in Online Appendix C.

Concluding remarks

I develop a portable economic model of how a society's distribution of power and resources evolves over time.

1. Emergence of inclusive, oligarchic, and dictatorial regimes.
   - Unified framework, unique predictions.
   - Sufficiently large inequalities do not self-correct.
2. Power and resources inevitably fall into the hands of a few in large societies in the absence of external intervention.

Lots of exciting future work to do in this area; please come and chat!

- Or send me an email (freddie.papazyan@ttu.edu).

Thank You!

QR Code to the full paper.

References i

Acemoglu, Daron, "The Rise and Decline of Oligarchic Regimes," 5 2012. Zeuthen Lectures. `https://economics.mit.edu/sites/default/files/inline-files/The%20Rise%20and%20Decline%20of%20Oligarchic%20Regimes.pdf`.

___ , "Escaping the New Gilded Age," *Project Syndicate*, 9 2024.

Callander, Steven, Dana Foarta, and Takuo Sugaya, "Market Competition and Political Influence: An Integrated Approach," *Econometrica*, 2022, *90* (6), 2723–2753.

Chancel, Lucas, Thomas Piketty, Emmanuel Saez, and Gabriel Zucman, "*World Inequality Report* 2022," Technical Report, World Inequality Lab 2022.

Deaton, Angus, "Rethinking my economics," 3 2024. International Monetary Fund, Finance & Development.

Diefenbach, Thomas, "Why Michels' 'iron law of oligarchy' is not an iron law – and how democratic organisations can stay 'oligarchy-free'," *Organization Studies*, 2019, *40* (4), 545–562.

Freedom House, "A leaderless struggle for democracy," Technical Report, Freedom House 2020. by Sarah Repucci.

___ , "Freedom in the World 2022: The Global Expansion of Authoritarian Rule," Technical Report, Freedom House February 2022. By Sarah Repucci and Amy Slipowitz.

References ii

——, "Freedom in the World 2024: The Mounting Damage of Flawed Elections and Armed Conflict," Technical Report, Freedom House 2024.

Hirshleifer, Jack, "Conflict and Rent-Seeking Success Functions: Ratio vs. Difference Models of Relative Success," *Public Choice*, 1989, *63* (2), 101–112.

Krugman, Paul, "Why Do the Rich Have So Much Power?," *The New York Times*, July 2020.

Leach, Darcy K., "The Iron Law of What Again? Conceptualizing Oligarchy across Organizational Forms," *Sociological Theory*, 2005, *23* (3), 312–337.

——, "Oligarchy, Iron Law of," in James D. Wright, ed., *International Encyclopedia of the Social & Behavioral Sciences*, 2 ed., Oxford: Elsevier, 2015, pp. 201–206.

Michels, Robert, *Political parties: A sociological study of the oligarchical tendencies of modern democracy*, Hearst's International Library Company, 1915.

OECD, *Growing unequal?: Income distribution and poverty in OECD countries* 2008.

——, *Divided We Stand: Why Inequality Keeps Rising* 2011.

——, "Income inequality and growth: The role of taxes and transfers," *OECD Economics Department Policy Notes*, January 2012, *No. 9.*

References iii

—— , *In It Together: Why Less Inequality Benefits All* 2015.

—— , *Does Inequality Matter?* 2021.

Piketty, Thomas, *Capital in the Twenty-First Century*, Harvard University Press, 2014.

—— , "Putting distribution back at the center of economics: Reflections on capital in the twenty-first century," *Journal of Economic Perspectives*, 2015, *29* (1), 67–88.

Qureshi, Zia, "Rising inequality: A major issue of our time," Technical Report, Brookings Institution 2023.

Rausser, Gordon C., Johan Swinnen, and Pinhas Zusman, *Political power and economic policy : theory, analysis, and empirical applications*, Cambridge: Cambridge University Press, 2011.
Reuters

Reuters, "Democracy under threat around the world -intergovernmental watchdog," 11 2023.

Skaperdas, Stergios, "Contest success functions," *Economic Theory*, Jun 1996, *7* (2), 283–290.

Stiglitz, Joseph E., "Of the 1%, by the 1%, for the 1%," *Vanity Fair*, May 2011.

—— , "8. Inequality and Economic Growth," *The Political Quarterly*, 2016, *86* (S1), 134–155.

Thurau, Jens, "Democracies under threat around the globe," *DW*, 3 2024.

References iv

United Nations, "With Rising Authoritarianism, Promoting, Respecting Human Rights More Important Than Ever, Secretary-General Stresses in Message on International Day," 11 2023. SG/SM/22057.

United Nations Department of Economic and Social Affairs, "World Social Report 2020: Inequality in a Rapidly Changing World," Technical Report, United Nations 2020.

World Bank, *World Development Report 2006: Equity and Development* 2006. : World Bank; New York: Oxford University Press.

___ , *World Development Report 2017: Governance and the Law* 2017. : World Bank. doi:10.1596/978-1-4648-0950-7. License: Creative Commons Attribution CC BY 3.0 IGO.

Time, Players, and Resources

Time: $t \in \{0, \Delta, 2\Delta, \ldots\}$ (Period Length = Δ)

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Return | Timing

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Resources are endowed to society $\{1_t, 2_t, \ldots, N_t\}$ every period.

- Players engage in *conflict* over resources every period.

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- **Conflict:** players engage in a winner-takes-all conflict over resources

$$H(x_{it}, \boldsymbol{x}_{-i,t}) = \mathbb{P}\left\{\text{player } i_t \text{ wins conflict} \,|\, x_{it}, \boldsymbol{x}_{-i,t}\right\} \qquad \boldsymbol{x}_{-i,t} \equiv (x_{jt})_{j \neq i}$$

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- **Payoffs:** player i_t earns expected payoff $H(x_{it}, \boldsymbol{x}_{-i,t}) - \Delta \cdot C(I_{it}, x_{i,t-\Delta})$

Conflict

Players compete over these resources through a winner-takes-all **conflict** whose victor is randomly determined according to

$$H(x_{it}, \boldsymbol{x}_{-i,t}) \equiv \text{Prob}\left\{\text{Player } i_t \text{ wins entire unit of resources} \,\middle|\, x_{it}, \boldsymbol{x}_{-i,t}\right\}$$

Player i_t's victory probability depends on how much power they hold relative to other players.

Benefit of Power Accumulation (H)

◂ Return ◂ Timing

Assumption

$$H(x_i, \boldsymbol{x}_{-i}) \equiv \frac{e^{\lambda x_i}}{\sum_{j=1}^{N} e^{\lambda x_j}} = \frac{1}{1 + \sum\limits_{j \neq i} e^{-\lambda(x_i - x_j)}}, \qquad (\lambda \geq 0)$$

This is known as the **difference-form contest success function**, which is commonly used in contest theory (Hirshleifer (1989); Skaperdas (1996))

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- Assuming this functional form is equivalent to assuming that H only depends on power differences and 5 other mild axioms (Skaperdas 1996, Thm. 3)

Main Implication: marginal benefit $h(x_i, \boldsymbol{x}_{-i}) \equiv \frac{\partial}{\partial x_i} H(x_i, x_{-i})$ is increasing in how *closely-matched* player i. is with their *aggregate competition*.

Cost of Power Accumulation (C)

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$C : \mathbb{R}^2_+ \to \mathbb{R}_+$ satisfies the following:

1. C is strictly increasing and strictly convex in I_{it}, given any $x_{i,t-\Delta}$ (standard)

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3. C is twice continuously differentiable (for tractability)