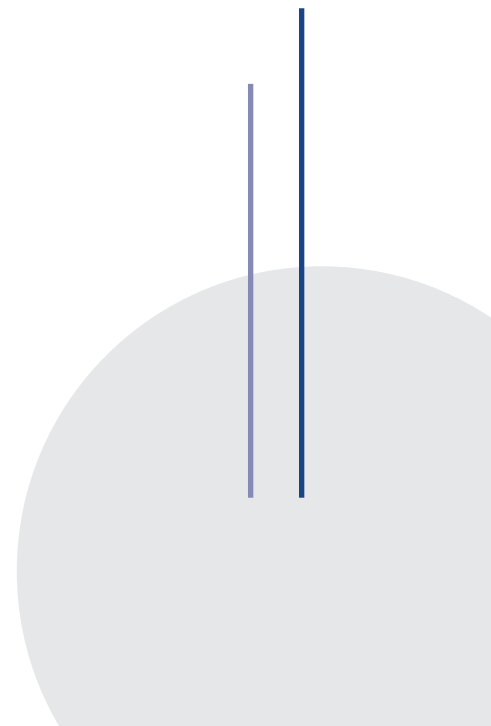




FISCAL INCENTIVES AND THE RICOCHET EFFECT: INCENTIVE LEAKAGES AND LESSONS FROM THE PANDEMIC

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Abstract

This essay examines the effectiveness of fiscal policy in boosting household consumption during the COVID-19 pandemic in Latin American countries. While governments across the region implemented expansive fiscal measures—such as increased public spending and transfers—to stimulate consumption and demand, the actual impact of these interventions remains contested. This study focuses on whether fiscal incentives achieved their intended goals or were weakened by transmission failures such as inflation, capital flight, or credit constraints. Using a panel data econometric model covering three periods (pre-COVID, during COVID, and post-COVID), this essay analyzes the relationship between household consumption and fiscal stimulus, while controlling monetary policy (interest rates), inflation, unemployment, and capital outflows. The results aim to clarify the extent to which fiscal multipliers were effective in the region's pandemic recovery, and whether a “ricochet effect” diluted the stimulus impact. This analysis contributes to a broader understanding of fiscal transmission mechanisms in emerging economies during crises, such as the COVID-19 shock, and highlights the potential distortions that policymakers must consider when demand is severely affected.

Keywords: Fiscal stimulus, household consumption, COVID-19, Latin America, capital flight, inflation, ricochet effect.

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1. Introduction

During the COVID-19 pandemic, Latin American and Caribbean countries faced two major challenges: structurally weak healthcare systems and a deep economic downturn. While economic difficulties in the region had already been present for years, the unexpected collapse in demand caused by lockdowns and mobility restrictions significantly intensified the crisis. In addition, political instability in several countries is further complicated policymaking and weakened institutional responses.

This complex combination of structural vulnerabilities and global shocks imposed unprecedented macroeconomic pressures, forcing governments to implement urgent countercyclical policies. Across the region, fiscal, monetary, and financial measures—such as direct transfers, subsidies, and increased public spending—were introduced to cushion the economic blow and support vulnerable households. These policies sought to activate the fiscal multiplier by boosting aggregate demand. However, the effectiveness of such interventions remains uncertain. Concerns about capital flight, inflation, and weak transmission channels have raised questions about whether the fiscal stimulus reached its intended targets or was partially neutralized by macroeconomic leakages.

This essay aims to assess whether fiscal incentives implemented during the pandemic effectively increased household consumption in Latin America. Specifically, it examines whether fiscal multipliers operated as expected or were distorted by what we term the “ricochet effect,” where the stimulus was partially absorbed by unintended channels or lost through external leakages.

Research question

Did fiscal incentives implemented during the pandemic effectively boost household consumption or were their impacts diminished by transmission failures and leakages?

Hypothesis:

Fiscal incentives had a positive but limited impact on household consumption, as capital flight and inflation absorbed part of the stimulus, reflecting the presence of a ricochet effect.

2. Theoretical Framework and Literature Review

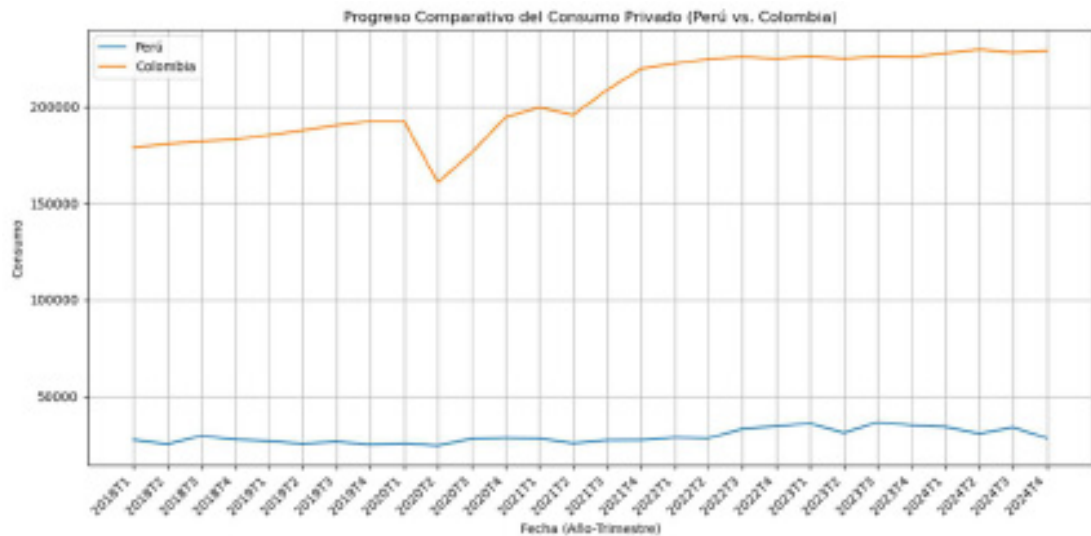
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This study focuses on Peru and Colombia due to the availability of consistent quarterly macroeconomic data and the comparability of their pandemic-related fiscal policies. Both countries responded with similar measures—such as direct transfers and increased public spending—to support households. However, they differ in terms of financial openness, monetary policy frameworks, and their post-pandemic outcomes. This comparison allows us to evaluate the effectiveness of fiscal transmission without introducing excessive heterogeneity. As shown in the figure 1, one can argue that the transmission of the fiscal stimulus was more effective on Colombia. Nonetheless, this may be not entirely the case

The literature on household behavior is vast, and research on this topic continues to grow. Several authors have explored how households respond to fiscal stimulus, particularly through analyses of consumption behavior. For instance, Johnson, Parker, and Souleles (2006) find that households significantly increased their spending upon receiving the 2001 tax rebates in the United States. Their research highlights how temporary fiscal transfers can lead to substantial short-term consumption responses.

On the other hand, some studies have shown that households may exhibit large consumption responses to temporary income shocks—such as stimulus payments—even when traditional economic theory would predict otherwise. For example, Kaplan and Violante (2014) propose a model showing that households with illiquid assets, but limited cash access (so-called hand-to-mouth consumers) respond strongly to fiscal transfers. Their findings demonstrate that household consumption cannot be explained solely by income level or wealth but also depends on liquidity constraints.

Figure 1. Own elaboration based on national statistics for Peru (INEI) and Colombia (DANE).



Research in Latin America has also emphasized the importance of analyzing the link between fiscal stimulus transmission and household behavior. Some authors argue that informal labor markets and weak financial systems limit the effectiveness of fiscal responses during the covid crisis. These findings underscore the need to assess not only the magnitude of fiscal spending, but also the efficiency of its transmission during crises such as the last one (Ramey, 2011; Restrepo, Hernández, & Valdés, 2021).

To address the research question, this essay adopts the fiscal multiplier framework. This framework suggests that government spending or transfers can generate a proportionally larger increase in aggregate demand, especially when the marginal propensity to consume (MPC) is high and there is slack in the labor market (Ilzetzki, 2013). Nevertheless, transmission failures may reduce the expected impact of fiscal policy. These failures, often referred to as leakages, can occur through channels such as capital flight, inflation, and imported consumption.

To analyze these leakages, this essay introduces the concept of the ricochet effect—a term used to describe how stimulus measures may fail to reach their intended targets and instead be diverted into non-productive uses, thereby weakening their impact on household consumption.

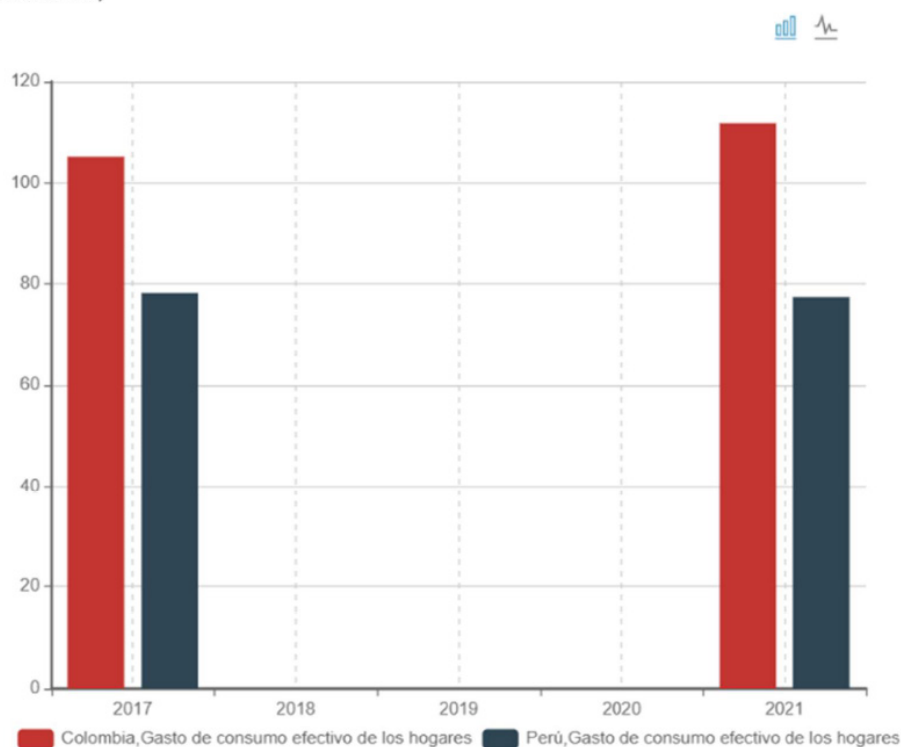
3. Context:

Perú entered the COVID-19 pandemic with relatively low public debt and strong macroeconomic indicators compared to other economies in the region. This sound fiscal position allowed the Peruvian government to implement one of the largest fiscal stimulus packages in Latin America, amounting to approximately 10% of its GDP. These measures were introduced in response to the mandatory lockdown that severely restricted household mobility and income. However, despite the scale of the intervention, the effectiveness of the stimulus was hindered by weak policy transmission mechanisms and limited institutional capacity to deliver support to targeted populations (López, 2020).

Figure 1. *Índice de gasto de consumo efectivo de los hogares por habitante por tipo de consumo, en paridad de poder adquisitivo real (Índice mundo=100).*

Fuente: CEPALSTAT – CEPAL, Naciones Unidas.

Económicos / PIB y Cuentas Nacionales / Anuales / Paridad de poder adquisitivo (PPA)
Índice de gasto de consumo efectivo de los hogares por habitante por tipo de consumo, en paridad de poder adquisitivo real
(Índice mundo=100)



Fuente: CEPALSTAT - CEPAL - NACIONES UNIDAS

In contrast, Colombia adopted a more moderate fiscal response, with stimulus efforts amounting to around 5% of GDP. Rather than creating new mechanisms, Colombia relied on pre-existing institutional programs such as Familias en Acción and Ingreso Solidario to deliver assistance. As Clavijo (2021) notes, the presence of these established channels was crucial to maintaining relatively stable household consumption despite the smaller scale of the stimulus. Nevertheless, the Colombian response was still significantly constrained by external vulnerabilities, inflationary pressures, and widespread concerns among households regarding debt and economic uncertainty. As shown in the figure 2, the response of Colombia seems to be more effective to address the incentive to the respective focused group that need it.

4. Proposed Econometric Model

What we want to test if the fiscal stimulus measures during the pandemic were effective in increasing households. To empirically test the effectiveness of fiscal incentives, the following panel data model is proposed:

$$Consumption_{it} = \beta_0 + \beta_1 Fiscal_Stimulus_{it} + \beta_2 Inflation_{it} + \beta_3 Capital_Flight_{it} + \beta_4 Unemployment_{it} + \beta_5 Interest_Rate_{it} + \mu_i + \epsilon_{it}$$

The main variables utilized include:

- Private Consumption: Derived from national accounts.
- Fiscal Stimulus: Changes in government primary balance or direct fiscal stimulus packages as reported.
- Inflation Rate: Consumer Price Index (CPI).
- Capital Flight: Approximation based on net errors and omissions in the balance of payments.
- Unemployment Rate: As reported by national labor statistics.
- Interest Rates: Central bank policy rates or average lending rates.

The following table presents the definitions and data sources of the variables used in the model. Most variables have been selected from the SIE-FLAR database to ensure consistency and comparability across countries. These standardized definitions help maintain the reliability of cross-country analysis.

Table 1. Variables and sources

Model Variable	SIE-FLAR Variable / Source	Notes
$Consumption_{it}$	Data structure (household consumption)	From national sources (INEI for Peru, DANE for Colombia). Ensure it's in real terms, quarterly, and consistent.
$Fiscal_Stimulus_{it}^1$	Balance Fiscal	Use government expenditure or inverse of fiscal balance. Express as % of GDP or constant local currency.
$Inflation_{it}^2$	Precios \rightarrow IPC / CPI	Use quarter-over-quarter or year-over-year change.
$Capital_Flight_{it}^3$	Reservas Internacionales Netas	Use quarterly change; a decrease suggests capital flight. You may control for exchange rate variation.
$Unemployment_{it}^4$	Mercado Laboral \rightarrow Tasa de Desempleo	Use quarterly unemployment rate from official labor statistics.
$Interest_Rate_{it}^5$	Tasas de Interés \rightarrow Tasa de Política Monetaria	Central Bank's policy rate. Use average value per quarter.
μ_i	Country fixed effect	Required for panel data to control country-specific characteristics.
ϵ_{it}	Error term	Captures unobserved or omitted variables.

¹ For the variable $Fiscal_Stimulus_{it}$ the model uses the classification RAFA_USD-PIBUSD (reserves as % of GDP in USD) as it expresses fiscal balance as % of GDP, which is standardized and comparable across countries and time.

² For the variable $Inflation_{it}$ the model uses the classification PCPI_IX-VARANUAL (Consumer price index – annual variation) for each country as it represents directly the year-on-year inflation

³ For the variable $Capital_Flight_{it}$ the model uses the classification RAFA_USD-PIBUSD (reserves as % of GDP in USD) because it consider size and currency differences.

⁴ For the variable $Unemployment_{it}$ the model uses the classification LUR_PT (Unemployment rate) used in standard measure of unemployment.

⁵ For the variable $Interest_Rate_{it}$ the model uses the classification FPOLM_PA (Policy-related interest rate). This is the central bank's reference rate

This model uses Colombia and Peru for both strategic and methodological reasons. Given data availability constraints, the goal was to create a model using two countries with similar macro-economic characteristics—such as the structure of consumption across social classes, a sizable urban middle class, comparable levels of informality, and active but relatively independent central banks—that also faced similar challenges during the COVID-19 pandemic. As upper-middle-income countries in Latin America, both implemented comparable fiscal stimulus packages during the crisis. By focusing on these two economies, the model helps isolate the effects of fiscal transmission channels and identify underlying patterns.

Table 2. Panel Regression Estimating the Impact of Fiscal Stimulus and Macroeconomic Variables on Private Consumption in Peru and Colombia

PanelOLS Estimation Summary

Dep. Variable:	Consumption_it	R-squared:	0.8080
Estimator:	PanelOLS	R-squared (Between):	0.0228
No. Observations:	52	R-squared (Within):	0.8080
Date:	Fri, May 02 2025	R-squared (Overall):	0.0521
Time:	00:48:23	Log-likelihood	-532.62
Cov. Estimator:	Clustered		
		F-statistic:	37.882
Entities:	2	P-value	0.0000
Avg Obs:	26.000	Distribution:	F(5,45)
Min Obs:	24.000		
Max Obs:	28.000	F-statistic (robust):	-1.529e+17
		P-value	1.0000
Time periods:	28	Distribution:	F(5,45)
Avg Obs:	1.8571		
Min Obs:	1.0000		
Max Obs:	2.0000		

Parameter Estimates

	Parameter	Std. Err.	T-stat	P-value	Lower CI	Upper CI
const	1.049e+05	1.323e+04	7.9301	0.0000	7.827e+04	1.316e+05
Fiscal_Stimulus_it	-5.562e+05	3.179e+04	-17.495	0.0000	-6.203e+05	-4.922e+05
Inflation_it	1.866e+05	6.949e+04	2.6861	0.0101	4.669e+04	3.266e+05
Capital_Flight_it	4.194e+04	6.382e+04	0.6571	0.5144	-8.66e+04	1.705e+05
Unemployment_it	-2760.4	483.46	-5.7096	0.0000	-3734.1	-1786.6
Interest_Rate_it	1290.2	237.65	5.4288	0.0000	811.50	1768.8

F-test for Poolability: 200.72

P-value: 0.0000

Distribution: F(1,45)

Included effects: Entity

⁶ This model has been self-made using Python. Url: https://github.com/Santiago-vera-quispe/FLAR/blob/main/Model_ricochet%20effect.ipynb

5. Analysis of Findings

Based on the model results, the fixed-effects panel data model explains approximately 80.8% of the within-country variation in household consumption (*R-squared Within* = 0.808). Overall, this suggests that the increase in fiscal stimulus during COVID-19 is associated with a decrease in household consumption, which appears counterintuitive from a Keynesian perspective.

For the variable *Fiscal_Stimulus_it*, we find the following statistics:

- Coefficient: –556,200
- Standard Error: 31,790
- T-statistic: –17.50
- P-value: 0.000
- 95% Confidence Interval: [–620,300 ; –492,200]

This indicates a statistically significant and strongly negative effect. In the context of this model, higher levels of fiscal stimulus were associated with lower levels of household consumption. This result challenges the assumption that fiscal expansion automatically leads to increased demand. Several other variables help to explain the possible inefficiencies in the transmission of the stimulus.

First, the variable *Inflation_it*, with a coefficient of +186,600 and a p-value of 0.0101, suggests that higher inflation is associated with higher household consumption. This may indicate that households anticipated further price increases and decided to front-load consumption, reflecting demand-pull inflationary behavior.

Second, the variable *Capital_Flight_it*, with a coefficient of +41,940 and a p-value of 0.5144, is not statistically significant in this model. This may be due to the mitigating effect of central bank interventions and the presence of exchange rate buffers that absorbed the impact of capital outflows on domestic consumption.

Third, *Unemployment_it*, with a coefficient of –2,760 and a p-value of 0.000, shows a significant negative effect, confirming that higher unemployment levels are directly associated with reduced household consumption—an expected outcome aligned with economic theory.

Fourth, *Interest_Rate_it*, with a coefficient of +1,290 and a p-value of 0.000, shows a positive and statistically significant effect, which is somewhat counterintuitive. Typically, higher interest rates discourage consumption. However, in this context, they may signal macroeconomic recovery or confidence, temporarily boosting consumer spending despite tighter monetary conditions.

6. Conclusions

These findings suggest that procyclical government spending during the pandemic may reflect reverse causality—governments may have spent more as the economy worsened, rather than spending driving recovery. Moreover, leakages and inefficiencies in fiscal transfers—such as households using funds to save or repay debts—could have limited the intended stimulative effects.

The results support the existence of a “ricochet effect”, whereby households, anticipating future tax increases or economic instability, chose to save rather than spend the fiscal transfers they received.

Although the fiscal stimulus was designed to boost investment and support GDP growth, it was also intended to increase demand and household consumption. However, the second expected effect did not materialize. In fact, the results indicate that such policies may have had a negative impact on consumption in the short run.

In sum, this model offers important insights into how fiscal policy transmission can fail in emerging economies when macroeconomic credibility, targeting, and timing are not properly aligned. Despite its limitations, this reduced model provides valuable insights by focusing on a simplified structure and two representative economies that share a similar middle-class consumption profile with the broader region. It establishes a basic methodological foundation that can be used in future studies aiming to quantify the ricochet effect by incorporating additional variables and a larger set of countries. But these studies will need a more extensive information process.

7. Further considerations:

This model suggests that the fiscal stimulus did not achieve its secondary goal of boosting household demand and, to some extent, may have had a negative effect. More notably, this outcome occurred in economies like Colombia and Peru—countries that overall managed to sustain their consumption levels. While the limited scope of this model prevents us from generalizing these conclusions to the entire region, it serves as an illustrative case of how fiscal incentives aimed at consumption may be ineffective under certain conditions. This highlights the need to explore alternative mechanisms for deploying fiscal stimulus more effectively during times of crisis.

As previously mentioned, there were only minor differences between the two countries in terms of their ability to stimulate household consumption. As shown in Figures 1 and 2, Colombia managed

to maintain and even increase consumption. This could be attributed to institutional programs already in place in Colombia. Therefore, future research should explore indicators that capture the role of institutionalization in delivering fiscal incentives. A better understanding of how well-established programs can support consumption during crises could provide valuable insights for designing more effective fiscal responses in the region.

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