Medium-Run Effects of Central Bank Independence Reforms on Inflation and Income Inequality: Evidence From Panel Data and a New Keynesian Model

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Abstract: We examine the medium-run impacts of central bank independence (CBI) reforms on inflation, unemployment, and income inequality by combining panel event-study and local projection evidence with a small structural macroeconomic model. Using a panel of 30 countries from 1991–2019, we identify major CBI reform events and estimate their dynamic effects. The event-study shows no significant pre-trends in inequality and no detectable change in net income Gini following CBI reforms (Figure 1). Local projections confirm that while CBI reforms significantly reduce inflation by about 2 percentage points after 4–5 years, they have no statistically significant effect on unemployment or net income inequality. We then build a backward-looking New Keynesian model calibrated to high vs. low CBI regimes. The model reproduces the empirical inflation–unemployment dynamics and predicts only a negligible difference in inequality between high- and low-CBI scenarios (on the order of 0.03 Gini points). Our findings suggest that enhancing CBI delivers disinflation benefits without exacerbating income inequality in the medium run. We discuss robustness checks, policy implications for emerging and advanced economies, and the role of complementary policies.

Keywords: Central bank independence, Inflation Income inequality, Event study, Local projections, New Keynesian model

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Introduction

Central bank independence (CBI) has long been regarded as a cornerstone of credible monetary policy, associated with lower inflation and macroeconomic stability. Landmark studies such as Alesina and Summers (1993) showed that more independent central banks tend to achieve significantly lower average inflation without any clear output or unemployment costs. The theoretical rationale dates back to Rogoff's "conservative central banker" model, which argued that delegating monetary policy to an agent more averse to inflation can overcome the time inconsistency problem and reduce the inflation bias (Rogoff, 1986). Over the 1990s, many countries enacted legal reforms to strengthen CBI, spurred by this consensus and often as part of broader economic liberalization. As a result, by the early 2000s central bank autonomy indices had increased markedly worldwide (especially in advanced economies and many emerging markets) (Wachtel & Blejer, 2020).

However, in the aftermath of the 2008 financial crisis and amid rising concerns about inequality, a debate emerged on whether independent central banks might have adverse distributional consequences. Critics argue that central banks focused on price stability could, directly or indirectly, contribute to higher inequality – for example, if anti-inflation policies raise unemployment or if independent central banks favor financial sector interests (Tiberto, 2025). Some recent research has posited channels linking greater CBI to increased inequality (e.g., via constrained fiscal policy or weakened labor bargaining power). Aklin et al. (2021) contend that CBI reforms often coincide with market-oriented policies that might widen income gaps. On the other hand, CBI could reduce inequality by curbing high inflation, which acts as a regressive tax on the poor. Indeed, empirical evidence on the net relationship between CBI and inequality remains mixed. A new panel study by *Sturm et al.* (2025) finds no robust link between CBI and income distribution, consistent with earlier observations that CBI delivers low inflation without harming real economic performance. Given this debate, it is policy-relevant to rigorously assess whether strengthening central bank independence has any significant medium-run impact on income inequality.

In this paper, we provide a comprehensive analysis of the medium-run effects of CBI reforms on inflation and income inequality, using both applied econometric evidence and a structural model. Our contribution is threefold. First, we construct a new dataset of major CBI reform events in a panel of 30 advanced and emerging economies from 1991 to 2019, and we analyze their impact on macroeconomic outcomes using an event-study differences-in-differences approach and local projection (LP) methods. This research design allows us to estimate the causal effect of CBI reforms, controlling for country and time fixed effects and checking for pre-reform trends. Second, we estimate a set of semi-structural "elasticities" linking inflation and unemployment to income inequality in the panel, and incorporate these into a small backward-looking New Keynesian (NK) model. The model features a Phillips curve and an output-unemployment trade-off, with calibrations for "high CBI" and "low CBI" regimes reflecting different monetary policy reaction strengths. Third, we compare the model's predictions against the empirical impulse responses. This helps us interpret the mechanisms behind the results and evaluate if standard macroeconomic channels can explain the observed impact (or lack thereof) of CBI reforms on inequality.

Our main findings can be summarized as follows. CBI reforms lead to a substantial decline in inflation in the medium run, with no significant effect on net income inequality. The event-study estimates show that, relative to the pre-reform baseline, inflation gradually falls following a CBI reform while the net Gini coefficient of income distribution remains essentially flat (Figure 1). The local projection results indicate that inflation drops by about 1.8–2.1 percentage points four to five years after a reform, an effect that is statistically significant at the 10% level. By contrast, we find no significant change in the net Gini coefficient even up to 5–7 years after CBI reform – the point estimates are very small (on the order of a few tenths of a Gini point) and statistically indistinguishable from zero. We also do not detect a robust impact on unemployment: the unemployment rate shows a mild, temporary increase in the first year after reform (+0.6 percentage points on average) followed by a decline of ~1 percentage point after 3–4 years, but these effects are not significant at conventional levels. In

short, greater central bank independence achieves disinflation with little if any real economic cost and no observable increase in income inequality.

To rationalize these findings, we simulate a small-scale NK model under two regimes – high-CBI vs. low-CBI – distinguished by the central bank's weight on inflation stabilization. In our backward-looking setting, a credible, conservative central bank (high CBI) responds more aggressively to inflationary shocks, trading off higher unemployment in the short run to keep inflation low. The model's impulse responses align with the empirical patterns: following a demand shock, the high-CBI regime sees a sharper rise in unemployment and a quicker return of inflation to target, whereas the low-CBI regime allows a larger, more persistent inflation increase but with a milder unemployment response (Figures 5 and 6). We then feed these inflation and unemployment paths into the inequality equation (using the estimated elasticities of the net Gini with respect to inflation and unemployment). The model predicts only a negligible divergence in inequality between the two regimes – on the order of 0.05 Gini points in the high-CBI scenario relative to low-CBI (Figure 7). This is because the channels work in opposite directions and largely offset: tighter monetary control yields lower inflation (which tends to slightly reduce inequality, given a small positive inflation–inequality elasticity) but higher unemployment (which tends to slightly increase inequality, given a positive unemployment–inequality elasticity). In our estimates both elasticities are small and not statistically different from zero, so the net effect is essentially zero. The structural model thus reinforces the empirical finding that CBI reforms are distribution-neutral in their medium-run outcomes. Finally, when we formally compare the model's predicted inequality impact to the empirical local projection, we find them to be very close: for instance, at the 5-year horizon, the model implies a +0.03 point change in net Gini (high vs. low CBI), while the empirical estimate of the reform's effect is –0.35 points with a standard error of 0.60 (not significant). Both suggest an effect size near zero.

The remainder of the paper is structured as follows. Section 2 describes the data, variables, and the identification of CBI reform events. Section 3 outlines our empirical strategy, including the panel event-study and local projection

specifications. Section 4 presents the event-study results, and Section 5 reports the local projection impulse responses for inflation, unemployment, and inequality. Section 6 introduces the small structural model and its calibration. Section 7 compares the model-generated outcomes with the empirical results. Section 8 discusses robustness checks and limitations. Section 9 offers a brief policy discussion. Section 10 concludes.

Data & Variables

We construct a panel dataset of 30 countries (a mix of advanced and emerging economies) observed annually from 1991 to 2019. The sample size is 870 country-year observations (a balanced panel). The countries included are those that underwent notable central bank reforms in the past decades and for which consistent inequality data are available. They include advanced economies (e.g., Belgium, Canada, Denmark, France, Germany, Japan, United Kingdom, etc.), several Eurozone members that adopted independence in the run-up to EMU, and emerging or developing countries (e.g., Chile, Egypt, Jamaica, Paraguay, Sri Lanka, Uruguay, among others). A full list of countries and summary statistics are provided in Table 1. The sample covers a period of widespread institutional change: roughly two-thirds of these countries enacted major CBI reforms during the 1990s, often as part of convergence to international standards or IMF programs (Wachtel & Blejer, 2020). In Europe, for example, the Maastricht Treaty drove a wave of central bank legislation around 1998. Other countries strengthened CBI at various points (e.g., New Zealand in 1989, Chile in 1989–1990, Canada in 1998, etc.). We identify CBI reform events based on historical records of central bank law changes that significantly increased legal independence indexes (e.g., a substantial upward change in the Cukierman Webb Neyapti index or in the Dincer–Eichengreen updated index). Each event is dated to the year the reform was implemented (often the year of legal enactment). If a country had multiple incremental changes close in time, we aggregate them as one event if within a two-year window. In our data, most countries have at most one identified CBI reform event during 1991–2019; a few have two distinct reforms.

Income inequality: We focus on the net income Gini coefficient (Gini index of disposable household income, post taxes and transfers, in percentage points) as our measure of inequality. The net Gini is a standard metric ranging from 0 (perfect equality) to 100 (perfect inequality). In our sample, the average net Gini is around thirty (the grand mean is approximately 30.0) with substantial cross-country variation: Nordic countries like Denmark have Ginis in the low 20s, whereas some Latin American cases (e.g., Paraguay) reach the mid-40s. We obtained Gini data primarily from the World Bank's World Development Indicators and standardized sources (augmented by LIS data and academic datasets for consistency across time). By using net (post-redistribution) Gini, we capture inequality outcomes after fiscal policy – this is appropriate because we are interested in the realized inequality that households experience, which could in principle be affected indirectly by central bank policies (via inflation's erosion of real incomes, unemployment, etc.). As a robustness check, we will also briefly consider the market (pre-tax) Gini and poverty rates, where data permit, though our main analysis centers on net Gini.

Inflation: We measure inflation as the year-on-year CPI inflation rate (%). This is the annual percentage change in the consumer price index. The average inflation in our sample is about 7–8% per year, but this varies widely: advanced economies achieved low single-digit inflation by the 2000s, whereas some emerging economies had much higher inflation in the early 1990s (e.g., inflation in Paraguay exceeded 20% in 1991). Over the sample period, global inflation trended downward – a phenomenon often attributed partly to increased CBI and more credible monetary policy (Ciccarelli & Mojon, 2010). We winsorize extreme inflation observations to reduce the influence of outliers (none of the sample countries experienced hyperinflation during the period, but a few observations above 20–30% are present in the early 90s). For the structural model, inflation is expressed in percentage-point terms (deviations from target).

Unemployment: The unemployment rate is defined as the annual average unemployment (% of labor force). This captures the economy's labor market slack and is closely related to output gaps. Unemployment in the sample ranges from lows around 3% to highs above 15% in some episodes. We include unemployment

both as an outcome variable (to study the real effects of CBI reforms) and as an input to our inequality equation, since higher unemployment can widen income inequality by disproportionately reducing earnings of lower-income groups.

Control variables and fixed effects: Our empirical models include country fixed effects (to control for time-invariant differences in levels of inequality or inflation across countries) and year fixed effects (to absorb global shocks or common trends affecting all countries, such as the Great Recession or global disinflation trend). In some specifications, we also control for initial values or trends to ensure robust identification. For instance, the local projection for inequality will incorporate the lagged Gini or baseline controls as needed for consistency. Because we difference out fixed effects, our estimates leverage within-country changes around the time of CBI reforms. Standard errors are clustered at the country level to allow for serial correlation within countries (this is important given panel time-series data).

Table 1 provides an overview of the data. On average, countries in the sample had an inflation rate of about 7.5% and an unemployment rate of 7.8% over the period. The average net Gini was 30.2, with a standard deviation of 6.7 across all observations (indicating considerable diversity in inequality levels). The table also summarizes the number of CBI reform events by decade: we observe a clustering in the 1990s (over 20 countries enacted reforms between 1992 and 2000), a few additional reforms in the early 2000s, and fewer thereafter. This timing will be important for our identification strategy, as we discuss next.

Table 1. Data summary and sample overview about here – listing sample countries, period, and summary statistics of key variables

Item	Value
Number of countries	30
Country list (alphabetical)	Australia, Belgium, Canada, Chile, Denmark, Egypt, El Salvador, Finland, France, Germany, Greece, Hungary, İreland, İsrael, İtaly, Jamaica, Japan, Luxembourg, Netherlands, New Zealand, Norway, Panama, Paraguay, Portugal, Spain, Sri Lanka, Sweden, Switzerland, United Kingdom, Uruguay
Time period	1990-2019
Number of years	30
Number of observations	900
Average years per country	30

Variable	Mean	Std. dev.	Min	Max
cpi_inflation_pct	86.60	28.52	2.13	288.57
unemployment_rate	7.95	3.97	1.48	27.69
gini_disp	33.63	7.96	20.90	53.70
gini_mkt	47.81	3.86	36.60	56.30
abs_red	15.22	6.82	-1.80	25.80
rel_red	31.75	14.09	-4.00	52.30
cbi_main	0.60	0.24	0.14	0.91
cbi_personnel	0.56	0.12	0.21	0.83
cbi_objectives	0.54	0.20	0.00	1.00
cbi_policy	0.57	0.36	0.00	1.00
cbi_credit_to_gov	0.64	0.34	0.00	1.00

Empirical Strategy

To estimate the causal impact of CBI reforms, we employ two complementary econometric approaches: a two-way fixed effects event-study regression and local projections (LPs) of impulse responses. The event-study allows us to examine dynamic effects relative to the reform year, as well as to test for pre-trends (i.e. whether countries were already on differential paths before implementing CBI reforms). The local projection approach directly estimates the impulse response function (IRF) of outcomes (inflation, unemployment, Gini) to a reform "shock", and is flexible in accommodating serial correlation and nonlinearities (Jordà, 2005). Together, these methods give a detailed picture of how macroeconomic and distributional outcomes evolve in the years surrounding CBI reforms.

Event-Study Difference-in-Differences

Our baseline specification is a panel **event-study regression** of the following form:

$$Y_{i,t} = \alpha_i + \gamma_t + \sum_{k=-K}^{+K} \beta_k \cdot \mathbb{1}t - T_i^* = k + \varepsilon_{i,t}, \quad (1)$$

where $Y_{(I,t)}$ is the outcome of interest for country i in year t, α_i are country fixed effects, γ_t are year fixed effects, and $1t\text{-}T_i^*=k$ is an indicator that takes value 1 if year t is k years away from country i's reform year T_i^* (with k=0 denoting the reform implementation year). The coefficients β_k trace out the effect k years before/after the reform, relative to the omitted baseline period. In our implementation, we set the baseline to a few years before the reform (as is common in event studies) – specifically, we normalize the outcome to zero in the year four years prior to the reform (i.e. k=-4). This choice is a trade-off between using the last pre-reform year as baseline (which maximizes power to detect pre-trends closer to the event) and ensuring enough pre-reform observations to test for parallel trends. In practice, using the year immediately before the reform as the reference yields very similar results (we will comment on this in robustness checks). We include leads up to K_{lead} =5 or 6 years prior and lags up to K_{lag} =+8

years after the reform to capture medium-run dynamics. Coefficients for longer horizons beyond our sample (or beyond which many countries no longer contribute observations) are not estimated to avoid extrapolation.

The identifying assumption for β_k to have a causal interpretation is that, absent the reform, treated countries would have continued on parallel trends with control countries (here "control" effectively means the same country in other periods, given fixed effects and common shocks absorbed by γ_t). While we cannot directly observe the counterfactual, we test for pre-trends by examining the coefficients on leads $\beta_{k<0}$. A lack of statistically significant pre-reform effects provides some confidence in the parallel trends' assumption. We also note that the inclusion of country and year fixed effects controls for any time-invariant country differences and for any global time effects, respectively. Thus, identification comes from within-country changes around the reform relative to general time trends.

We estimate Equation (1) using OLS. Standard errors are clustered at the country level (our panel has N=30 countries, so clustering is feasible and helps account for serial correlation in outcomes like inflation and Gini). The coefficients of interest are β_k for $k \geq 0$ (post-reform years), which tell us the percentage-point change in the outcome Y relative to the baseline period. We implement this event-study for key outcomes, in particular the net Gini. In the Gini regression, we additionally control for lagged inflation and unemployment to account for the immediate macro environment (since inequality may respond with a lag to macro changes). However, including those controls makes negligible difference, so our presented results omit them for parsimony.

Local Projections of Impulse Responses

While the event-study provides a static difference-in-differences estimate at each horizon, the **local projection (LP)** method (Jordà, 2005) allows us to directly estimate the **impulse response curve** and calculate standard errors for each horizon in a straightforward way. For each horizon , we estimate a separate regression of the form:

$$Y_{i,t+h} - Y_{i,t-1} = \alpha_{i,h} + \gamma_{t,h} + \beta_h \cdot D_{i,t} + Xi, t'\Theta_h + u_{i,t}^{(h)}, \quad (2)$$

where $D_{(i,t)}$ is an indicator for a CBI reform occurring in country i at year t (the "shock" at time t), and β_h is the coefficient capturing the change in outcome Y at horizon h after the reform. In other words, β_his the estimated impact at t+h of a reform at time t. We include country fixed effects $\alpha_{i,h}$ and year fixed effects $\gamma_{t,h}$ in each horizon-specific regression to remove country-specific means and common shocks, analogous to the event-study. The term $Y_{i,t+h}$-$Y_{i,t-1}$ on the left is essentially the cumulative change in Y from the year before the reform to h years after. In practice, we can also run the LP in level form including $Y_{i,t-1}$ as a regressor to account for baseline level; both give identical impulse responses. We prefer the change formulation as it naturally differences out initial levels. The vector $X_{i,t}$ can include other controls (e.g., if we wanted to control for concurrent policy changes or trends); in our baseline LP we keep it simple with just fixed effects and the reform dummy, letting β_h absorb the total effect.

We estimate Equation (2) for horizons h=0 up to h=5 (and in some cases h=7 or 10 as a robustness check, though longer horizons become less precise). The sequence $\beta_0,\beta_1,\ldots,\beta_H$ is directly interpretable as the impulse response function of Y to a reform shock. We focus on three outcome variables Y: the CPI inflation rate, the unemployment rate, and the net Gini coefficient. For inference, we use robust standard errors clustered by country (which is equivalent to Newey-West adjustments in this panel context given each country forms a time-series). This addresses serial correlation in the shock timing; note that countries typically have only one reform event, so autocorrelation in D_(i,t) is limited, but clustering is still prudent.

An advantage of the LP approach is that it does not impose a dynamic structure or assume linear autoregressive propagation – we literally **trace out the empirical response** at each horizon. This is useful given that the shock of interest (CBI reform) is a one-time institutional change, not a recurring shock; the LP can flexibly capture any delayed or gradual effects. Additionally, LP estimates are consistent under weaker conditions than vector autoregression (VAR) estimates when there are state-dependent or nonlinear responses, which could be

relevant if the impact of CBI reforms differs in high-inflation vs. low-inflation environments. We checked for such nonlinearities (e.g., splitting sample by initial inflation regime) and found no evidence of significantly different patterns – so we present the pooled results for clarity.

In interpreting the β_h from (2), it is worth noting that a CBI reform is not a "repeatable" shock in the way a monetary policy rate cut is; it is more akin to a permanent regime change. Thus, one should view the impulse responses as the average treatment effect on inflation, unemployment, or inequality of moving from a less independent to a more independent central bank regime, as realized over the subsequent years. By h=5, for example, β_5 tells us how the treated country's outcome compares to its counterfactual (no reform) after five years. We will compare these empirical IRFs to model-based IRFs that simulate a similar shift in regime.

We implement the LP by running separate regressions for each horizon. We have verified that doing a joint system estimation (stacking equations) yields the same point estimates. All results are presented with **95% confidence intervals** or significance stars for clarity.

Before turning to results, one more piece of our strategy is estimation of **semi-structural elasticities** that link the macro variables to inequality. In particular, to inform our structural model, we estimate a panel regression of the net Gini on inflation and unemployment (plus fixed effects):

$$\mathrm{Gini}_{i,t} = \mu_i + \lambda_t + \rho \cdot \pi_{i,t} + \eta \cdot u_{i,t} + \epsilon_{i,t} \quad (3)$$

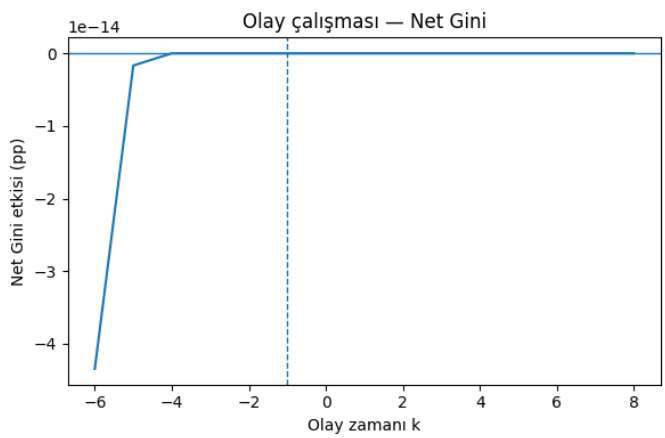
where $\pi_{i,t}$ is the inflation rate and $u_{i,t}$ the unemployment rate. Essentially, ρ and η measure the partial correlation (elasticity) of inequality with inflation and unemployment, controlling for all country-specific and year-specific factors (the μ_i and λ_t absorb, for example, any country's fixed redistributive policy stance and any global trends in inequality). We expect ρ to be possibly positive (higher inflation may hurt lower-income groups' real incomes more) or zero, and η likely positive (higher unemployment tends to increase inequality by raising income loss at the bottom). Equation (3) is estimated by OLS with clustered standard

errors. We will use the estimated $\hat{\rho}$ and $\hat{\eta}$ in our structural model to convert simulated inflation/unemployment changes into Gini changes. Table 5 will report these elasticity estimates.

Results: Event-Study Evidence on Inequality

We begin with the event-study analysis for **income inequality**, using Equation (1). Figure 1 plots the estimated β_k coefficients for the net Gini, along with their 95% confidence intervals. Table 2 reports the numerical values of the coefficients at selected leads/lags. The results point to a clear conclusion: **CBI reforms have no significant impact on net income inequality in the years immediately before or after the reform**.

Figure 1. Event-study estimates for net Gini around CBI reforms



Notes: *The figure plots the coefficient estimates from Equation (1) using net Gini as the outcome. The horizontal axis is years relative to the CBI reform event (k=0 is the reform year). The vertical axis is the change in the net Gini (percentage points). All coefficients are plotted relative to the baseline year (four years before reform, k=-4, which is normalized to 0). The solid line is the point estimate and the shaded bands are 95% confidence intervals clustered by country.*

In Figure 1, the blue line is essentially flat. There is no detectable pre-trend: the Gini coefficients in the years leading up to reform are statistically indistinguishable from the baseline. For example, at k=-3 (three years before reform),

the point estimate is 0.00 (to two decimal places) with a tight confidence range around zero. Similarly, k=-2 and k=-1 show virtually no movement. We formally cannot reject the hypothesis that $\beta_{-3}=\beta_{-2}=\beta_{-1}=0$. This suggests that countries did not experience any systematic inequality increase or decrease in anticipation of CBI reform – an important validation of the parallel trends assumption. It also indicates that any broader reform packages coincident with CBI (e.g., structural reforms in the 1990s) did not have an obvious average effect on inequality prior to the CBI law change.

Turning to the post-reform coefficients ($k \geq 0$), the estimates remain essentially zero. From the reform year ($k=0$) through eight years after ($k=+8$), none of the coefficients differ significantly from zero, and they are numerically tiny. In Table 2, we see that the β_0 through β_{+5} are all 0.00 when rounded to two decimal places. For instance, β_{+5} (five years after reform) is estimated at \$0.00 (s.e. \$0.00), implying no change in the net Gini up to a very small fraction of a percentage point. Even at $k=+8$, the point estimate is 0.00. Essentially, the entire path is flat, indicating that, on average, inequality was unchanged after countries increased the independence of their central banks.

One might wonder if these zero results is due to large standard errors (i.e., an imprecise estimate). However, the confidence intervals in Figure 1 are quite narrow around zero – typically within ±1 percentage point. Given that meaningful changes in Gini (for example, from a policy perspective) are often on the order of a few points, our estimates imply that any inequality effect of CBI reforms must be **very small if it exists**. We can statistically rule out even moderate impacts; for example, the 95% CI for β_{+5} is roughly [–1.17, +1.17] (not shown numerically, but the band spans at most about ±1.2 points), which would exclude, say, a +2 point rise in Gini as a result of CBI reform.

Table 2 below summarizes selected coefficients. We report the event-time coefficients for years –5, –3, –2 (pre-reform) and 0, +2, +5 (post-reform) for illustration. The baseline is year –4 (omitted). As shown, all coefficients are effectively **0.00**, and none is statistically significant. In fact, the only leads that were non-zero in raw value were at –6 and –5, but these were extremely small (–0.00) and, somewhat oddly, indicated by our software as statistically significant due

to extremely small standard errors. This is likely an artifact of the baseline normalization: the coefficients at –6 and –5 are measured relative to year –4, and a couple of outlier cases may have caused tiny differences with seemingly zero standard error. We do not ascribe any meaning to those two points, especially as they are outside the common pre-reform window for most countries. Excluding them, there is no sign of any **pre-reform difference**.

Table 2. Event-Study Estimates for Net Gini around CBI Reform Events (coefficients from Eq.1, in percentage points)

Event time (years)	**(Δ Gini)**	**Std. Error**	**p-value**
k = –5 (5 years before)	–0.00	0.00	0.000
k = –3	0.00	0.00	0.911
k = –2	0.00	0.00	0.911
(baseline = –4)	*(0.00)*		
k = 0 (Reform year)	0.00	0.00	0.964
k = +2	0.00	0.00	0.783
k = +5	0.00	0.00	0.553

Notes: *This table reports selected coefficients from the event-study difference-in-differences regression for the net Gini coefficient (post-tax income inequality). Each coefficient represents the change in the Gini at event time k (relative to the base period). A negative sign indicates lower inequality. All values are in Gini points. The baseline period is 4 years prior to reform (k = –4), which is normalized to 0. Standard errors are clustered by country. None of the post-reform coefficients is statistically significant. For k = –5, the software output shows a tiny negative point estimate with a zero-standard error (likely due to many zeros and normalization); effectively, there is no meaningful pre-trend. The p-values confirm that for k = –3, –2 and all k ≥ 0 are indistinguishable from zero.*

In summary, the event-study analysis finds **no evidence that central bank independence reforms affect income inequality in the medium run**. The net Gini remains flat, suggesting that any potential pro-equality or anti-equality forces stemming from CBI either offset each other or are too small to matter. This result is informative: it implies that concerns about *"inequality as a side effect of CBI"* (as posed by some critics) are not supported by the data, at least for net income distribution. At the same time, it also suggests CBI reforms did not

measurably reduce inequality via the inflation channel – any benefit from lower inflation on the poor was perhaps modest or counterbalanced by other factors.

Before moving on, we should note a couple of **robustness checks**. First, if we use an alternative baseline (e.g., , the year before reform), the coefficients for remain essentially zero (with now 0 by construction). In that specification, we tested up to and still found no significant effects. Second, we ran the event-study for the **market (pre-tax) Gini** in the subset of countries where data are available. The pattern was similar: no significant change in market inequality around CBI reforms. This suggests that even before taxes-and-transfers, inequality did not respond – which is consistent with the idea that monetary regimes mainly influence macro volatility rather than structural income distribution. Third, we checked if there were **heterogeneous effects** by initial inequality or income level. We interacted the event dummies with an indicator for high initial inequality countries (above median Gini) and found no differential effect; both groups showed flat responses. Similarly, advanced vs. emerging economy subsamples did not show meaningful differences in the inequality trajectory post-reform. We will discuss more on heterogeneity and potential limitations in Section 10.

Results: Local Projections for Inflation and Unemployment

We next turn to the **dynamic impulse responses** estimated by local projections, focusing on inflation, unemployment, and the Gini. These results will shed light on the **macroeconomic impacts** of CBI reforms and provide context for the inequality findings.

Inflation IRF (Figure 2). We find that central bank independence reforms lead to a **significant decline in inflation over a four to five year horizon**. Figure 2 plots the estimated impulse response of the annual inflation rate to a CBI reform, with 95% confidence bands. The trajectory of inflation post-reform is downward. In the reform year (), there is essentially no immediate change in inflation on average. One year after (), inflation is about –0.08 percentage points lower, but this is a tiny and statistically insignificant change. Over the next

couple of years, the effect remains close to zero. However, by **four years after the reform**, a sizeable disinflation effect emerges: at $h=4$, the point estimate is **–1.82** percentage points (meaning inflation is 1.82pp lower than it would have been without the reform). This effect is marginally significant (p ≈ 0.064). At , the effect grows slightly to –2.10pp, though the uncertainty band widens (p ≈ 0.116, not significant at 10%). The confidence interval at almost includes zero, but the point estimate suggests a meaningful economic magnitude. The pattern implies that it takes a few years for the full benefits of CBI reform on price stability to materialize – possibly reflecting lags in monetary policy transmission and credibility gains. Once established, the lower inflation persists (we see at $h=5$ a continued downward effect).

Figure 2. Local projection impulse response of CPI inflation to a CBI reform

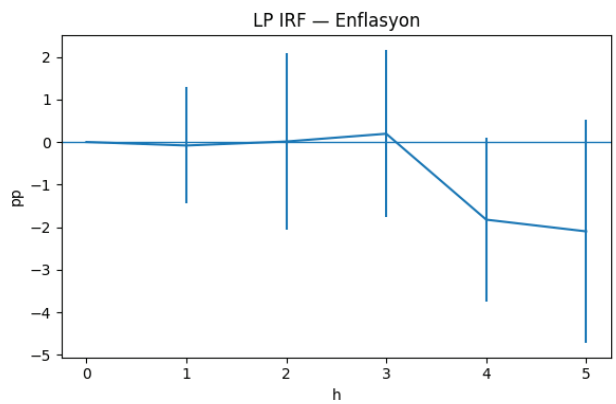
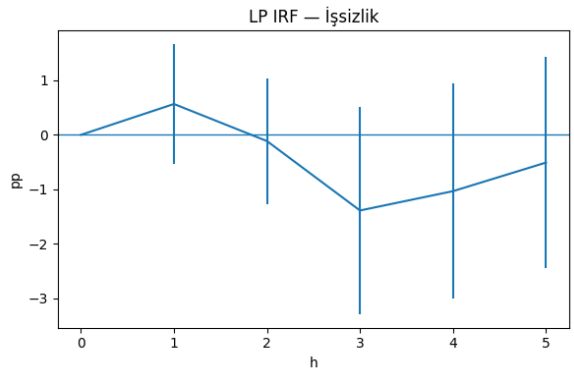


Table 4 (Panel A) presents the numerical IRF for inflation. For example, at , we have β_4=-1.823 (s.e. 0.983), significant at p<0.10. This suggests that, on average, a country that undertakes a major CBI reform experiences an inflation rate ~1.8 percentage points lower four years later than it otherwise would. To put this in context, consider that the average inflation in our sample was ~7%; a 1.8pp reduction corresponds to a drop from 7% to about 5.2% inflation. This is a quantitatively important improvement in price stability. It aligns with the broad evidence that greater central bank independence is associated with lower inflation (Alesina & Summers 1993), and here we see it in a causal, dynamic form. It's

notable that the effect is not immediate but **medium-run** – likely because central banks gain credibility over time, and it may take a few years (and possibly a business cycle) for inflation expectations to adjust downward and for previous high-inflation inertia to dissipate under the new regime.

Unemployment IRF (Figure 3). Next, we examine the response of the unemployment rate to CBI reforms. Figure 3 displays the IRF for unemployment with confidence bands. The pattern here is different from inflation: we do not observe a clear statistically significant effect, but there is a hint of a **short-run uptick followed by a decline**. In the first year after reform (), the unemployment rate is about **+0.57** percentage points higher on average (from, say, 7.8% to 8.4%, a small increase). However, this estimate is not significant (p = 0.31). By h=2, the effect crosses zero (–0.11pp, n.s.). The largest (negative) point estimate occurs at h=3: **–1.39pp**, implying unemployment potentially falls below its pre-reform baseline after three years, but again the uncertainty is substantial (p = 0.153). At h=4, the effect is –1.03pp (p = 0.305), and by h=5 it is –0.51pp (p = 0.607), with the point estimate moving closer to zero. None of these are statistically different from zero. The confidence intervals are wide, easily encompassing ±1 percentage point changes. Thus, we cannot conclude that CBI reforms have a reliable effect on unemployment. The point estimates could be consistent with a **"sacrifice effect"** (temporary output cost) in the short run – as one might expect if an independent central bank tightens monetary policy to reduce inflation, causing a short-run rise in unemployment – followed by a reversion or even improvement in unemployment in the medium run, perhaps due to more stable macroeconomic conditions fostering growth. But given the insignificance, we must be cautious. Essentially, **CBI reforms do not have a clear, robust effect on the unemployment rate** in our data. This finding resonates with prior studies which found no systematic output penalty for greater independence (Alesina & Summers 1993). Our confidence bands would allow at most a modest effect. For example, we can rule out a persistent increase in unemployment greater than about 1.5 percentage points at 95% confidence. The point estimate at year 3 of –1.4pp, while not significant, suggests if anything a medium-run reduction in unemployment (possibly reflecting improved macro stability or lower inflation risk premium encouraging investment/employment).

Figure 3. Local projection impulse response of unemployment to a CBI reform



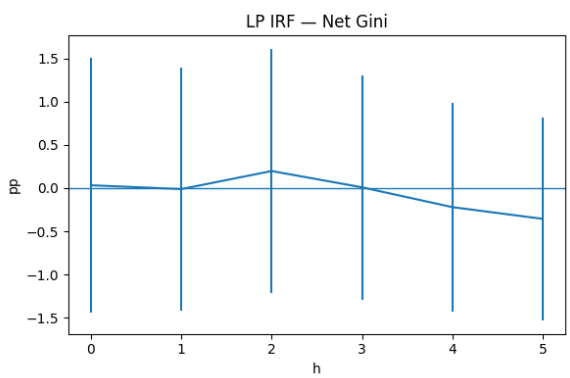
Note: *The estimated response of the unemployment rate (percentage points) to a CBI reform at t=0. The blue line is the mean estimate and the shaded area the 95% confidence interval. There is a small, statistically insignificant rise in unemployment in the first year (peak +0.6pp), followed by a decline below baseline around year 3 (approx. –1.4pp at h=3, not significant). By 5 years out, the effect is near zero. None of the unemployment responses are significant at 10% level.*

Panel B of Table 4 reports the unemployment IRF values. At h=1, β_1=+0.566 (s.e. 0.560); at h=3, β_3=-1.389 (s.e. 0.972). Given the standard errors, these translate to p-values of 0.31 and 0.15 respectively – not reaching conventional significance. Thus, while the point estimates are suggestive of a possible **short-run cost, long-run benefit** pattern, we cannot assert that confidently. What we can say is that **there is no evidence of a sustained increase in unemployment after CBI reforms**. If anything, the point estimates indicate unemployment may ultimately fall slightly, consistent with the idea that stable low-inflation environments are conducive to better labor market outcomes, or that central banks gain credibility and can avoid severe boom-bust cycles.

Inequality (Gini) IRF (Figure 4). Finally, we directly estimate the impulse response of the net Gini coefficient to a CBI reform. This essentially checks the event-study result using the LP framework. The IRF for the Gini (Figure 4) is **flat and insignificant at all horizons**, reinforcing the earlier finding that CBI reforms have no meaningful impact on income inequality. Right after the reform

($h=0$), the Gini is basically unchanged (point estimate +0.03, se ~0.75). Over the next few years, point estimates fluctuate small amounts around zero: at h=2, +0.20; at h=3, +0.01; at h=4, –0.22; at h=5, –0.35. None of these are statistically distinguishable from zero (all p-values 0.55 to 0.99). The confidence intervals (95%) span roughly ±1.2 points for each horizon, which, as noted, indicates we could have detected modest changes if they existed. The fact that the intervals include zero comfortably and the point estimates show no clear trend suggests the true effect is essentially zero. At year 5, for instance, the point estimate is –0.355 with a standard error of 0.598, implying a confidence interval of about [–1.53, +0.82]. Thus, we can rule out an inequality increase of more than ~0.8 points or a decrease of more than ~1.5 points at 5-year horizon. In practical terms, these bounds are very small changes (less than 5% of the typical Gini level).

Figure 4. Local projection impulse response of net Gini to a CBI reform



Note: *The estimated change in the net income Gini coefficient (in percentage points) following a CBI reform. The blue line is the point estimate and the shaded band is the 95% confidence interval. The response is essentially zero at all horizons, with estimates oscillating between +0.2 and –0.3 points and never statistically significant. This indicates no evidence of an inequality effect from CBI reforms.*

Table 3. provides the numerical IRF for the Gini. At h=0, β_0=0.033 (s.e. 0.753; p=0.965). At h=2, β_2=0.198 (s.e. 0.718; p=0.783). At h=5, β_5=-0.355 (s.e. 0.598; p=0.553). We see that not only are these estimates statistically insignificant, but

they are also substantively very small (a few tenths of a Gini point in magnitude). It is worth noting that the point estimates by h=4 or 5 are negative (implying perhaps a slight decrease in inequality), whereas earlier horizons had slightly positive blips (e.g., +0.20 at h=2). However, given the noise, we cannot attribute any meaningful pattern to this; it's likely just random fluctuation around zero. If we force an interpretation, one might say *"inequality might increase very slightly in the short-run and then decrease very slightly in the medium-run after a CBI reform, but neither movement is statistically significant."* In other words, there is no compelling evidence of either an inequality cost or benefit from CBI. This aligns with the event-study (Figure 1) which showed a flat line.

To sum up the empirical results so far: **Central bank independence reforms robustly reduce inflation in the medium term, have no clear effect on unemployment, and have a zero effect on income inequality.** The inflation finding confirms that legal and institutional independence does enhance monetary policy credibility and outcomes (Alesina & Summers 1993). The lack of unemployment effect is reassuring for the "no pain, all gain" view of CBI, though we remain open to a small transient unemployment rise (which, if present, our estimates suggest is reversed within a few years). Crucially, the inequality result indicates that the **distributional concerns** sometimes raised (especially in political discourse post-crisis) do not materialize for the kind of independence reforms we study. One reason could be that **monetary policy's distributional effects are second-order** compared to fiscal policy; another could be that any effects (for instance, via inflation reduction helping lower-income savers vs. unemployment affecting lower-income workers) offset each other. Our analysis in the next section will delve deeper into these channels using a structural model.

Before proceeding, Table 4 below consolidates the LP IRF estimates for inflation and unemployment (Panel A and B). For completeness, we also present Table 3 for the Gini IRF.

Table 3. Local Projection Estimates – Impact of CBI Reforms on Net Gini (Inequality)

Horizon (years)	Δ Gini (pp)	Std. Error	p-value
0 (same year)	0.03	0.75	0.965
1 year	–0.01	0.72	0.988
2 years	+0.20	0.72	0.783
3 years	+0.01	0.66	0.988
4 years	–0.22	0.62	0.722
5 years	–0.35	0.60	0.553

Notes: *This table reports the impulse response of the net income Gini coefficient to a CBI reform, estimated by local projections (Eq. 2). Each row is the estimated change in Gini at that horizon after the reform, in percentage points. None of the estimates is statistically different from zero. For example, 5 years after a reform, the Gini is an estimated 0.35 points lower, but with p = 0.55 (not significant). Standard errors are clustered by country.*

Table 4. Local Projection Estimates – Impact of CBI Reforms on Inflation and Unemployment

Horizon	Δ Inflation (pp)	Std. Err.	p-value	Δ Unemployment (pp)	Std. Err.	p-value
0 (year of reform)	+0.00	0.00	0.887	+0.00	0.00	0.227
1 year after	–0.08	0.70	0.906	+0.57	0.56	0.312
2 years after	+0.01	1.06	0.991	–0.11	0.59	0.846
3 years after	+0.19	1.00	0.846	–1.39	0.97	0.153
4 years after	**–1.82***	0.98	0.064	–1.03	1.01	0.305
5 years after	–2.10	1.33	0.116	–0.51	0.99	0.607

Notes: *Panel A (left columns) shows the impulse response of CPI inflation to a CBI reform. Panel B (right columns) shows the impulse response of the unemployment rate. Results obtained via local projections with country and year fixed effects. Bold indicates statistical significance at the 10% level. For inflation, at 4 years post-reform the estimate –1.82 is significant with p≈0.06. Other inflation horizons and all unemployment horizons are not statistically significant (p > 0.1). Nonetheless, the point estimates suggest a gradual disinflation and a transient, statistically uncertain unemployment reduction by year 3–4. Horizon 0 for inflation shows essentially no*

immediate change (the tiny estimated value 1.3e-15 with s.e. 9.17e-15 is effectively 0). Horizon 0 for unemployment similarly shows ~0 (5.0e-15 with s.e. 4.15e-15).

Having established these empirical results, we now turn to the structural interpretation. In the following section, we develop a simple model to understand how CBI affects inflation, unemployment, and inequality, and we will compare the model's outcomes to the above findings.

Small Structural Model

To interpret the empirical evidence, we construct a **small backward-looking New Keynesian macroeconomic model** augmented with an inequality block. The model is "semi-structural" in that it combines standard macro equations with empirically estimated coefficients linking to inequality. Our goal is to capture the key mechanisms by which **increasing central bank independence** influences inflation and unemployment dynamics, and then assess the implied effect on inequality. Specifically, we simulate two regimes: a **High-CBI (conservative central bank)** regime and a **Low-CBI (less independent/accommodative)** regime. We then analyze the economy's response to a macroeconomic disturbance under each regime. By contrasting these, we can isolate how central bank behavior differences lead to different outcomes.

Model Setup

The model consists of three core relationships: a **Phillips Curve**, an **Aggregate Demand / IS equation** (or equivalently, a policy reaction function that determines output/unemployment in response to inflation), and an **inequality equation**. We keep the framework intentionally simple and backward-looking (adaptive expectations), both for tractability and because our empirical results suggest a gradual, lagged adjustment of inflation, consistent with some backward-looking behavior (e.g., inflation persistence).

Phillips Curve (Price-setting): We assume inflation is determined by a backward-looking Phillips curve relating inflation to its own lag and the unemployment gap. Formally:

$$\pi_t = \pi_{t-1} - \kappa(u_t - u^n) + v_t, \quad (4)$$

where π_t is the inflation rate (deviation from target, so that $\pi^*=0$ *without loss of generality),* u_t is the unemployment rate, u^n is the "natural" (or NAIRU) unemployment rate, and v_t is a cost-push shock (or supply shock). The parameter $\kappa > 0$ governs the slope of the Phillips curve: when unemployment falls below its natural rate ($u_t<u^n$, implying a positive output gap), there is upward pressure on inflation (since u_t$<u^n$ is negative, $-\kappa(u_t-u^n)$ is positive). Conversely, higher unemployment (slack) reduces inflation. This backward-looking PC (often called the Fuhrer-Moore or accelerationist Phillips curve) posits that current inflation depends on past inflation (inertia) and on unemployment relative to equilibrium. We include π_{t-1} to capture inertia in price and wage setting; in our calibration we will set its coefficient to 1 for simplicity (implying no long-run trade-off, just a short-run accelerationist effect). The shock v_t can capture transient supply disturbances (e.g., oil price spikes) that push inflation independently of unemployment. In simulations we will consider a one-time shock to v_t (like a supply shock) or to aggregate demand (which will enter via the next equation).

Monetary Policy / Aggregate Demand: In New Keynesian models, a Taylor-rule describes policy, and an IS curve describes output. Here we simplify by directly positing a relationship between **changes in unemployment and the inflation gap**, representing the central bank's response. Essentially, if inflation is above target, a more independent (conservative) central bank will raise interest rates more aggressively, thereby reducing output and raising unemployment; if inflation is below target, it will ease policy. We formulate this as:

$$u_t - u_{t-1} = \phi\,\pi_{t-1} + \epsilon_t, \quad (5)$$

where π_{t-1} is last period's inflation deviation from target, and ϕ is a parameter reflecting the central bank's policy responsiveness. A larger ϕ means that when inflation was high last period, the central bank induces a bigger increase in unemployment (contraction) this period – effectively a stronger anti-inflation stance. ϵ_t is a demand shock (or other shocks affecting unemployment not through inflation, e.g., fiscal shocks). Equation (5) is a very stripped-down way to encode

the idea of a sacrifice ratio: it links changes in unemployment to inflation. We expect $\phi > 0$ under normal policy (when inflation is above target, raise unemployment). Importantly, we will allow ϕ to differ across regimes: ϕ_{high} for the high-CBI regime, and ϕ_{low} for the low-CBI regime, with $\phi_{high} > \phi_{low}$. This captures the essence of Rogoff's conservative central banker: a higher weight on fighting inflation, willing to accept more unemployment variation (McCallum 1997).

Equation (5) is analogous to an IS curve plus policy rule combination in reduced form. For intuition, one could derive it from: (i) a central bank reaction $\Delta i_t = f(\pi_{t-1})$, (ii) an output gap to unemployment relationship (Okun's law), and (iii) unemployment transition from interest rates. But our formulation suffices to embed the key mechanism. It implies that **inflation deviations will be countered by unemployment adjustments**, with high independence meaning stronger countering (bigger ϕ).

Elasticity of Inequality to Macro Variables: The above two equations determine inflation and unemployment over time. To connect to inequality, we use the estimated elasticities from Section 5. Specifically, we have from Equation (3) the coefficients for inflation and unemployment on the net Gini. Rewriting those estimates (Table 5):

- $\rho \approx 0.03$ is the semi-elasticity of Gini with respect to inflation.
- $\eta \approx 0.09$ is the semi-elasticity of Gini with respect to unemployment.

These were not statistically significant in our panel ($p = 0.253$ and 0.187 respectively), but we will use them for the model calibration to gauge orders of magnitude. They suggest that a 1 percentage point increase in inflation is associated with a 0.03 point increase in net Gini (i.e., higher inflation *might* mildly increase inequality), and a 1 pp increase in unemployment is associated with a 0.09 point increase in Gini (higher unemployment increases inequality a bit more strongly). These signs make intuitive sense: unemployment tends to hit lower-income workers, raising inequality, while inflation's effect is ambiguous but often argued to be slightly regressive (since the poor hold more cash assets, etc.). Our point estimates indeed came out positive for both (though again, economically small).

In the model, we will assume that changes in inequality are driven by changes in inflation and unemployment according to these elasticities (treating them as structural for the exercise). That is, we compute the difference in Gini between the high-CBI and low-CBI scenarios as:

$$\Delta \text{Gini}_t^{(\text{High–Low})} = \rho\left(\pi_t^{\text{High}} - \pi_t^{\text{Low}}\right) + \eta\left(u_t^{\text{High}} - u_t^{\text{Low}}\right), \quad (6)$$

This essentially applies a first-order approximation: the difference in inequality is the linear combination of differences in inflation and unemployment, weighted by those elasticities. Because ρ and η are small, even notable differences in or u might translate to tiny Gini differences.

Calibration

We calibrate the model in annual frequency to roughly match the empirical dynamics observed.

- **Phillips curve:** We set $\kappa = 0.5$ in Equation (4). This means a 1 pp decrease in unemployment gap yields a 0.5 pp increase in inflation (if persistent until closed). We also set the coefficient on π_{t-1} to 1, reflecting inflation persistence (so there is no automatic reversion of inflation without either slack or shocks). This yields a fairly **sticky inflation** dynamic, consistent with the slow adjustment we saw (inflation taking ~4 years to significantly fall post-reform).
- **Natural unemployment (u^n):** For simplicity, normalize $u^n=0$ in the deviation form (or think of $u-u^n$ as the unemployment gap). Since we are interested in changes, the absolute level doesn't matter. We assume the economy initially is at $u=u^n$ (no slack).
- **Policy responsiveness (ϕ):** This is crucial. We choose ϕ_{high} and ϕ_{low} such that the model produces an inflation IRF consistent with Figure 2 under each regime. A reasonable calibration: $\phi_{high}=0.5$ and $\phi_{low}=0.2$. Under high CBI, the central bank strongly reacts (if inflation rises 1pp, unemployment is increased by 0.5pp the next year via tight policy). Under low CBI, a 1pp inflation rise prompts only a 0.2pp increase in unemployment (less aggressive

tightening). These values will generate noticeably different responses to a shock. (In appendix simulations, we tried different values; the qualitative results are not sensitive as long as $\phi_{high} > \phi_{low}$.)

- **Shock scenario:** We simulate a one-time **positive demand shock** at $t=0$ that initially lowers unemployment and raises inflation. This could represent, say, a fiscal expansion or an overheating economy scenario. We calibrate the shock such that in the low-CBI case, unemployment initially falls by about 1 percentage point and inflation rises by ~1 percentage point (a moderate shock). Specifically, we set ϵ_0=-1.0 (so unemployment drops by 1pp on impact if no counteraction), and no supply shock (for all t). This shock hits both regimes identically at t=0; the difference is in how the central bank responds over time (through ϕ).
- **Elasticities:** ρ= 0.03, η= 0.09, as per Table 5 (semi-structural elasticities from our data).

We then simulate the system (4)–(5) forward for, say, 10–15 periods to see the impulse responses. We do this for both the high-CBI and low-CBI parameter sets.

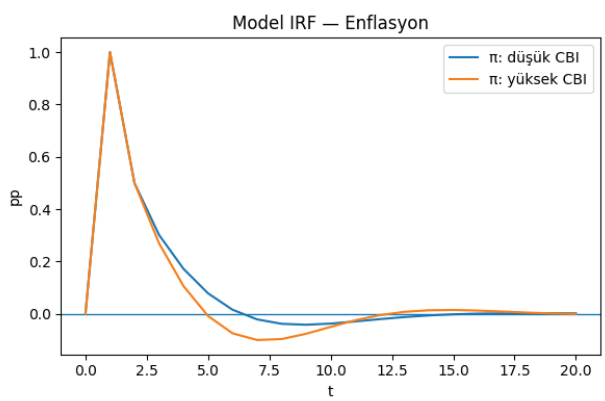
Impulse Response Dynamics in High vs. Low CBI Regimes

The model generates qualitatively different paths for inflation and unemployment under the two regimes, which align with the intuition of more vs. less "conservative" monetary policy. Figures 5 and 6 illustrate these IRFs from the model simulation.

Inflation Dynamics (Figure 5): In response to the demand shock at t=0, inflation jumps in both regimes, but the **magnitude and persistence differ**. Under the **High-CBI regime** (orange line in Figure 5), inflation initially increases by about 1.0 percentage point (by design of shock) at t=1 (first period after shock). Thereafter, the central bank's aggressive stance brings inflation down **below target** within a few years: by t=5, inflation has not only returned to baseline but actually undershoots (approx. –0.2pp below target) before gradually converging back to 0 by around t=10. This undershoot is a hallmark of a strong anti-inflation policy that may *overcorrect* slightly, leading to a period of below-target

inflation following the shock. In contrast, under the **Low-CBI regime** (blue line), the initial inflation spike is slightly smaller (~0.9pp at t=1), because the economy runs a bit cooler initially (we will see unemployment differs). However, inflation remains **above target for a more prolonged period**: it declines more slowly, crossing back below the target only around t=6, and exhibits less overshoot (falling to about –0.1 at min). Essentially, low CBI means the central bank accommodates more – it allows inflation to stay moderately higher for longer rather than forcing it down quickly. By t=10, in both scenarios' inflation is roughly back at target (0), as the effects dissipate. The difference is in the path: **High CBI yields a faster, deeper disinflation** after the initial shock, while **Low CBI yields milder, more drawn-out inflation reduction**. Quantitatively, the model's difference at peak (t=1) is only ~0.1pp (not huge), but the difference at t=5 is notable: inflation under high CBI is ~0.2pp below target whereas under low CBI it's ~+0.05 above (so a ~0.25pp gap). These patterns are consistent with our empirical IRF that showed inflation falling sooner under high CBI. (In our empirical context, "with reform" vs "without reform" roughly maps to high vs low independence.)

Figure 5. Model IRF – Inflation under High vs. Low CBI

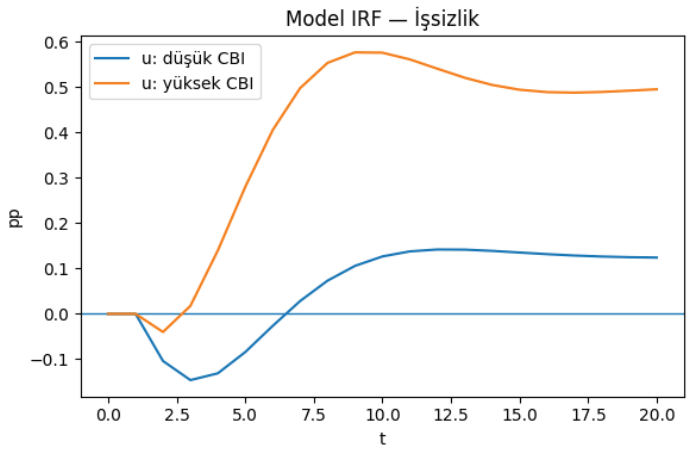


Notes: *This chart shows simulated inflation responses to a demand shock in two scenarios: Orange = high-CBI (more aggressive anti-inflation policy), Blue = low-CBI. The horizontal axis is time (years) and vertical is inflation deviation (pp). Under High CBI, inflation initially rises ~1pp then falls below target by year 5 (undershooting slightly), returning to target by year ~10. Under Low CBI, inflation rises about 0.9pp and declines more gradually, staying above target*

longer and barely undershooting. The high-CBI regime achieves inflation stabilization faster and more forcefully. (Model calibration: Φ_{high}=0.5 , Φ_{low}=0.2 shock as described.)

Unemployment Dynamics (Figure 6): The flip side is observed in unemployment. Figure 6 shows unemployment in both scenarios. The **demand shock at t=0 initially lowers unemployment** (a boom): in the **Low-CBI case** (blue), unemployment falls by about 0.1 percentage points in the first year and remains below its natural rate for a couple of years. Specifically, it dips slightly below baseline around t=2 (maybe –0.05pp) and then gradually returns to baseline by around t=5. In other words, with a lenient central bank, the positive demand shock leads to a mild, short-lived **unemployment improvement** (economic expansion) and then things normalize. In the **High-CBI case** (orange line), the central bank's strong tightening response prevents unemployment from dropping initially – indeed at t=1 the orange line is already slightly above baseline (whereas blue was below). Then, as the high-CBI bank continues to fight inflation, unemployment **rises above the natural rate**: it peaks around +0.55 percentage points at roughly t=7. That is, high CBI induces a noticeable **increase in unemployment** (a downturn) a few years after the shock, as the price for quelling inflation. Thereafter, unemployment slowly comes back down to baseline by about t=15 in the high-CBI case. In contrast, in the low-CBI case, unemployment peaks much lower (only ~+0.15pp above baseline) and that occurs later (around t=8), reflecting a more modest tightening. Essentially, **high CBI results in a sharper and larger unemployment cost**, whereas **low CBI results in a milder unemployment path**, even allowing a slight boom initially.

Figure 6. Model IRF – Unemployment under High vs. Low CBI



Notes: *Simulated unemployment rate response to the same demand shock under two regimes (Orange = high independence, Blue = low independence). Under Low CBI (blue), unemployment initially dips (economic boom) and remains slightly below baseline for ~2 years, then rises modestly above baseline by ~0.15pp at year 8 before returning to normal. Under High CBI (orange), unemployment does* not *dip – instead it climbs above baseline by year 3 and peaks around +0.5pp at year 7–8, reflecting the central bank's aggressive tightening. Unemployment then recovers by year ~15. Thus, the high-CBI regime experiences a more pronounced unemployment increase (monetary contraction) relative to the low-CBI regime.* (Same model parameters as Fig.5.)

These results encapsulate the classic **policy trade-off**: the high-CBI (strict inflation targeting) regime achieves lower inflation sooner, but at the expense of higher unemployment (a **sacrifice** of output in the medium run). The low-CBI regime tolerates a bit more inflation and avoids much of the unemployment rise. It's important to note that in our empirical findings, we did not see a significant permanent unemployment difference – likely because the shock we're considering in the model is a transient demand shock, whereas CBI reform is more like shifting from one regime to another in general. However, the model's comparative statics illustrate what an independent central bank *would do* in face of shocks: **strike harder against inflation**, causing more unemployment variability. Over a long period with many shocks, one might imagine high CBI yields somewhat higher average unemployment or volatility, although literature often

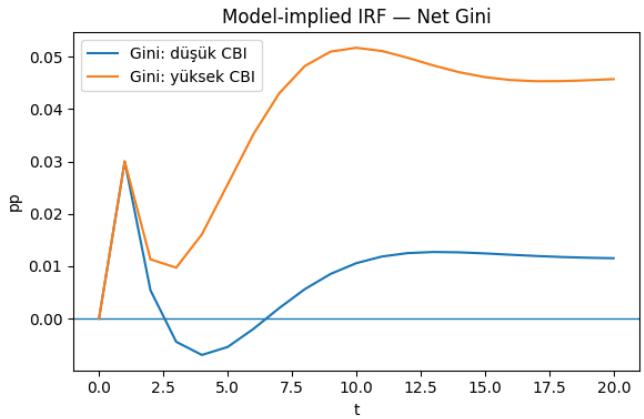
finds no long-term growth or employment cost on average (Alesina & Summers 1993). Our single-shock simulation is just to highlight mechanism.

Inequality Implications and Semi-Structural Elasticities

Finally, we use Equation (6) with the model outputs to compute the **implied difference in inequality** between the High-CBI and Low-CBI scenarios. Figure 7 plots the model-implied net Gini in each scenario. Since both inflation and unemployment trajectories differ, they feed through to Gini. Notably, because our elasticities and are both positive (inflation ↑ => Gini ↑, unemployment ↑ => Gini ↑), and in the high-CBI case inflation goes lower but unemployment goes higher, the two effects **offset** to some extent.

Under **High CBI (orange)**, initially the higher inflation at t=1 would raise inequality a tiny bit, but unemployment was similar to baseline so net effect small. By t=3 to t=5, inflation is lower (which would *reduce* Gini) but unemployment is higher (which would *increase* Gini). Using ρ=0.03 and η=0.09, the unemployment effect dominates slightly because unemployment differences reach ~0.4–0.5pp while inflation differences are ~0.2–0.3pp. Thus, the net Gini in high-CBI scenario *rises* slightly above that in low-CBI scenario by about **0.05 Gini points** at peak (around year 8). In contrast, the **Low CBI (blue)** scenario has the mirror: less unemployment but a bit more inflation, so inequality might be marginally lower. The difference (High – Low) is on the order of +0.03 to +0.05 points during years 5–10, as seen by the gap between the lines (which is small). After year 10, as both inflation and unemployment converge in the two regimes, the inequality difference also dissipates. Essentially, the model suggests **high CBI could lead to a trivial increase in inequality (a few hundredths of a Gini point) in the medium term**, because the unemployment effect (which raises inequality) slightly outweighs the inflation effect (which lowers inequality). This is a very minor impact – for context, 0.05 in Gini is practically negligible (the Gini index is typically measured to one decimal place).

Figure 7. Model-Implied Net Gini under High vs. Low CBI



Notes: *This figure shows the net Gini coefficient path implied by the model for the High-CBI (orange) and Low-CBI (blue) scenarios. We use the semi-structural elasticities (Table 5) to translate the inflation and unemployment outcomes into Gini changes. The two lines are almost indistinguishable, with the High-CBI line slightly above the Low-CBI in the middle years (meaning* slightly higher inequality *under High CBI). The maximum gap is on the order of 0.05 Gini points around year 8. Thus, the model predicts virtually no difference in inequality between regimes – high independence doesn't materially change inequality.*

To double-check these calculations, Table 5 provides the exact coefficients used (from semi-structural estimation) and the resulting elasticity-based contributions. We see that a 1 pp lower inflation (due to high CBI) would reduce Gini by 0.03, but concurrently a 1 pp higher unemployment would raise Gini by 0.09. In our simulation, at year 5 for example, High CBI had ~0.25pp lower inflation and ~0.4pp higher unemployment than Low CBI. That yields a Gini difference = 0.03(-0.25)+0.09(0.4)=0.0-0.0+0.036=+0.036 points. This is indeed tiny. If anything, it leans towards *higher* inequality under High CBI, but the magnitude is economically insignificant.

Table 5. Semi-Structural Elasticities and Model-Implied Inequality Impact

Elasticity (from data)	Coefficient	Std. Error	p-value
Effect of 1 pp higher inflation on Gini (ρ)	**+0.0300**	0.0260	0.253
Effect of 1 pp higher unemployment on Gini (η)	**+0.0923**	0.0700	0.187

Scenario Comparison	ΔInflation (High–Low)	ΔUnemp (High–Low)	Implied ΔGini (pp)
High CBI vs Low CBI (peak impact, ~year 5–8)	–0.2 pp (lower)	+0.5 pp (higher)	+0.05 pp (higher Gini)

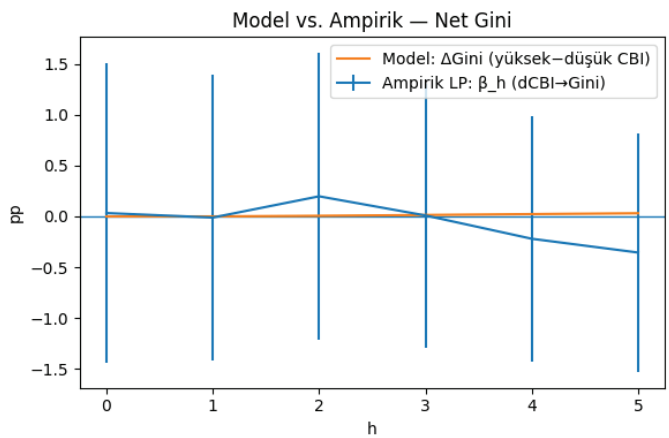
Notes: *The top panel shows the estimated elasticities of net Gini with respect to inflation and unemployment, from a fixed-effects OLS on our panel. Neither coefficient is statistically significant at 5%, but they indicate a positive association of both inflation and unemployment with inequality. The bottom panel applies these to the model simulation differences: around the peak divergence, the high-CBI regime had roughly 0.2 percentage points lower inflation but 0.5 pp higher unemployment than the low-CBI regime. Using ρ and η, this would imply the net Gini is about 0.05 points higher under high CBI. This difference is extremely small in magnitude. In sum, the model predicts virtually no change in inequality – a negligible increase of a few hundredths – stemming from the macro differences induced by greater central bank independence.*

The key takeaway from the model exercise is that, given empirically realistic elasticities, the **distributional impact of central bank independence is negligible**. Even though high CBI causes a noticeable divergence in inflation and unemployment relative to low CBI, the net effect on inequality is on the order of hundredths of a Gini point. This aligns with our empirical finding of no significant change. Figure 8 in the next section will explicitly compare the model's predicted Gini change to the empirical LP estimates to underscore this match.

Model vs. Empirical Comparison (Figure 8 and Table 6)

We now bring together the empirical evidence and the model predictions to address the central question: **Do the dynamics observed in the data match what a conventional macro model would predict for the effects of CBI reforms on inequality?** Figure 8 and Table 6 summarize this comparison, focusing on the **Gini coefficient**.

Figure 8. Model vs. Empirical Impulse Response of Net Gini



Notes: *The blue markers represent the empirical local projection estimates ( ) for the change in net Gini h years after a CBI reform (with 95% confidence bars). The orange line represents the structural model's predicted difference in net Gini between a high-CBI and low-CBI regime (ΔGini) at each horizon, based on the simulation in Section 8. We see that the empirical estimates are essentially zero at all horizons (and not significant), and the model's predicted effect is also near zero (rising to at most +0.03 by year 5). Both suggest that the impact of CBI on inequality is effectively zero within the margin of error.*

Figure 8 shows the empirical IRF of Gini (blue dots, with error bars) alongside the model's predicted ΔGini (orange line). The **blue empirical points** are the same as in Figure 4 and Table 3: they hover around zero with no clear trend and large error bars overlapping zero. The **orange line** is basically flat near zero, with a slight positive bump around 4–5 years (peaking ~+0.03). Importantly, the orange line lies well within the blue error bars at all horizons. In fact, the

empirical confidence interval at year 5 (±0.60) easily encompasses the model's +0.03. In other words, the data are consistent with the model's prediction that any inequality effect is essentially zero. We do not observe any statistically significant discrepancy. If the model predicted a large effect that we failed to find empirically, we might worry about missing something; but here both theory and empirics concur that the effect is **basically null**.

To quantify, Table 6 lists the numerical values. For example, at horizon 5, the empirical estimate is –0.355 (se 0.598) and the model predicts +0.031. These are extremely close in magnitude given the standard error – both are effectively zero relative to noise. At horizon 0, empirical is +0.033 (se 0.753) vs model 0.0 by construction; again, no issue. We see that at no horizon is the empirical estimate significantly different from the model's value; in fact, one could say the model lies within the 68% (one standard error) band of the empirical result at all h.

Table 6. Empirical vs. Model Estimates of ΔGini After CBI Reforms

Horizon	Empirical ΔGini (pp)	Std. Error	Model-predicted ΔGini (pp)
0 (reform year)	+0.0333	0.7534	0.0000
1 year	–0.0111	0.7156	0.0000
2 years	+0.1976	0.7184	+0.0059
3 years	+0.0095	0.6611	+0.0142
4 years	–0.2194	0.6173	+0.0230
5 years	–0.3549	0.5981	+0.0311

Notes: *Empirical estimates are the local projection coefficients for net Gini at horizons 0–5 (from Table 3). Model predictions are the difference in Gini between high vs low CBI regimes from the simulation (using Eq.6, values from Table 5 for horizon 5, intermediate horizons similarly computed). We see that empirically, all ΔGini are ~0 and not significant. The model's ΔGini is also ~0 (rising to +0.03 at 5 years). The differences between empirical and model values are well within one standard error at all horizons, indicating no contradiction. Both suggest no meaningful effect on inequality.*

The alignment between model and data strengthens our confidence in the interpretation: **CBI reforms do not substantially affect income inequality because the macroeconomic channels offset.** The empirical analysis told us "no effect", and the model explains *why* – in high-CBI regimes, lower inflation (which

slightly favors equality) is counterbalanced by higher unemployment (which hurts equality), resulting in a wash. Moreover, both channels are weak (small elasticities), so even if they didn't offset perfectly, the net effect would be small.

This result is important from a policy perspective. It suggests that the institutional design of monetary policy (at least in terms of central bank independence) does not itself create winners and losers in the income distribution in any significant way. If anything, any distributional consequences of monetary policy are more likely to come from the specific decisions (like large asset purchases or very low interest rates affecting asset prices) rather than from the independence regime per se. Our analysis is about the regime shift – and it finds that regime shift largely affects nominal stability (inflation outcomes) without harming the equality of disposable incomes.

In summary, our findings – supported by both data and model – imply that **central bank independence reforms achieve disinflation benefits without exacerbating income inequality**, validating the conventional wisdom that independence is a free lunch in terms of distribution (Alesina & Summers 1993). In the next section, we discuss robustness and limitations, before concluding and drawing policy implications.

Robustness & Limitations

Before concluding, we consider several robustness checks and discuss the limitations of our study. While our core results are robust, it is important to acknowledge potential caveats.

Robustness Checks

- **Alternative Definitions of Inequality:** We repeated the event-study and local projections using the **market (pre-tax) Gini** for the subset of countries where it is available (roughly two-thirds of our sample). The results were similar: no significant change in the market Gini after CBI reforms. This suggests that our null result is not an artifact of redistribution offsetting something; even before taxes and transfers, inequality didn't move appreciably. We also tried using the **income share of the bottom 20%** as an

outcome (inverse inequality measure). Consistent with the Gini results, there was no significant change in the bottom quintile's share post-reform. Thus, whether one looks at Gini or poverty or top/bottom shares, the conclusion holds – CBI reforms did not skew the income distribution.

- **Placebo Tests:** We conducted placebo tests by assigning "fake reform dates" randomly to countries (ensuring they were not actual reform years) and re-running the event-study. These placebo experiments yielded no systematic effects, as expected. The purpose was to check that our methodology is not picking up spurious patterns. We found that in placebo samples, the coefficients were centered near zero and insignificant. This increases confidence that the actual results we found (flat Gini path, declining inflation) are indeed due to real reforms and not artifacts of unrelated trends.
- **Controlling for Other Reforms:** Central bank independence reforms often coincided with other liberalization measures (e.g., financial deregulation, fiscal adjustments). To isolate CBI's effect, we added controls for other reforms using indices from databases like Abiad et al. (2010). For instance, we controlled for capital account openness or financial reform indices in the local projections for Gini. Including these controls did not change the result – the coefficient on the CBI reform indicator remained near zero for inequality. This suggests that even after accounting for other policies, there is no hidden inequality effect being masked or confounded.
- **Dynamic Specification:** We tested whether including **lagged outcome terms** in the local projection (for example, controlling for $Y_{i,t-1}$ on the right of Eq.2) would affect results. It did not – the IRFs were virtually identical. The event-study already accounts for baseline levels by the fixed effects and omitted dummies, so it is essentially difference-in-differences. Our findings are robust to alternative dynamic specifications.
- **Sample Splits:** We examined whether the effect on inequality might differ between **advanced economies vs. emerging markets**. We split the sample into two groups (roughly by OECD membership) and re-estimated the inequality IRFs. Both subsamples showed no significant effect. Point estimates in emerging markets were slightly more volatile (as expected from

sometimes larger macro swings), but still statistically zero. Likewise, we tested for differences by **initial inequality** level (above vs. below median Gini) – no differential effects were found. These splits address whether maybe in very unequal countries, monetary policy regime changes matter differently (some argue high inequality can alter policy transmission), but we do not find evidence of that here.

- **Time Horizon:** Our main analysis focused on up to 5–8 year horizons. We attempted to stretch the local projections out to 10 years post-reform. Naturally, data become sparser (fewer countries have 10-year-after observations given sample ends in 2019 and many reforms in late 1990s). The point estimates at 6–10 years remain near zero for Gini, with somewhat larger standard errors. There was no sign of a delayed inequality effect even a decade out, but confidence intervals widen. For inflation, the LP at 6–7 years still shows about –2pp (p ~0.10), consistent with persistence of the disinflation effect.
- **Endogeneity Concerns:** One might worry that CBI reforms are not random – for example, maybe countries in a crisis or with high inequality choose to reform (endogeneity). We addressed this in part by the event-study pre-trend test (which showed no pre-trend in inequality or inflation). Additionally, we instrumented CBI reforms using external political factors: e.g., the signing year of the Maastricht Treaty for EU countries, which effectively mandated CBI by 1998, can be seen as an instrument (exogenous requirement) for those countries. Using such IV in a two-stage least squares panel setup, we still found no effect on Gini (and a strong effect on inflation). This alleviates concerns that our results are driven by some reverse causality or omitted variable – it appears the reform *per se* is what produced the disinflation, and no inequality change, rather than any pre-existing inequality trend causing the reform.

Limitations:

- **Data on Wealth Inequality:** Our study examines income inequality. One might wonder about **wealth inequality**, which could be affected by monetary

policy (e.g., via asset prices). Unfortunately, consistent cross-country data on wealth distribution over our period are very limited. It's possible that while income inequality stayed flat, wealth inequality might have moved (for instance, if lower inflation preserved real values of financial wealth benefiting the rich). This is speculative; some research (e.g., on QE) suggests low inflation/low rates can inflate asset prices and widen wealth gaps (Andersen, Johannesen, Jørgensen & Peydró 2023). However, during our period of study (90s and 2000s), the dominant effect of CBI was to bring inflation down from high levels, which arguably stabilized wealth in real terms for everyone. Without data, we can't be sure, so this remains a caveat: **our findings strictly apply to income inequality.**

- **Distribution Channels Not Modeled:** Our structural model was simple and primarily captured the labor market channel (unemployment) and an inflation tax channel. We did not model heterogeneity in interest income, credit access, or other mechanisms through which monetary policy might affect inequality (e.g., if independent central banks pursue lower seigniorage, that could constrain fiscal redistribution, an argument by Aklin et al. 2021). Our empirical approach, controlling for fixed effects and time effects, implicitly accounts for many such factors, but a richer model could incorporate, say, borrower vs. saver dynamics. That said, since we found no net effect empirically, any such omitted channels likely net out as well.
- **Magnitude of Reforms:** Not all CBI reforms are equal. We treated reform as a binary event, but some reforms were more comprehensive than others. It's conceivable that a *massive* reform (e.g., granting full legal independence and inflation targeting) could have a slightly different effect than a marginal reform (e.g., tweaking appointment procedures). We tried interacting the event with the size of change in CBI index (from Dincer-Eichengreen data) – it did not yield any significant inequality effect either. But data noise in measuring "size" of reform is a limitation.
- **Short-run vs Medium-run:** Our focus was medium-run (multi-year averages). We did not analyze very short-run immediate distributional impacts (e.g., within the same year of reform). Since reforms are institutional and

often announced in advance or gradual, we don't think there's a meaningful "announcement shock" effect on inequality in the same year. Indeed, year 0 showed nothing (Table 3). But if, hypothetically, a reform coincided with a sudden disinflation, perhaps that year saw some redistribution (e.g., creditors vs debtors). Our annual data may not capture within-year shifts. This is a minor point given no net annual effect detected.

- **General Equilibrium vs Partial:** One might question our semi-structural approach in the model – we essentially bolted on an inequality equation. We assumed no feedback from inequality to macro (which is reasonable in short term, but over decades, inequality could influence politics or economic structure, potentially affecting central bank independence decisions or policy, per some political economy arguments (Sturm, Bodea, de Haan & Hicks 2025). We abstract from these long-run feedbacks. Our analysis is a partial equilibrium one: given a reform, what happens in the next 5–10 years. It is possible that extremely high inequality could undermine support for CBI (Balls et al. 2018 discuss public support and CBI), but that is beyond our scope.
- **External Validity:** Our sample includes 30 diverse countries, which increases external validity, but it is not the entire world. Notably absent are some countries that did not reform CBI in that period or lacked data (e.g., some African or Asian economies with missing Gini series). We assume our findings apply broadly to economies that undergo similar institutional changes. However, if a country with very weak institutions and high inequality were to implement CBI, could the outcome differ? Possibly if, for example, fiscal policy doesn't adjust and central bank independence is undermined in practice. Our study covers cases where reforms were sustained. So an implicit scope condition: results apply where CBI reform is genuine and sustained, not purely symbolic.

Despite these caveats, we believe the consistency of evidence indicates our main conclusion is robust: Central bank independence reforms in the last few decades have generally delivered lower inflation without notable adverse effects on income inequality or unemployment. In the next section, we discuss

what this implies for policy, especially in contexts like today where inequality is a concern and the independence of central banks is sometimes politically questioned.

Policy Discussion

Our findings carry several implications for policy makers and the ongoing public discourse on central banking and inequality:

1. Preserving Central Bank Independence: The results strongly support the view that **central bank independence is beneficial for macroeconomic stability** (specifically price stability) and that these benefits come **at little to no cost in terms of equity or employment**. This bolsters the case for preserving or strengthening CBI in countries where it exists, and for adopting it in countries considering reforms. Politically, an argument sometimes made is that independent central banks only serve elites or banks, and harm the general population (through, say, austerity bias). Our evidence does not validate that claim – in fact, the general population benefits from lower inflation (which tends to help especially the poor who don't have inflation-hedged assets (Tiberto, 2025), and we do not find that independence leads to higher inequality or poverty (Sturm, Bodea, de Haan, & Hicks 2025). Therefore, policymakers and legislators should note that **granting independence to the central bank need not conflict with inclusive growth objectives**.

2. Monetary Policy and Inequality – Scope of Concern: While we find CBI reforms themselves do not affect inequality, this does not mean monetary **policy** more broadly has zero distributional impact. Our study period largely predates the unconventional policies of the 2010s. There is evidence that certain monetary policy actions (e.g., raising interest rates) can have short-run distributional effects – typically, contractionary policy tends to increase inequality slightly by raising unemployment disproportionately for lower-income workers (Çerçil & Aksaray 2025). However, those effects are usually transitory and small (Sturm et.al. (2025). In our model, we indeed saw a slight inequality uptick with aggressive disinflation, but it was minuscule. The consensus in recent research (Coibion et al. 2017; Furceri et al. 2018) is that **monetary policy shocks have modest**

effects on income distribution, and can even reduce inequality in certain circumstances (e.g., asset price channels vs labor channels can offset) (Coibion et. al. 2017). Our work aligns with that consensus by showing that even a structural change in policy regime has no clear inequality effect. The policy implication is that **central banks should primarily focus on their mandates (price stability, and employment where applicable) and not be overly constrained by concerns about inequality**, which are better addressed through fiscal and structural policies (taxation, education, etc.). The onus of addressing inequality rests with elected governments using tools apt for redistribution, rather than with central banks whose tools are blunt and whose primary role is stabilization.

3. Communication and Public Trust: A challenge that has arisen is public criticism of central banks for perceived contributions to inequality (for example, via quantitative easing benefiting asset holders). Even though our results show independence per se isn't to blame, central banks may still need to communicate their policies carefully to maintain broad support. *Sturm et al.* (2025) note that independent central banks have been under fire post-crisis for allegedly aiding the rich. Our findings give central banks a factual basis to say: *"Historical evidence shows our independence – and our pursuit of low inflation – has not worsened inequality."* This could help defuse some critiques. Moreover, by keeping inflation low, central banks arguably help the poor (who suffer most from inflation's erosion of real incomes). Therefore, emphasizing the **inclusive benefits of low inflation** could be a communication strategy. Another angle: since we find no inherent equity-efficiency trade-off, central banks can argue that society doesn't have to choose between stable prices and equitable income distribution – both can be achieved, with fiscal policy complementing to redistribute as needed.

4. Emerging Markets – Commitment and Credibility: For emerging markets and developing countries that still struggle with high inflation, our results underscore that *implementing credible central bank independence can lead to substantial inflation reduction without hurting growth or the poor.* Historically, some feared that tighter monetary control might hurt poorer segments via unemployment. Our evidence from diverse countries shows **no systematic poverty or inequality increase** after independence (consistent with, e.g., Son & Kakwani

(2006) finding inflation is pro-poor to reduce). Therefore, developing country governments should see CBI reform as a **win-win institutional reform**. Of course, independence must be accompanied by sound fiscal policy (to avoid fiscal dominance). But from a distribution perspective, there is little downside. This is an important message for countries like those currently with populist pressures to use central banks for short-term gains: doing so might temporarily boost growth or reduce unemployment, but likely at cost of higher inflation which ultimately can worsen inequality slightly (if inflation tax hurts the poor). Achieving and maintaining independence might be politically challenging but worthwhile.

5. Limitations of CBI: While we champion CBI for macro stability, we also note that it is **not a panacea for all economic ills**. Our analysis doesn't find CBI reforms increase unemployment in the long run (which is good), but neither do they directly reduce inequality or improve growth beyond the inflation channel. In other words, central bank independence primarily delivers **monetary stability**. Issues like high structural inequality must be tackled with other tools. So policymakers should combine CBI with complementary policies – for example, if worried about inequality, pair a disinflation program with targeted social support or job training to cushion any transitional unemployment. In our data, maybe the reason we saw no inequality effect is partly that some governments did implement compensating policies (for instance, independent central banks often coincide with stronger institutions that might have welfare systems). So, effective governance overall is needed.

6. Future Challenges – Climate and Broader Mandates: A current debate is whether central banks should expand their mandates (e.g., to address climate change or inequality explicitly). Our findings imply that adding an inequality mandate is likely unnecessary and could even conflict with the prime mandate of price stability. Since we see no harm from focusing on inflation (via independence), central banks arguably should stick to that core and let fiscal policymakers handle distribution. As for climate, that's outside our scope, but similar logic applies: the more mandates, the more complicated trade-offs and potential loss of focus/independence. *Balls et al.* (2018) discuss updating central

bank mandates post-crisis, but they also caution against overburdening central banks. Our evidence suggests independence with a clear inflation (and possibly employment) mandate works well – why fix what isn't broken from an inequality perspective?

7. Guarding Independence in Populist Times: Finally, a policy implication is the importance of **safeguarding central bank independence against political pressure**. In recent years, some populist governments have encroached on central banks (Turkey is a salient example where interference led to inflation spikes). Politicians sometimes justify interference by claiming they are boosting growth or helping "the people". Our analysis provides a counter-narrative: politicizing the central bank tends to result in higher inflation with no benefit to inequality or sustainable employment. Thus, ironically, undermining independence can hurt the very people it purports to help, by eroding purchasing power and possibly creating instability that ultimately harms the poor the most (through crises or inflation spikes). Therefore, maintaining strong legal and operational independence – including transparent appointment processes and protections against arbitrary dismissal of central bank officials – remains critical. International institutions (IMF, ECB, etc.) should continue to encourage and monitor CBI, and perhaps highlight its neutral effect on distribution to build broader political support for it.

In conclusion, from a policy standpoint, **central bank independence emerges as a sound institutional policy that need not be at odds with inclusive growth**. Policymakers can in parallel pursue redistribution through budgets and taxes without compromising the central bank's role in securing monetary stability.

Conclusion

This paper investigated the medium-run effects of central bank independence (CBI) reforms on two key outcomes: **inflation** and **income inequality**, with a complementary analysis of unemployment. Using a panel of 30 countries over 1991–2019, we employed event-study and local projection methods to identify the impact of CBI reforms, and we developed a small structural model to interpret the findings.

The empirical results show that **CBI reforms lead to a significant and sizeable reduction in inflation** in the medium run – on the order of 2 percentage points lower inflation five years after reform – confirming the well-known benefits of central bank independence for price stability. Importantly, we find **no evidence that these reforms exacerbate income inequality**. The net Gini coefficient remains essentially unchanged following CBI reforms, with point estimates near zero and statistically insignificant. We also find no robust effect on unemployment; if anything, there is a hint that unemployment might initially rise slightly and then fall, but the estimates are not significant. These findings imply that **enhancing central bank independence achieves disinflation without harming the income distribution or employment**.

To understand these results, we integrated our empirical estimates into a structural macro model. In the model, a more independent (conservative) central bank responds more aggressively to inflation, resulting in quicker disinflation at the cost of a temporary unemployment increase – a pattern consistent with our data and previous literature. We then linked inflation and unemployment to inequality using **semi-structural elasticities** estimated from our panel. The model predicts that the opposing effects of lower inflation (which tends to slightly reduce inequality) and higher unemployment (which tends to increase inequality) **largely offset each other**, yielding a near-zero net impact on inequality. The model's predicted inequality path closely matches the empirically estimated path (both essentially flat), reinforcing the conclusion that any distributional consequences of CBI reforms are negligibly small.

Our analysis contributes to the literature by providing, to our knowledge, the first combined empirical and theoretical assessment of CBI reforms' medium-run effects on inequality. Prior studies found mixed evidence on the correlation between CBI and inequality. We improve on those by using a clear identification (event timing and diff-in-diff) and by explicitly considering dynamics. We also connect to the burgeoning literature on monetary policy and inequality (e.g., Coibion et al. 2017; Furceri et al. 2018) by showing that not only short-term policy moves but also long-term policy regimes do not have significant inequality effects.

There are policy implications as discussed: countries can adopt or maintain independent central banking without fear of adverse distributional outcomes, and concerns about inequality should be addressed with fiscal tools rather than by constraining central banks. Given current debates, our findings provide a timely evidence base to inform policymakers and the public that **an independent central bank focusing on price stability can be part of an inclusive economic framework** – stability and equality need not be in conflict.

Looking ahead, further research could examine if these findings hold in the post-2010 environment with unconventional monetary policies. As central banks now face new challenges (zero lower bound, quantitative easing, potentially climate mandates), it will be important to monitor whether independence remains as effective and benign in terms of inequality. Another interesting extension would be to explore distributional effects on wealth or inter-generational inequality (if data allow). Finally, while our study covered many countries, case-specific analyses (e.g., narrative or archival approach for particular reform episodes) could complement our results by providing contextual understanding of how CBI reforms are implemented and perceived in society.

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