

# Regime Changes and Economic Preferences: Global Evidence

## Milestone 3: Econometric Approach

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## 1 Economic model

As Detlefsen et al. (2024) points out, the formation of economic preferences in **childhood** and **adolescence** has a long-term consequences for life outcomes. To provide an example, patience can impact one's school performance, which can later translate to education attainment and labor market outcomes. The same way can risk preference impact one's financial decisions (Detlefsen et al. 2024).

According to the National Library of Medicine, childhood is defined as a stage from **3-11 years** and adolescence as a stage from **12-18 years**(Balasundaram and Avulakunta 2025).

Building on the foundational work of (Fuchs-Schündeln and Schündeln 2015), we propose a theoretical framework to understand how regime changes during formative years shape economic preferences through multiple channels.

Economic preferences ( $P$ ) of an individual  $i$  from country  $c$  born in year  $t$  can be represented as:  $P_{i,c,t} = f(I_{c,t+a}, E_{c,t+a}, S_{c,t+a}, X_i)$

Where:

- $I_{c,t+a}$  represents institutional quality during formative years (ages  $a \in [3, 18]$ )
- $E_{c,t+a}$  represents economic conditions during formative years (GDP per capita)
- $X_i$  represents individual characteristics (subjective math skills)

Specifically, regime changes represent significant shifts in  $I_{c,t+a}$ , which create discontinuous changes in institutional environments experienced during critical developmental periods. This framework builds upon studies showing preference malleability during early life (Falk et al. 2018; Kosse et al. 2020) and extends them to the domain of political institutions. According to the research of Detlefsen et al. (2024), the years of childhood and adolescence are particularly sensitive for economic preference formation.

When a regime change occurs, we hypothesize several mechanisms through which preferences are affected:

- **Trust mechanism:** Sudden institutional changes may create uncertainty about rule enforcement, potentially reducing interpersonal trust.

- **Risk preference mechanism:** Experiencing regime instability may alter risk perception through changes in perceived environmental predictability.
- **Time preference mechanism:** Political instability can change discount rates by affecting perceptions of future stability.
- **Social preference mechanism:** Shifts in social norms and expectations during regime changes may influence altruism and reciprocity.

## 2 Setting

### 2.1 Data Sources and Sample

Our analysis combines two primary data sources:

- **Vdem** (Coppedge et al. 2025) dataset comes also as an R package: `vdemdata`. This dataset contains various democracy indicators for 202 countries starting of year 1789. We will be using the **Liberal democracy index** which combines many of these indicators into a single number for each country/year.
- **Global Preference Survey** (Falk et al. 2018) dataset was downloaded as a ZIP file from the [following website](#). This dataset contains information about economic preferences of 80337 individuals from 76 countries. The survey was conducted between 2012 and 2013.

### 2.2 Endogenous Variable: Regime Change exposure

Our main endogenous variable is a **binary indicator** for experiencing a significant regime change during formative years (ages 3-18). We define regime changes using the **Liberal Democracy Index (LDI)** from V-Dem, which measures the extent to which democratic principles are respected in a country on a scale from **0 (autocracy) to 1 (liberal democracy)**. Together with the binary indicator we also capture the **direction of change** (democratization or autocratization).

We identify significant regime changes using a stricter threshold ( $|\Delta \text{LDI}| > 0.2$  over a 10-year period) than previous literature (Lührmann et al. 2020) to focus on **substantial political transformations rather than gradual changes**. This modification allows us to capture more disruptive institutional changes that might be more likely to affect preference formation.

The regime changes are identified first on a country level according to the V-Dem dataset and then combined with the individual level data from the General Preference Survey. Goal is to **differentiate between individuals who experienced a regime change during their formative years** and individuals, who didn't.

The precise identification follows this procedure:

1. First we compute the change in a country’s Liberal Democracy Index according to the following notation:  $\Delta\text{LDI} = \text{LDI}_t - \text{LDI}_{t-10}$ . This creates a rolling comparison rather than a fixed window, allowing us to evaluate changes for every available year in the dataset.
2. In the next step, we evaluate the following condition:  $|\Delta\text{LDI}| > 0.2$ . This is our threshold to what we consider a “substantial” change. The absolute value means we are measuring the magnitude of change regardless of direction (democratization or autocratization). A change greater than this threshold represents a meaningful shift in democratic quality that exceed typical measurement noise or minor fluctuations.
3. In the next step we test the statistical significance of the change. The expression for significance:

$$\text{CI}_t = [\text{LDI}_t - \text{ME}_t, \text{LDI}_t + \text{ME}_t]$$

$$\text{CI}_{t-10} = [\text{LDI}_{t-10} - \text{ME}_{t-10}, \text{LDI}_{t-10} + \text{ME}_{t-10}]$$

$$\text{Significant if: } \text{CI}_t \cap \text{CI}_{t-10} = \emptyset$$

Margin Error is calculated in the following way:  $\text{ME} = z \times \frac{\sigma}{\sqrt{n}}$

In this step we also differentiate between the **direction of the change**, either from **autocracy to democracy** and from **democracy to autocracy**.

4. In the next step we move on to the **individual level** data from the **General Preference Survey**. We evaluate each individual living at the year determined in previous step in a given country. If the individual was in his **formative years (between 3-18 years old)** at this time, he is assigned the **treatment**. After finishing this calculation, we receive following number of observations in both categories, as shown in Table 1.

Table 1: Number of observations in treatment and control group

Group	N
Control	53175
Treated	22293

### 2.2.1 Contaminated control group

The approach above assigns the following individuals to be a part the control group:

- **True controls:** Individuals from countries that never experienced any regime changes

- **Contaminated controls:** Individuals from countries that did experience regime changes, but these individuals happen to be outside of their formative years at that time.

The contaminated control group could compromise the integrity of our study, because these individuals might have indirect exposure effects to the regime changes. In order to avoid this, we have decide to delete these observations.

Our **control group** therefore consists only of **individuals from countries, which never experienced a regime change**. Applying this approach leaves us with following number of observations in each treatment category (depending on the direction of change, as shown in Table 2.

Table 2: Summary of Countries by Regime Change Type

Treatment Type	Number of Individuals	Number of Countries	Countries
No Regime Change	26876	25	China, Kenya, Tanzania, Australia, Cambodia, Rwanda, Afghanistan, Kazakhstan, Ukraine, Cameroon, Zimbabwe, Colombia, Guatemala, United States, Morocco, Saudi Arabia, Jordan, Pakistan, Bangladesh, Iran, Canada, Vietnam, Algeria, United Arab Emirates, Egypt
Autocratization	4949	25	Turkey, France, Netherlands, Spain, Italy, Poland, Hungary, Czech Republic, Greece, Venezuela, Ghana, Uganda, Argentina, Austria, Chile, Estonia, Lithuania, Nicaragua, Peru, Suriname, Indonesia, Germany, India, Brazil, Philippines
Democratization	17344	50	Turkey, France, Netherlands, Spain, Italy, Poland, Hungary, Czech Republic, Romania, Sweden, Greece, Venezuela, Israel, Ghana, Malawi, Sri Lanka, Botswana, Georgia, Moldova, Costa Rica, Argentina, Austria, Bolivia, Bosnia Herzegovina, Chile, Croatia, Estonia, Finland, Haiti, Lithuania, Nicaragua, Peru, Portugal, Serbia, Suriname, Switzerland, Indonesia, United Kingdom, Germany, Japan, India, Brazil, Mexico, Nigeria, South Africa, Philippines, Thailand, South Korea, Russia, Iraq

## 2.3 Outcome Variables: Economic Preferences

Our main outcome variables are six standardized economic preferences from the GPS:

1. **Trust:** Willingness to trust others in social interactions
2. **Patience:** Willingness to forego immediate rewards for larger future rewards

3. **Risk-Taking:** Willingness to take risks in various domains
4. **Positive Reciprocity:** Willingness to reward kind actions
5. **Negative Reciprocity:** Willingness to punish unkind actions
6. **Altruism:** Willingness to give to others without expecting returns

Each preference is standardized to have a mean of 0 and standard deviation of 1 in the global sample, allowing us to compare across preferences and countries.

## 2.4 Control Variables

In our analysis we also include several control variables that capture the alternative channels through which formative regime changes might shape individual preferences. These controls the following potential confounders: economic development, institutional quality and economic volatility during formative period.

### 2.4.1 Average GDP per Capita during Formative Years

For each individual  $i$ , we calculate the average GDP per capita experienced during their formative years (ages 3-18), using the following procedure:

- For each individual, we take their birth year and calculate the corresponding formative period window (year of birth + 3 to year of birth + 18)
- We match each individual to their country of residence using ISO country codes and extract annual GDP per capita data from the Maddison Project Database (“Maddison Project Database 2023. University of Groningen” (2024)) for the relevant years.
- We compute the arithmetic mean of annual GDP per capita values over the 16-year formative period.
- We apply a natural logarithm transformation to address the skewed distribution of GDP per capita.

Economic development during formative years may independently affect preference formation through several mechanisms. We expect higher GDP to be associated with reduced need for risk-taking as a survival strategy, or enabling longer-term planning (patience). We also expect that wealthier countries typically provide better educational infrastructure, which may affect cognitive development and decision-making patterns. And lastly, we expect economic development to be correlated with stronger institutions and social protection, potentially affecting trust and reciprocity values.

### 2.4.2 Average Liberal Democracy Index during Formative Years

This control captures the baseline level of democratic quality experienced during formative years, distinct from regime changes:

- For each individual, we extract the Liberal Democracy Index (LDI) values for their country of residence for each year of their formative period
- We compute the mean LDI over the formative years.

We expect the average level of democratic quality during formative years may affect preferences independently of regime changes. Growing up under more democratic institution may foster different baseline levels of trust and cooperation. Different institutional environments may transmit different norms about citizen engagement and social cooperation. We also expect the more democratic countries to have a stronger rule of law, which may affect how individuals perceive fairness and reciprocity. Including this control in our models will allow us to separate the **level** of democracy from **changes** in democracy - our main treatment variables.

### 2.4.3 Economic Recession Experience during Formative Years

We create a country-specific recession indicator based on GDP volatility rather than using universal thresholds recognizing that economic cycles vary across countries.

- For each country, we calculate:
  - Mean annual GDP growth rate over the available period
  - Standard deviation of annual GDP growth rates
  - Country-specific recession threshold = Mean growth - (1.5 x standard deviation)
- A recession year is identified when:  $\text{GDP growth}_{c,t} < (\mu_{\text{growth}_c} - 1.5 \times \sigma_{\text{growth}_c})$
- For each individual, we determine a binary indicator which takes the value of 1 if any recession year occurred during ages 3-18 and 0 otherwise

We have decided to use this country-specific approach, because it accounts for different baseline growth rates and volatility across economies. For example a 2% decline may be severe for a historically stable economy but normal for a volatile one.

We hypothesize that experiencing an economic recession during formative years may shape risk perception and permanently alter risk attitudes and preferences for stability. Economic uncertainty may lead to more present-biased preferences and lower patience. Economic hardships may also either increase solidarity (altruism) or decrease it due to resource competition. Economic crises may also affect trust in institutions.

#### 2.4.4 Subjective Math Skills

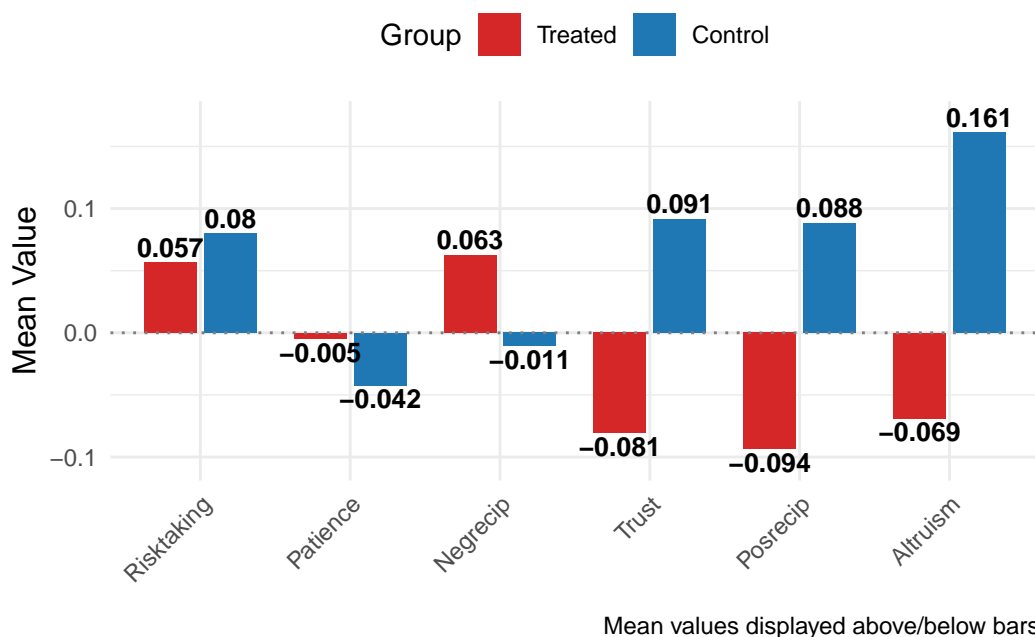
While subjective math skills (scale 1-7) initially appeared as a natural control for cognitive ability and education background, we ultimately decided to **exclude** this variable from our main regression specifications. This is because the subjective math skills may themselves be an outcome of regime changes during formative years, making them a bad control in the sense of Angrist and Pischke (2009). Including this variable as a control could potentially absorb part of the treatment effect we are trying to identify, leading to biased estimates of regime changes impacts.

Political transitions often disrupt educational systems, which could potentially affect mathematical skills development. We also acknowledge that regime changes may alter the quality of educational institutions, teacher training, and curriculum standards.

### 2.5 Preliminary evidence

In the next step, we examined the magnitude of the differences in economic preferences between the treatment and control group. In the following Figure 1 we visualize the mean preference profiles of the two groups.

Figure 1: Mean Preference Profiles by Regime Change Exposure





In the table Table 3 we examine the difference in mean in mean on a more formal level. We perform t-tests of the differences. All of them seems to be statistically significant on a 0.001 confidence level. These consistent and significant differences provide preliminary support for our hypothesis that regime changes during formative years have lasting impacts on economic preferences.

Table 3: Economic Preferences Comparison by Group

	Mean (SD)		
	Control Group	Treatment Group	Difference
Trust	0.091 (1.017)	-0.081 (0.977)	-0.172*** (0.009)
Patience	-0.042 (0.987)	-0.005 (0.964)	0.038*** (0.009)
Risk Taking	0.080 (1.023)	0.057 (0.970)	-0.023* (0.009)
Positive Reciprocity	0.088 (1.008)	-0.094 (1.006)	-0.182*** (0.009)
Negative Reciprocity	-0.011 (1.016)	0.063 (0.987)	0.073*** (0.009)
Altruism	0.161 (1.003)	-0.069 (0.962)	-0.230*** (0.009)

In a similar way we examine our control variables in Table 4. Also here seem the differences between control and treated group to be significant on 0.001 confidence level.

### 3 Mechanism

#### 3.1 Theoretical Channels

We hypothesize that regime changes during formative years (ages 3-18) affect economic preferences through several interrelated channels:

1. **Institutional Trust Channel:** Sudden changes in political institutions may disrupt children’s developing sense of institutional reliability, potentially leading to long-lasting effects on general trust. When formal rules and enforcement mechanisms change dramatically, individuals may develop persistent skepticism about institutional stability, affecting their willingness to trust others ([Alesina and Fuchs-Schündeln 2007](#)).
2. **Uncertainty and Risk Perception Channel:** Political transitions often create periods of heightened uncertainty. Experiencing such uncertainty during formative years

Table 4: Control Variables Comparison by Group

	Mean (SD)		
	Control Group	Treatment Group	Difference
Age	37.604 (15.772)	39.391 (17.340)	1.787*** (0.153)
Log of Average GDP per capita during formative years	8.345 (1.102)	8.670 (0.859)	0.325*** (0.009)
Subjective Math Skills	5.222 (2.880)	5.142 (2.748)	-0.080** (0.026)
Average LDI during formative years	0.205 (0.205)	0.415 (0.212)	0.210*** (0.002)

might permanently alter risk attitudes by changing how individuals evaluate the predictability of their environment (Malmendier and Nagel 2011).

3. **Social Norm Disruption Channel:** Regime changes typically involve shifts in social norms and values. Children and adolescents, who are still internalizing social norms, may develop different patterns of reciprocity and altruism when exposed to changing or conflicting social expectations (Kosse et al. 2020).
4. **Economic Insecurity Channel:** Political transitions frequently coincide with economic volatility. Economic hardship experienced during formative years may affect time preferences (patience) by altering how individuals value present versus future rewards (Haushofer and Fehr 2014).

We cannot test the mechanism directly, but we test its implications through a **Two-way fixed effects (2FE)**:

- Individuals are assigned to treatment if they experienced a regime change during their formative years.
- All individuals are surveyed in the same period (2012-2013), minimizing confounding from external shocks.

### 3.2 Testing the Mechanisms

While directly testing these psychological mechanisms is challenging with our cross-sectional data, we propose several indirect tests:

1. **Heterogeneity by Transition Type:** Different channels may be more prominent depending on whether the transition was from autocracy to democracy or vice versa. We will test this by separating our treatment into democratization and autocratization events.
2. **Mediation Analysis:** To test the economic insecurity channel, we will examine whether controlling for economic volatility measures (GDP fluctuations) during formative years attenuates the estimated treatment effect.

## 4 Source of Bias and Identification

Our research design faces several identification challenges that we are planning to address through a combination of fixed effects, control variables, and robustness checks.

### 4.1 Potential Biases and Mitigation

Below we summarize key sources of potential bias in identifying the causal effect of regime change exposure, along with how we address them in our empirical strategy:

- **Endogeneity of regime change exposure:**

Exposure to regime change is not randomly assigned. Some regions experience more changes due to internal political or economic factors.

**Mitigation:** We exploit variation in birth years within regions—some individuals were exposed to regime change during formative years, others were not. This within-region, across-cohort variation allows for a quasi-experimental approach, similar to (Fuchs-Schündeln and Schündeln 2015).

- **Time-invariant region-level confounding:**

Cultural, geographic, or institutional differences across regions may bias results.

**Mitigation:** We include **region fixed effects**, which absorb all stable differences across regions.

- **Common cohort shocks:**

Individuals born in the same year might be similarly affected by macroeconomic or global events.

**Mitigation:** We include **birth cohort fixed effects** to control for time-specific shocks that affect all individuals born in the same year.

- **Residual selection bias:**

Regions with more frequent regime changes might also be systematically poorer or politically unstable, potentially biasing results.

**Mitigation:** We include **control variables**, as was described in the chapter [Control Variables](#)

## 5 Econometric Specifications

We include several different specification, capturing the effect of regime changes on the economic preferences.

### 5.1 Effect of Regime Changes

$$Y_{ict} = \alpha + \beta \cdot \text{Regime Change}_{ic} + \gamma_c + \delta_t + \varepsilon_{ict} \quad (1)$$

Where:

- **Outcome:**  $Y_{ict}$ : Economic preference outcome (trust, patience, etc.) for **individual** (  $i$  ), **region** (  $r$  ), **birth cohort** (  $t$  )
- **Treatment:**  $\text{Regime Change}_{ic}$  is a binary treatment indicators (1 if experienced democratization/autocratization during formative years, 0 otherwise)
- $\gamma_r$  : Region fixed effects that absorb time-invariant heterogeneity across regions
- $\delta_t$  : Birth cohort fixed effects that absorb common shocks affecting all individuals born in year  $t$

### 5.2 Heterogeneity by Transition Type

#### 5.2.1 Baseline specification

Our baseline specification is a **two-way fixed effects (TWFE)** model that leverages variation in exposure to either autocratization or democratization across birth cohorts and regions, shown in equations Equation 2 and Equation 3 :

$$Y_{ict} = \alpha + \beta \cdot \text{Autocratization}_{ic} + \gamma_c + \delta_t + \varepsilon_{ict} \quad (2)$$

$$Y_{ict} = \alpha + \beta \cdot \text{Democratization}_{ic} + \gamma_c + \delta_t + \varepsilon_{ict} \quad (3)$$

Where:

- **Outcome:**  $Y_{ict}$ : Economic preference outcome (trust, patience, etc.) for **individual** (  $i$  ), **region** (  $r$  ), **birth cohort** (  $t$  )
- **Treatment:**  $\text{Autocratization}_{ic}$  and  $\text{Democratization}_{ic}$  are binary treatment indicators (1 if experienced democratization **or** autocratization during formative years, 0 otherwise)
- $\gamma_r$  : Region fixed effects that absorb time-invariant heterogeneity across regions

- $\delta_t$  : Birth cohort fixed effects that absorb common shocks affecting all individuals born in year  $t$

We chose the specification without controls to be our main one, because we are aiming for a causal inference of regime changes on economic preferences. The coefficient of interest,  $\beta$ , represents the average effect of experiencing a regime change during formative years on economic preferences, measured in standard deviation units. Under the **identifying assumptions** discussed in [Identification Strategy and Causal Interpretation](#),  $\beta$  can be interpreted as the causal effect of regime change exposure on preference formation.

We have also decided on two baseline equation rather than one, to further strengthen our causal argument.

### 5.2.2 Specification with controls

Building on the baseline specification, we are also planning to explore following specification in Equation 4 and Equation 5 with included control variables:

$$Y_{ict} = \alpha + \beta \cdot \text{Democratization}_{ic} + \gamma_c + \delta_t + X_{ict} \cdot (\text{Controls}) + \varepsilon_{ict} \quad (4)$$

Where:

- **Democratization<sub>ic</sub>**: Binary indicator equal to 1 if individual  $i$  experienced a significant **increase** in LDI during formative years, defined as a change where:
  - the 10-year difference in LDI is greater than 0.1, and
  - the confidence intervals of year  $t$  and year  $t-10$  do not overlap ( $\Delta \text{LDI} > 0.1$  and statistically significant)
- $X_{ict}$  : **Controls** including:
  - Average LDI experienced during formative years (ages 3-18)
  - Average GDP per capita of the country of residence during formative years (ages 3-18)
  - Economic recession dummy

$$Y_{ict} = \alpha + \beta \cdot \text{Autocratization}_{ic} + \gamma_c + \delta_t + X_{ict} \cdot (\text{Controls}) + \varepsilon_{ict} \quad (5)$$

Where:

- **Autocratization<sub>ic</sub>**: Binary indicator equal to 1 if individual  $i$  experienced a significant **decrease** in LDI during formative years, defined as a change where:

- the 10-year difference in LDI is less than  $-0.1$ , and
- the confidence intervals of year  $t$  and year  $t-10$  do not overlap ( $\Delta\text{LDI} < -0.1$  and statistically significant)
- $X_{ict}$  : **Controls** including:
  - Average LDI experienced during formative years (ages 3-18)
  - Average GDP per capita of the country of residence during formative years (ages 3-18)
  - Economic recession dummy

After elaborating on the structure of our control variables, we have decided not to include the **Subjective math skills** control variable. This is because the values of these variables might be directly affected by the regime changes themselves, and would therefore not be an appropriate control because of the reverse causality problem.

## 6 Identification Strategy and Causal Interpretation

### 6.1 Identified Treatment Effect

Our empirical strategy aims to identify the Average Treatment Effect on the Treated (ATT), which represents the causal impact of experiencing an autocratization or democratization during formative years on the economic preferences of individuals who were actually exposed to such changes. Formally, the ATT is defined as:

$$\text{ATT} = E[Y(1) - Y(0) | \text{Autocratization} = 1]$$

$$\text{ATT} = E[Y(1) - Y(0) | \text{Democratization} = 1]$$

Where  $Y(1)$  represents potential preferences under treatment (experiencing regime change) and  $Y(0)$  represents potential preferences without treatment, and the expectation is taken over the subpopulation of treated individuals.

## 6.2 Causal Identification Assumptions

The TWFE estimator can provide valid causal ATT if the **conditional independence assumption (CIA)** holds. In our context, this assumption implies the following: Conditional on observed covariates, region fixed effects, and birth cohort fixed effects, assignment to treatment (exposure to autocratization or democratization) **is as good as random**. Formally:

$$\{Y(0), Y(1)\} \perp \text{Autocratization} | X, \gamma_c, \delta_t$$

$$\{Y(0), Y(1)\} \perp \text{Democratization} | X, \gamma_c, \delta_t$$

Following assumptions must also hold:

- **Stable Unit Treatment Value Assumption (SUTVA):**

The potential outcomes for any individual are unaffected by the treatment status of other individuals, and there is only one version of treatment. This assumption could be violated if, for example, migration flows during regime changes create spillover effects across regions.

- **Common Support/Overlap**

Each individual has a positive probability of being both treated and untreated. This ensures that we have comparable treated and untreated individuals for each combination of covariates and fixed effects. Formally:

$$0 < P(\text{Autocratization} = 1 | X, \gamma_c, \delta_t) < 1$$

$$0 < P(\text{Democratization} = 1 | X, \gamma_c, \delta_t) < 1$$

- There are **no unobserved confounders** that vary simultaneously with both treatment assignment and the preference outcomes.
- Individuals not exposed to any kind of regime change during formative years serve as a valid control group for those who were exposed.

While we cannot directly test all identification assumptions, we are planning to implement several tests to assess their plausibility.

### 6.3 Limitations to Causal Interpretation

Despite our identification strategy, several limitations remain:

- **Selective Migration:** Individuals (or their parents) might selectively migrate, potentially creating compositional changes in the population that confound treatment effects.
- **Measurement of Formative Years:** Our definition of formative years (ages 3-18) is based on developmental psychology literature but may not perfectly capture critical periods for all preference types.
- **Treatment Definition:** Our binary classification of regime changes may not capture all relevant political transitions that affect preference formation.

Given these limitations, we are planning to interpret our results as providing evidence for the causal effect of regime changes on preference formation under the stated assumptions, while acknowledging that alternative interpretations cannot be fully ruled out.

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