Contractionary Fiscal Stimulus (and Expansionary Austerity)*

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Abstract

We develop a new measure of fiscal shocks based on high-frequency changes in one-year-ahead primary surplus expectations around fiscal events identified using large language models applied to financial news. We use this new series to estimate the dynamic effects of fiscal policy in Brazil, under varying degrees of fiscal concerns. We find that, on average, fiscal stimulus is contractionary: fiscal shocks that lead to a decline in expected primary surpluses raise sovereign risk premiums, depreciate the exchange rate, and reduce output. The effects are state-dependent, originating in periods of heightened concerns about fiscal sustainability. We also find that austerity can be expansionary.

Keywords: Fiscal policy, contractionary stimulus, expansionary austerity, fiscal expectations, debt sustainability, fiscal concerns, high-frequency identification, Brazil.

JEL Codes: E62, E63, E65, H63, H68, N16.

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1 Introduction

In an environment of rising public debt and heightened concerns about fiscal sustainability, understanding the macroeconomic effects of fiscal policy has become increasingly important. Conventional wisdom holds that fiscal expansions stimulate aggregate demand and output, while fiscal consolidations tend to be contractionary.[1] Yet, when fiscal sustainability is in doubt, these relationships may invert. As argued in the seminal paper by Giavazzi and Pagano (1990), a credible fiscal consolidation can lower risk premia, boost confidence, and crowd in private activity. As a result, austerity can be expansionary.

While Giavazzi and Pagano (1990) based their hypothesis of expansionary austerity on case studies of two countries (Denmark and Ireland), subsequent work, such as Alesina and Ardagna (2010), extended the analysis to a larger number of countries using standard econometric methods.[2] Owing to challenges to credible identification of fiscal shocks, however, the ensuing literature on expansionary austerity has been criticized. Most prominently, Guajardo, Leigh and Pescatori (2011) argue the approach employed by Alesina and Ardagna (2010) and others, which uses "ex-post" or realized fiscal data, is prone to reverse causality problems.

We revisit that important debate about the effects of fiscal policy using a novel empirical approach. In addition, we focus on Brazil—a country with a long history of fiscal imbalances (Ayres, Garcia, Guillén and Kehoe, 2022) and, importantly, periods with heightened fiscal concerns (see, *e.g.*, Carvalho and Nechio, 2023). While such concerns may have been essentially an "emerging economy issue" sometime ago, today they are at the forefront of policy debates in many advanced economies as well. In addition to being an ideal setting for the study of fiscal policy in the presence of concerns about debt sustainability, Brazil offers a unique advantage: high-frequency measures of fiscal expectations from the *Banco Central do Brasil*'s ("BCB") *Focus* survey. By combining these survey data with a newly constructed chronology of fiscal events identified through a large language model (LLM) that reads financial news, we build a novel series of high-frequency fiscal shocks. We then estimate their dynamic effects on fiscal, macroeconomic, and financial variables using local projections.

Our main focus is on the possibility of contractionary fiscal stimulus, rather than expansionary austerity. The reason is most of our sample features a worsening of Brazil's fiscal position. Not coincidentally, the sample also covers periods of heightened fiscal concerns. Under those circumstances, fiscal stimuli may tighten financial conditions and end up being contractionary.[3]

Our main finding is that fiscal stimulus can indeed be contractionary. A one-standard-deviation decline in expected primary surpluses lowers realized surpluses by roughly 35 basis points after one year and reduces GDP by about 0.3 percent. We also provide evidence of transmission mechanisms, as fiscal expansions increase the perception of fiscal risk, leading to higher sovereign spreads, currency depreciation, and tighter

[1] There is, however, an active debate on the magnitude of the output effects of fiscal policy—*i.e.*, on the size of the so-called "fiscal multiplier" (see, *e.g.*, Ramey, 2019).

[2] Other influential subsequent work on expansionary austerity includes Alesina and Giavazzi (2013) and Alesina, Favero and Giavazzi (2019).

[3] The adverse market reaction to the 2022 U.K. fiscal package under Prime Minister Liz Truss vividly illustrated how fiscal expansions perceived as undermining sustainability can trigger higher risk premia and financial tightening—see, *e.g.*, International Monetary Fund (2023).

credit conditions.[4] We also show contractionary effects originate in periods of heightened fiscal concern. Finally, we leverage the flexibility of local projections and study specifications that allow for asymmetric effects of austerity and profligacy. We also find evidence for expansionary austerity in the presence of fiscal concerns.

This finding resonates with the theoretical and empirical literature on expansionary fiscal austerity, which emphasizes the role of credibility and expectations in shaping fiscal multipliers (Alesina and Giavazzi, 2013; Alesina *et al.*, 2019). In these models, fiscal consolidations can boost private demand by lowering interest-rate risk premia and improving expectations of long-term stability. Our results offer new empirical support for such mechanisms in an emerging-market context, using an identification strategy that relies exclusively on fiscal news-driven revisions to fiscal expectations.

Our work is also related to the literature on fiscal and monetary interactions and the anchoring of expectations. Episodes of unanchoring—whether monetary, as in Bonomo, Carvalho, Eusepi, Perrupato, Abib, Ayres and Matos (2024), or fiscal, as in the periods studied here—can have large macroeconomic consequences by altering private-sector perceptions of policy credibility (*e.g.* Carvalho and Nechio, 2023). Finally, our results complement recent efforts to identify fiscal shocks using high-frequency methods, such as Hazell and Höbler (2025) and Wiegand (2025), and to understand their transmission through asset prices (Croce, Lettau and Ludvigson, 2012; Pastor and Veronesi, 2012).

2 Identification Strategy

2.1 Institutional Background

Brazil has experienced recurrent fiscal-stress episodes alongside evolving fiscal frameworks (rules, targets, and exemptions), making it an informative context for studying the transmission of fiscal policy. A key feature for our purposes is the availability of high-frequency fiscal expectations from the BCB's *Focus* survey and a deep financial-news archive that allows systematic event identification.

Brazil's fiscal framework has evolved through successive efforts to reestablish discipline after episodes of fiscal imbalance. The 1988 Constitution established the basic structure of public finances, defining fiscal responsibilities across the federal, state, and municipal levels. Subsequent legislation—most notably the Fiscal Responsibility Law (Lei de Responsabilidade Fiscal, 2000)—introduced explicit limits on public indebtedness and spending, as well as requirements for transparency and forward-looking budget planning. These rules were intended to constrain discretionary fiscal behavior and to promote credibility in the management of public accounts. However, enforcement and effectiveness have varied over time. Perhaps the most telling example is the time period during president Dilma Rouseff's administration. In a series of efforts to make room for additional government spending, her administration resorted to creative accounting and off-budget maneuvers to circumvent federal fiscal responsibility laws. This contributed to an acute economic and political crisis that led to her impeachment (see, *e.g.*, Carvalho and Nechio, 2023 and International Monetary Fund, 2016).

[4] While our empirical results point to risk and financial conditions as important elements of the transmission channel, a recent paper by Rachel and Ravn (2025) shows news of fiscal stimulus can be contractionary even in the absence of risk and fiscal concerns.

At the federal level, fiscal policy is guided by targets for the primary surplus, which are defined annually in the Budget Guidelines Law (Lei de Diretrizes Orçamentárias, LDO). The primary surplus target serves as the main operational measure of fiscal stance and is closely monitored by both market participants and policymakers. Deviations from the target are often seen as indications of a weakening fiscal commitment to maintaining debt sustainability.

A distinctive feature of the Brazilian setting is the availability of high-frequency fiscal expectations data. Since 1999, the BCB has maintained the *Market Expectations System* (*Sistema de Expectativas de Mercado*), commonly referred to as the "Focus Survey." The survey collects daily forecasts from professional forecasters for key macroeconomic variables, including the primary surplus as a percentage of GDP. Participants can update their submissions at any time, allowing the data to reflect continuous revisions to fiscal expectations. The Focus data thus provide a near real-time measure of market participants' perceptions about fiscal policy and its sustainability, making it uniquely suitable for high-frequency identification of fiscal shocks. Because fiscal adjustments are typically framed in terms of changes in the primary surplus, expectations about this variable provide a natural proxy for perceived fiscal policy shifts.

In addition, due to Brazil's history of fiscal fragility, fiscal developments often exert direct influence on financial conditions through expectations, risk premia, and asset prices. In this context, fiscal announcements and government statements frequently generate immediate market responses, particularly in the exchange rate, sovereign spreads, and domestic interest rates.

Together, Brazil's institutional setting, its fiscal history, and the availability of daily fiscal expectations create an environment where both policy actions and market perceptions are well documented and closely monitored. This combination facilitates the empirical identification of exogenous fiscal news and their short-term macroeconomic consequences.

2.2 Identifying Fiscal Events

Identifying fiscal events in real time is a central challenge for the high-frequency analysis of fiscal policy. Unlike monetary policy decisions, which occur on predetermined dates and are communicated through well-defined channels, fiscal policy actions and announcements are inherently unstructured. Fiscal developments emerge through a variety of mechanisms—policy proposals, budget negotiations, legislative votes, press conferences, and public statements by government officials—each of which may influence expectations of future fiscal outcomes. Consequently, distinguishing genuine fiscal shocks from unrelated news requires a systematic and replicable approach.

To identify fiscal events, we employ a text-based procedure that uses large language model (LLM) methods to classify daily news headlines from Bloomberg's BZECO database. We collect the three most relevant macroeconomic headlines for each business day between January 2000 and December 2023, resulting in a sample of 25,037 headlines. The algorithm evaluates the semantic content of each headline to determine whether it relates to fiscal policy. A headline is labeled as "fiscal" if it (i) refers to an event with a direct and immediate effect on public finances; (ii) reports statements or commitments by government officials concerning fiscal measures; or (iii) corresponds to the release of official reports, targets, or statistics related to public accounts.

A day is classified as a *fiscal event day* if at least two of the top three Bloomberg headlines are identified as

fiscal. This aggregation rule mitigates the risk of false positives arising from isolated or marginal fiscal news items, while preserving sensitivity to days on which fiscal developments dominate the news cycle. Applying this criterion yields a total of 353 fiscal event days over the sample period, equivalent to roughly 1.2 events per month. The resulting series captures both positive and negative fiscal news, spanning announcements of fiscal tightening, budget revisions, policy signals perceived as expansionary/contractionary.

The use of an LLM-based approach provides a transparent and scalable mechanism to process unstructured information at daily frequency. It complements traditional event-study methods, which rely on manual classification of policy actions and are thus less suited to contexts where fiscal news arises irregularly. Moreover, the automated nature of the procedure ensures consistency across time and minimizes researcher discretion in defining what constitutes a fiscal event. This is particularly relevant in the Brazilian context, where fiscal communication is frequent, decentralized, and often politically charged.

The resulting set of fiscal event days forms the first pillar for the construction of our high-frequency fiscal shock measure. By linking these events to daily changes in expectations of the primary surplus, we isolate exogenous revisions in perceived fiscal stance that are plausibly orthogonal to contemporaneous macroeconomic conditions. The next subsection details how we combine the identified events with survey-based fiscal expectations data.

2.3 High-Frequency Fiscal Expectations Data

The second key element of our identification strategy is the use of high-frequency fiscal expectations data. Since 1999, the Central Bank of Brazil (BCB) has maintained the *Market Expectations System* (*Sistema de Expectativas de Mercado*), commonly known as the Focus Survey. The survey collects forecasts from professional forecasters on a wide range of macroeconomic variables, including GDP growth, inflation, the exchange rate, and the primary surplus as a share of GDP. Participants—mostly financial institutions and consultancies—can update their forecasts at any time, and once per week the BCB publicly releases daily statistics of the distribution of responses.[5]

The Focus data provide a unique opportunity to monitor how market participants' fiscal expectations evolve in real time. Because participants can revise their forecasts continuously, these data capture daily updates in response to policy announcements and macroeconomic news. This makes them particularly well-suited for high-frequency identification of fiscal shocks, in contrast to traditional quarterly or monthly measures that may obscure short-term adjustments in expectations.

The Focus Survey also features incentive mechanisms designed to promote accuracy and engagement among participants. The BCB regularly recognizes institutions whose forecasts perform best across categories such as inflation, GDP growth, and interest rates. While there are no prizes specifically associated with fiscal variables, the existence of such incentives for other macroeconomic series likely encourages careful and consistent reporting across all submitted forecasts. Indeed, we find evidence to that end. The Ministry of Finance conducts since 2016 a monthly survey of fiscal expectations, the *Prisma Fiscal*, which explicitly provides incentives for precision in forecasting fiscal outcomes. A comparison between Focus and Prisma data (to be included in the Appendix) shows that the two survey forecasts for the primary surplus are similar (for the shorter sample covered by both), suggesting that the credibility and reporting discipline promoted

[5]For more on the Focus survey, see Bonomo *et al.* (2024).

by the Focus incentives spill over to fiscal expectations as well.

We focus on expectations for the primary surplus one year ahead, expressed as a percentage of GDP. The Focus Survey reports forecasts for calendar-year fiscal outcomes, rather than fixed-horizon projections. To obtain expectations for the primary surplus one year ahead, we convert these calendar-year forecasts into fixed-horizon series through linear interpolation. The procedure combines expectations for the current and subsequent calendar years, with weights that depend on the position of the observation date within the calendar year. When computing daily changes in these constructed fixed-horizon forecasts around fiscal events, we hold interpolation weights constant. This prevents solely the passage of time from affecting our measure of fiscal news. In other words, differences in the constructed one-year-ahead forecasts reflect genuine updates in expectations for the two underlying calendar-year forecasts, rather than mechanical calendar effects. This adjustment is particularly important for high-frequency identification, as it isolates the informational content of fiscal events from predictable temporal drift in the underlying calendar-based forecasts. For each business day, we record the median forecast across all respondents, which may change even if only part of the respondents change their forecasts.

2.4 A New Measure of Fiscal Shocks

Our fiscal shock measure is constructed as the change in one-year-ahead primary surplus expectations described in the previous section around fiscal event days identified in Section 2.2. Specifically, for each fiscal event day d, we compute the change in the median one-year-ahead primary-surplus forecast between the event day and the first or last weekday thereafter (whichever comes first), yielding a daily surprise $\delta\widehat{PS}_d^{1y}$. The extension until the end of the window is driven by a "seasonal" pattern in forecast updates, whereby participants update (or reconfirm) their forecasts much more frequently on Mondays and Fridays (Gaglianone, Giacomini, Issler and Skreta, 2020). We then define the monthly fiscal shock as the average surprise across fiscal events within the month:

$$\varepsilon_t^f = \frac{1}{N_t} \sum_{d \in D_t} \delta\widehat{PS}_d^{1y}, \tag{1}$$

where D_t denotes fiscal event days in month t. A negative value of ε_t^f represents a perceived fiscal stimulus (a fall in expected surpluses), while a positive value denotes fiscal tightening.

The restriction to *changes in expectations* over *narrow window* around *identified fiscal events* goes a long way toward addressing the main identification concerns voiced in the literature. The focus on *changes in expectations* should account for the evolving state of the economy[6], whereas a *narrow window* should isolate the response of expectations to what happened over that short period. The restriction to windows containing *identified fiscal events* events should mitigate the risk of confounding factors.

3 Econometric Approach

We estimate the dynamic effects of fiscal shocks using *local projections* (Jordà, 2005). Specifically, we regress the outcome variable y_{t+h} at horizon h on contemporaneous fiscal shocks, a set of controls, and lags of both

[6]We further refine our shock measure subsequently, through orthogonalization to information known at the beginning of each window.

the dependent variable and the shock:

$$y_{t+h} = \alpha_h + \beta_h \varepsilon_t^f + \gamma_h X_t + \nu_{t+h}, \tag{2}$$

where ε_t^f denotes our high-frequency fiscal shock series, and X_t includes three lags of both the dependent variable and the shock, as well as event dummies capturing the global financial crisis, the 2018 truckers' strike, and the COVID-19 pandemic.[7] Standard errors are computed using the heteroskedasticity-robust procedure of Olea and Plagborg-Møller (2021), which provides valid inference under general conditions. Our baseline sample covers the period from 2004m1 to 2023m12. In all that follows, we focus on the responses to a one-standard-deviation negative fiscal shock, equivalent to a decline of approximately 6.4 basis points in expected primary surpluses, which we interpret as a *fiscal stimulus*.

4 Dynamic Causal Effects

4.1 Effects on the Macroeconomy

Results presented in Figure 2 show the effects of fiscal shocks on key fiscal variables and output. The fiscal stimulus manifests as a deterioration of the primary surplus, driven by lower revenues and higher government spending, which in turn leads to a fall in GDP. These results highlight the direct impact of fiscal shocks on fiscal outcomes and confirm their transmission to real economic activity, consistent with the notion of a contractionary fiscal stimulus.

4.2 Wider Effects and Propagation Channels

Results presented in Figures 3, 4, 5, and 6 illustrate the wider effects and propagation channels of fiscal shocks. The evidence shows that fiscal stimulus increases the perception of fiscal risk: the initial change in one-year-ahead primary surplus expectations is amplified, financial markets react negatively (higher CDS spreads, exchange rate depreciation, lower stock prices), and these effects persist beyond the immediate weeks after the shock. Household and firm confidence decline, leading to lower consumption and investment. Credit conditions deteriorate, the labor market weakens, and prices increase in part due to exchange rate depreciation.

4.3 The Role of Fiscal Sustainability Concerns

In this section, we investigate the extent to which fiscal sustainability concerns shape the effects of fiscal policy. Our baseline specification abstracts from differences across regimes, but episodes of heightened concern about debt sustainability may alter the transmission of fiscal shocks. To capture this possibility, we first identify a change in fiscal concerns based on narrative evidence, which points to a clear shift around mid-2013. We then estimate state-dependent local projections that allow the dynamic responses to fiscal shocks

[7] For these episodes, we saturate the regression with dummies for each month within the period, including those dummies at both t and $t+h$ in the local projection. This procedure is numerically equivalent to excluding the affected observations from the estimation sample and mirrors the practice in the VAR literature of absorbing exceptional periods with saturation dummies.

to differ across low- and high-concern regimes. This approach enables us to assess how fiscal sustainability considerations drive the results obtained in the baseline.

4.3.1 A turning point in fiscal sustainability concerns A central question for our analysis is when fiscal sustainability concerns began to dominate market perceptions in Brazil. While the government ran primary surpluses until 2013, the composition of these balances was increasingly fragile, relying heavily on cyclical revenues and one-off measures as structural results deteriorated. By early 2013, growth was slowing, investment was falling, and business confidence had declined sharply. The turning point came in May 2013, when market commentary (e.g., Mansueto Almeida's widely read blog and an editorial in the Financial Times) highlighted mounting fiscal risks, and sovereign CDS spreads rose to a persistently higher level. Soon after, in June 2013, Standard & Poor's placed Brazil's sovereign rating on negative outlook for the first time since 2005. These developments marked a regime shift: fiscal sustainability became a first-order concern for market participants, providing the rationale for using 2013m5 as the breakpoint in our state-dependent analysis.

4.3.2 State-Dependent Local Projections We next allow the effects of fiscal shocks to vary with the state of fiscal sustainability. To do so, we estimate state-dependent local projections in which the response coefficients are interacted with regime dummies. Specifically, we split the sample around May 2013, a breakpoint associated with a marked increase in fiscal concerns. We define $d_{1,t}$ as a dummy equal to one for observations before 2013m5, and $d_{2,t}$ as a dummy equal to one for observations from 2013m5 onward. The specification then takes the form

$$y_{t+h} = \alpha_h + \beta_h^1 \varepsilon_t^f d_{1,t} + \beta_h^2 \varepsilon_t^f d_{2,t} + \gamma_h X_t + \nu_{t+h}, \tag{3}$$

where ε_t^f is our series of fiscal shocks and X_t is the same set of controls used in the baseline. This framework allows us to compare the dynamic responses to a fiscal stimulus shock under periods of relatively low versus high fiscal sustainability concerns.

4.4 Contractionary Fiscal Stimulus or Expansionary Austerity?

We also investigate whether the effects of fiscal shocks differ depending on their sign. To this end, we estimate sign-dependent local projections that allow for potentially asymmetric responses to fiscal stimulus and fiscal austerity. The specification is,

$$y_{t+h} = \alpha_h + \beta_h^- \varepsilon_t^{f,-} + \beta_h^+ \varepsilon_t^{f,+} + \gamma_h X_t + \nu_{t+h}, \tag{4}$$

where $\varepsilon_t^{f,-} \equiv \varepsilon_t^f \mathbb{1}\{\varepsilon_t^f < 0\}$ captures negative fiscal shocks (fiscal stimulus) and $\varepsilon_t^{f,+} \equiv \varepsilon_t^f \mathbb{1}\{\varepsilon_t^f \geq 0\}$ captures positive fiscal shocks (austerity). The set of controls X_t is identical to the baseline specification. This framework allows us to compare the dynamic responses to a fiscal stimulus shock (coefficient β_h^-) versus an austerity shock (coefficient β_h^+).

4.5 Theoretical Discussion

To be added.

5 Sensitivity Analysis

We perform an extensive battery of robustness checks to verify that our baseline results are not driven by specific modeling choices.

5.1 Fiscal Shock Construction

Figure 17 shows that the estimated effects are robust to alternative ways of constructing the fiscal shock series. Specifically, results remain stable when using changes in *average expectations* instead of the orthogonalized median, when defining fiscal events based on the *top headline* of the day, and when applying different *windows, split rules*, or *aggregation procedures*.

5.2 Empirical Specification

Figure 18 examines robustness to changes in the empirical specification. The results are unaffected by the use of different lag structures and additional controls, by employing *HAC standard errors* for inference, and by varying the estimation sample—whether using the longest available horizon or restricting to the pre-pandemic period.

6 Conclusion

We construct a high-frequency, expectations-based measure of fiscal shocks for Brazil and show that *fiscal stimulus can be contractionary* when fiscal sustainability is in doubt, while *austerity can be modestly expansionary* in high-risk periods. The mechanism runs through sovereign-risk premia and financial conditions, which amplify news about fiscal deterioration and attenuate news about consolidation. Policy effectiveness hinges on credibility: medium-term fiscal anchors, transparent rules, and consistent communication are more likely to elicit benign financial responses and avoid contractionary stimulus.

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Appendix – A New Dataset for Brazilian Fiscal Events

A.1. Event identification. We apply an LLM classifier to the top-three *BZECO* headlines per day (2000–2023), tagging headlines as "fiscal" if they report events with direct implications for public finances, convey official fiscal statements, or refer to official fiscal reports. A day is a fiscal event day if at least two of three top headlines are fiscal. This yields 353 event days (about 1.2 per month).

A.2. Expectation surprises. For each event day d, we compute $\delta\widehat{PS}_d^{1y}$ as the change in the *Focus* median one-year-ahead primary-surplus forecast between the event day and the next trading day (baseline) or the last weekday thereafter (alternative). Monthly shocks ε_t^f average surprises over fiscal days in month t.

A.3. Diagnostics. We report the distribution of ε_t^f, its correlation with realized fiscal outcomes at $h = 12$, orthogonality to non-fiscal days and standard cyclical controls, and placebo tests based on within-month permutations of event labels.

Appendix – Figures

Figure 1: A New Measure of Fiscal Shocks

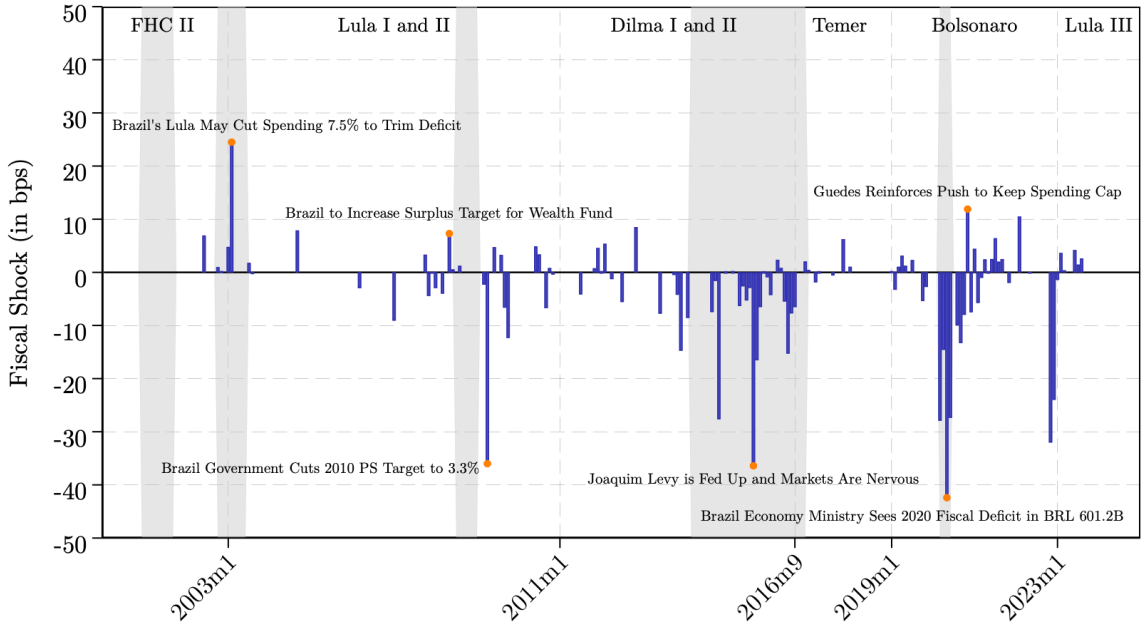


Figure 2: Effects on Fiscal Outcomes and Output

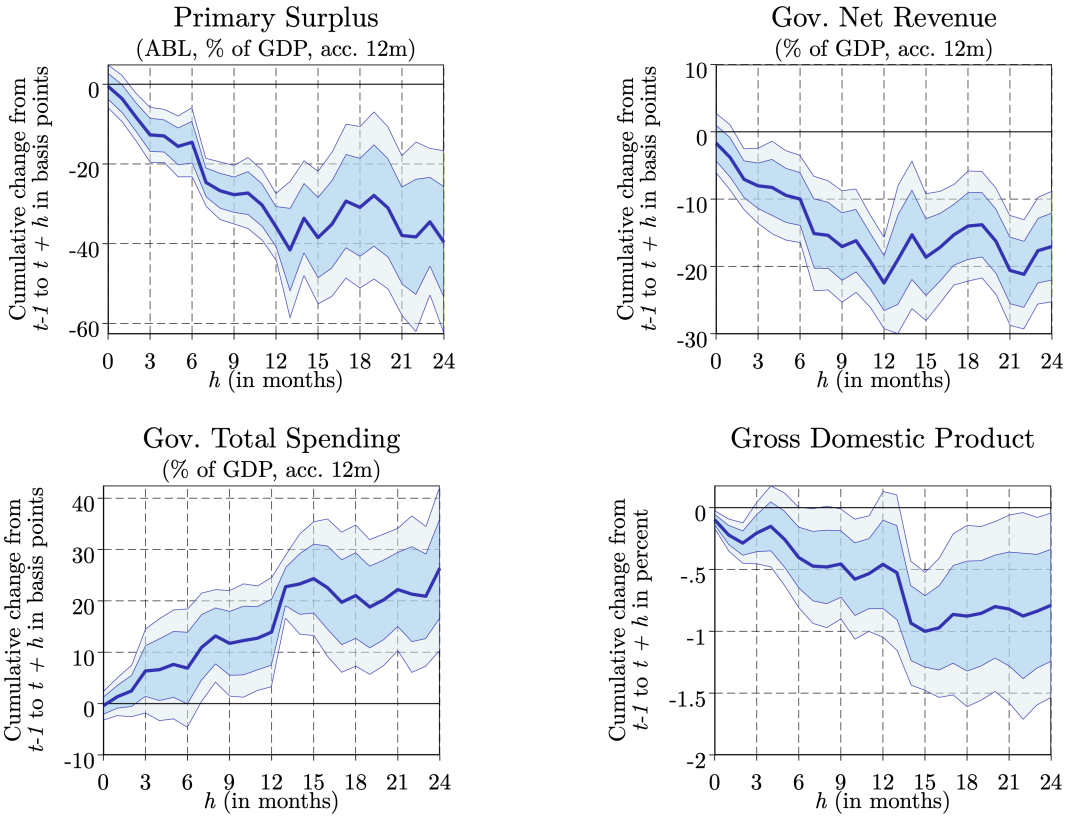


Figure 3: Fiscal Expectations and Asset Prices in the Short-Run

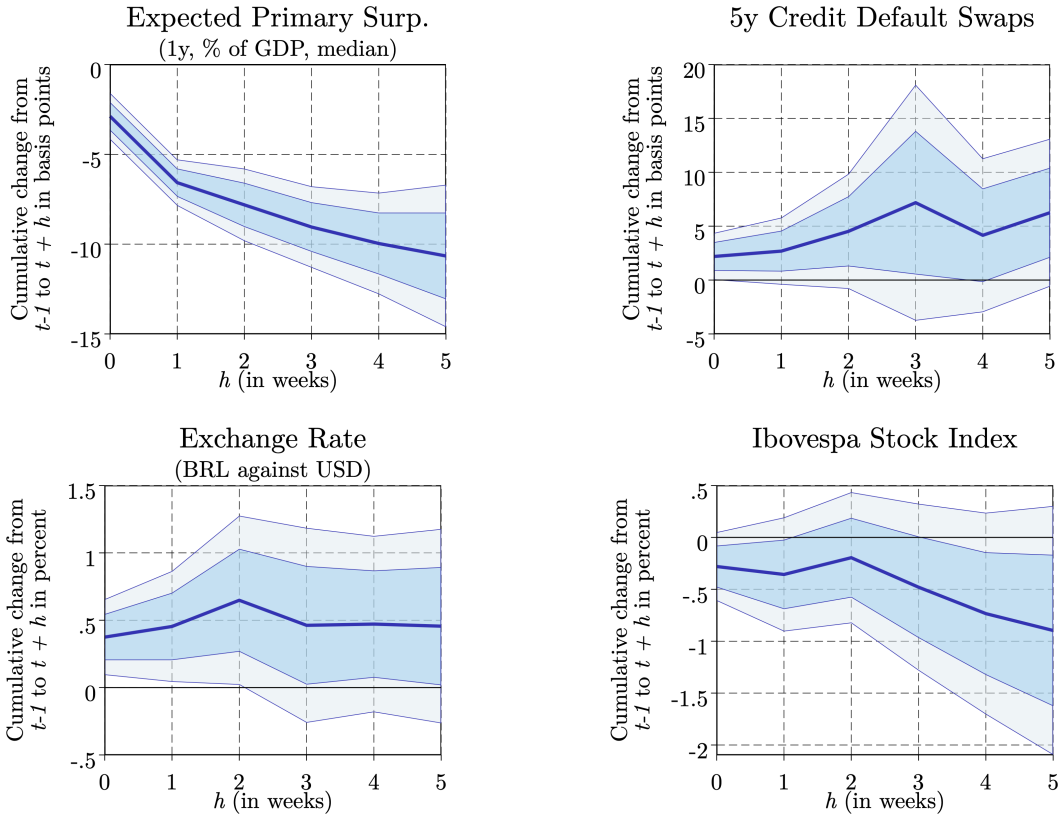


Figure 4: Fiscal Expectations and Asset Prices in the Medium-Run

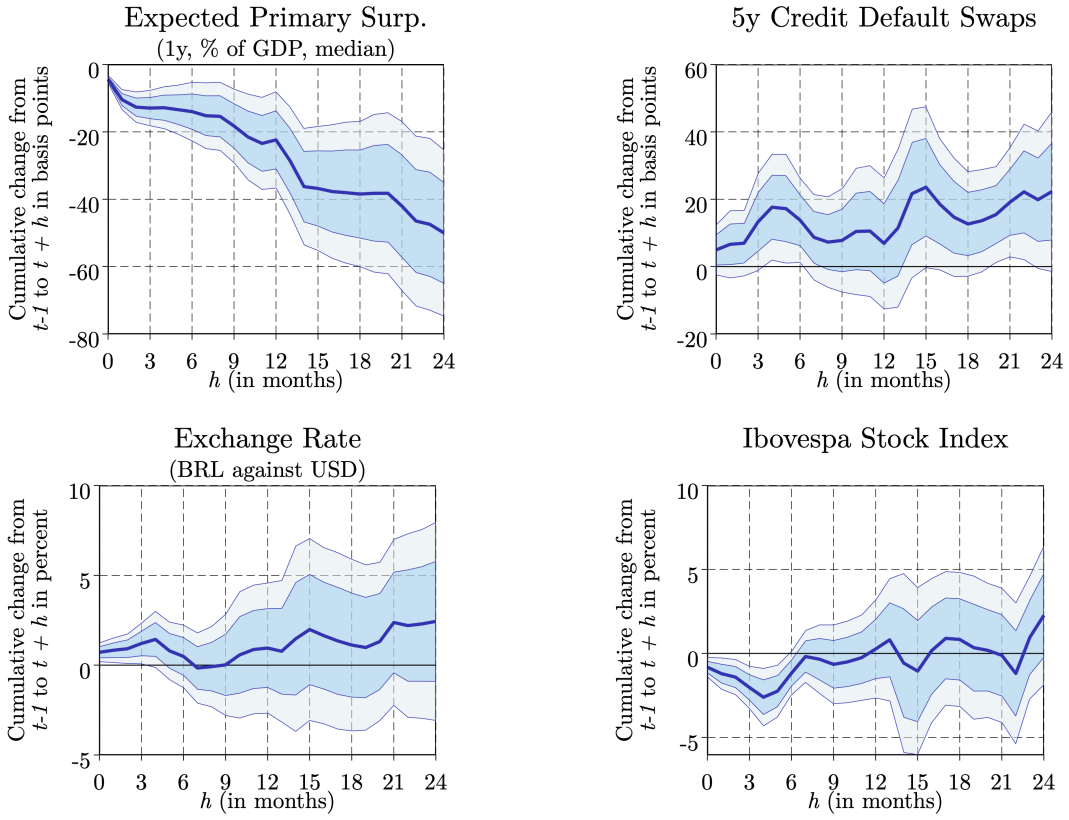


Figure 5: Effects on Confidence, Consumption and Investment

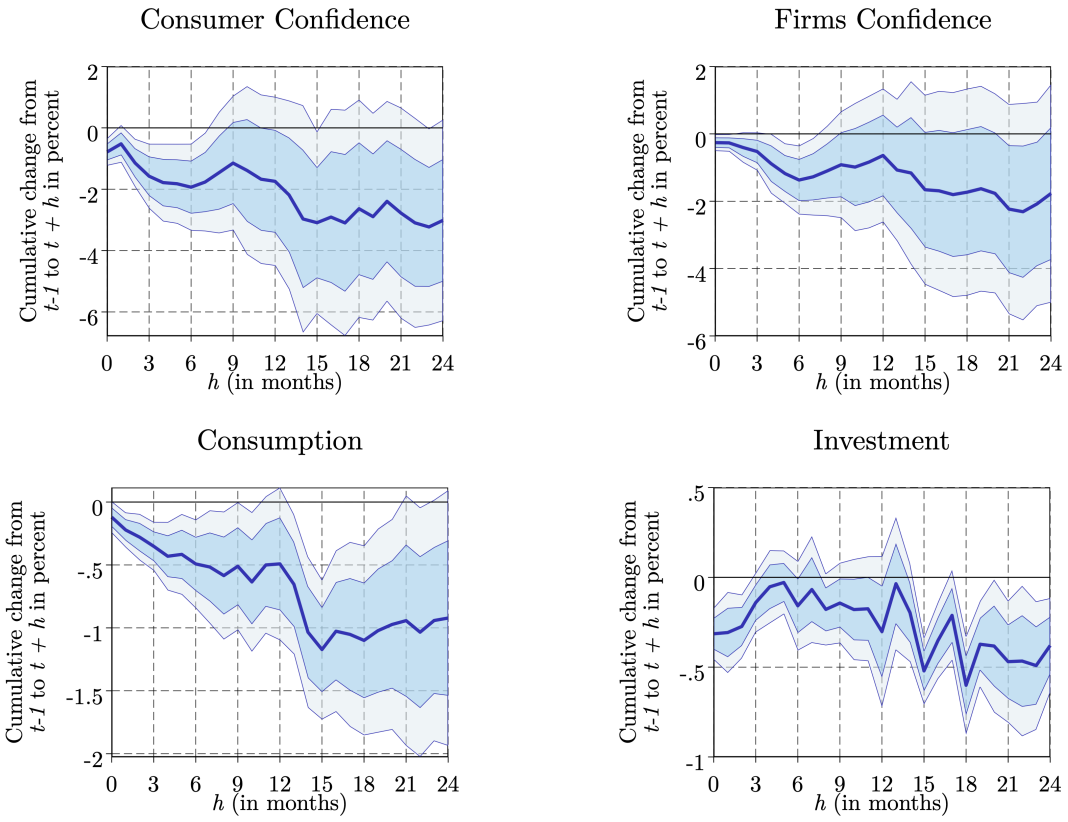


Figure 6: Effects on Credit Conditions, Labor Markets and Prices

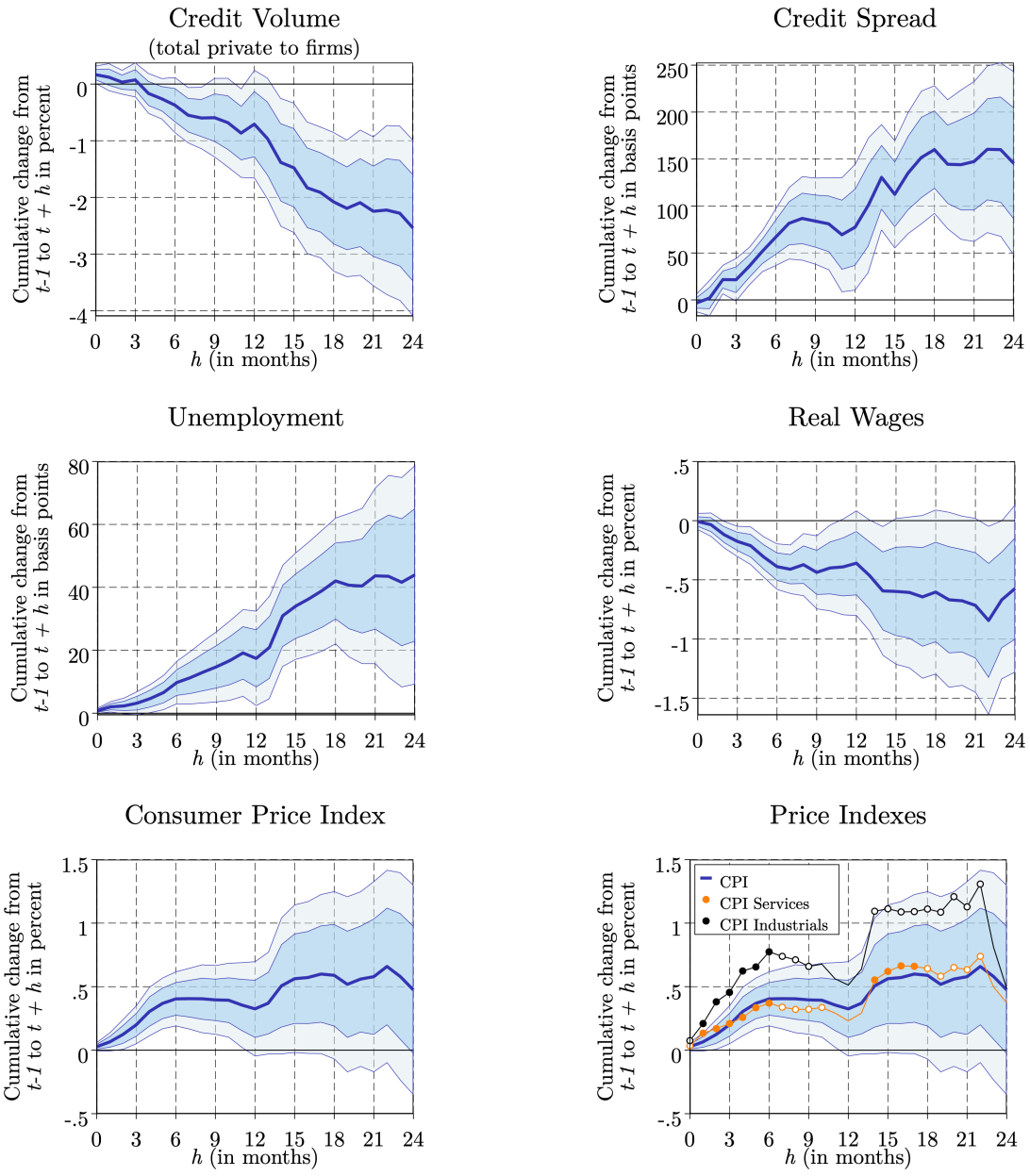


Figure 7: State-dependent effects on Fiscal Outcomes and Output

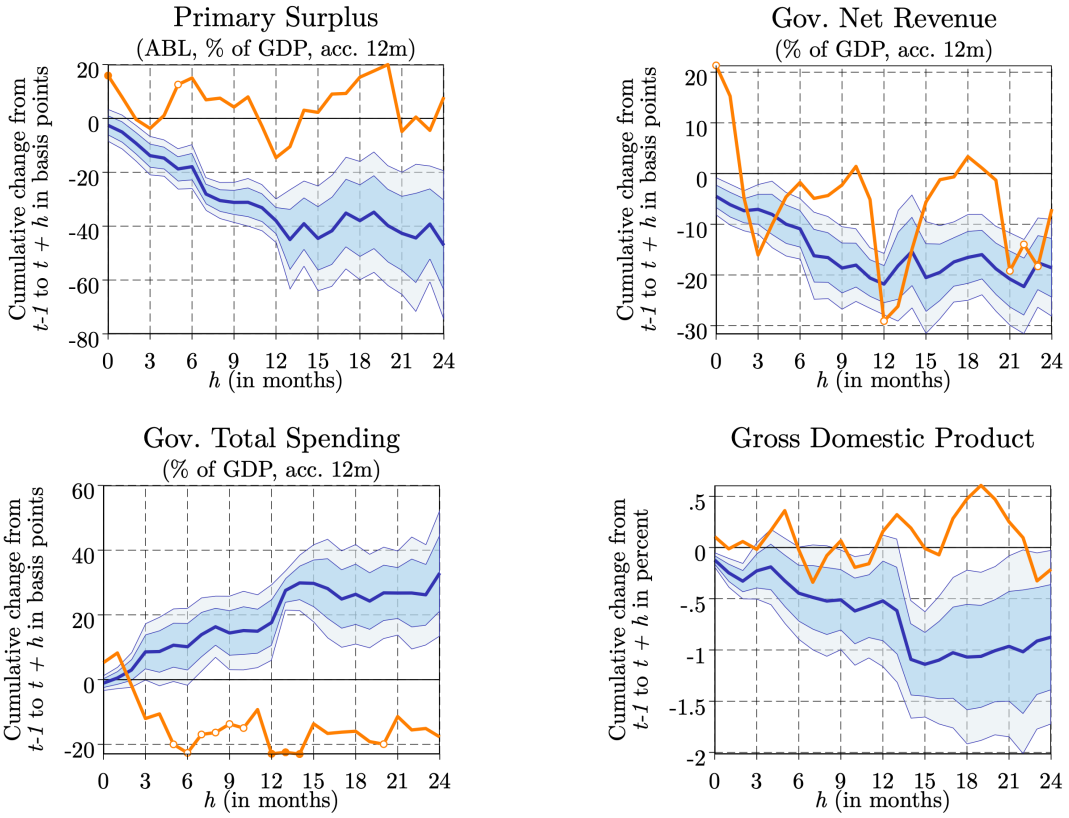


Figure 8: State-dependent effects: Fiscal Expectations and Asset Prices (Short-Run)

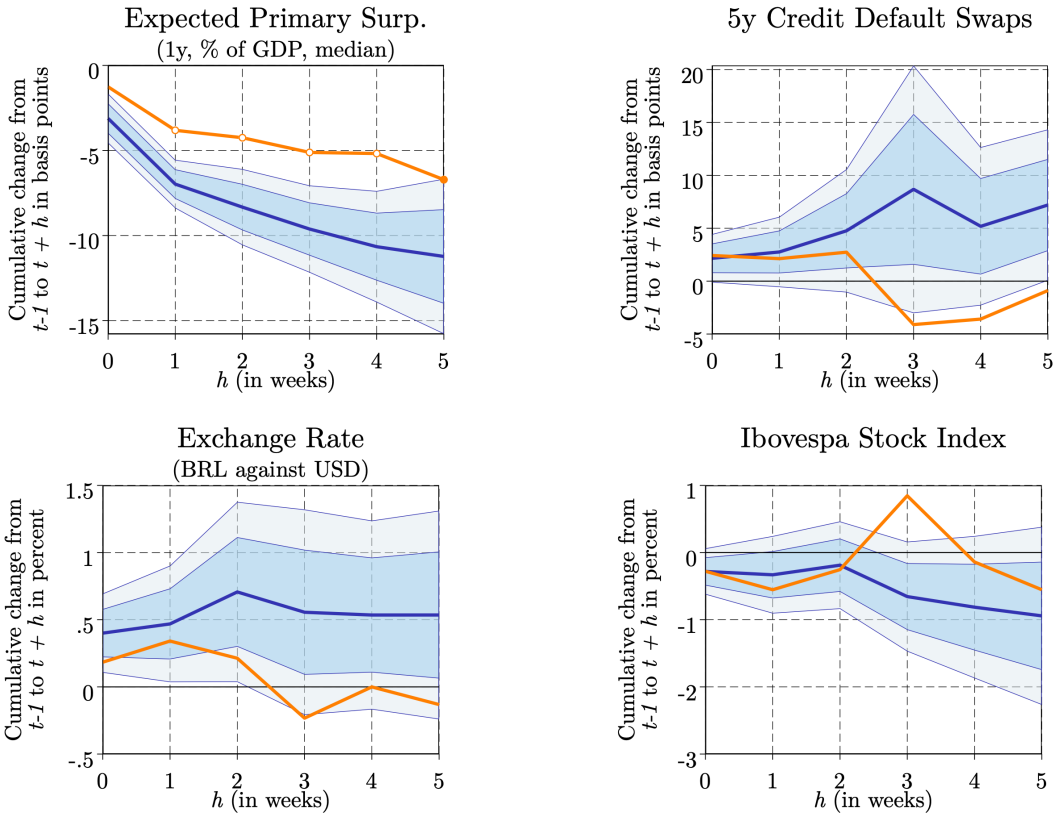


Figure 9: State-dependent effects: Fiscal Expectations and Asset Prices (Medium-Run)

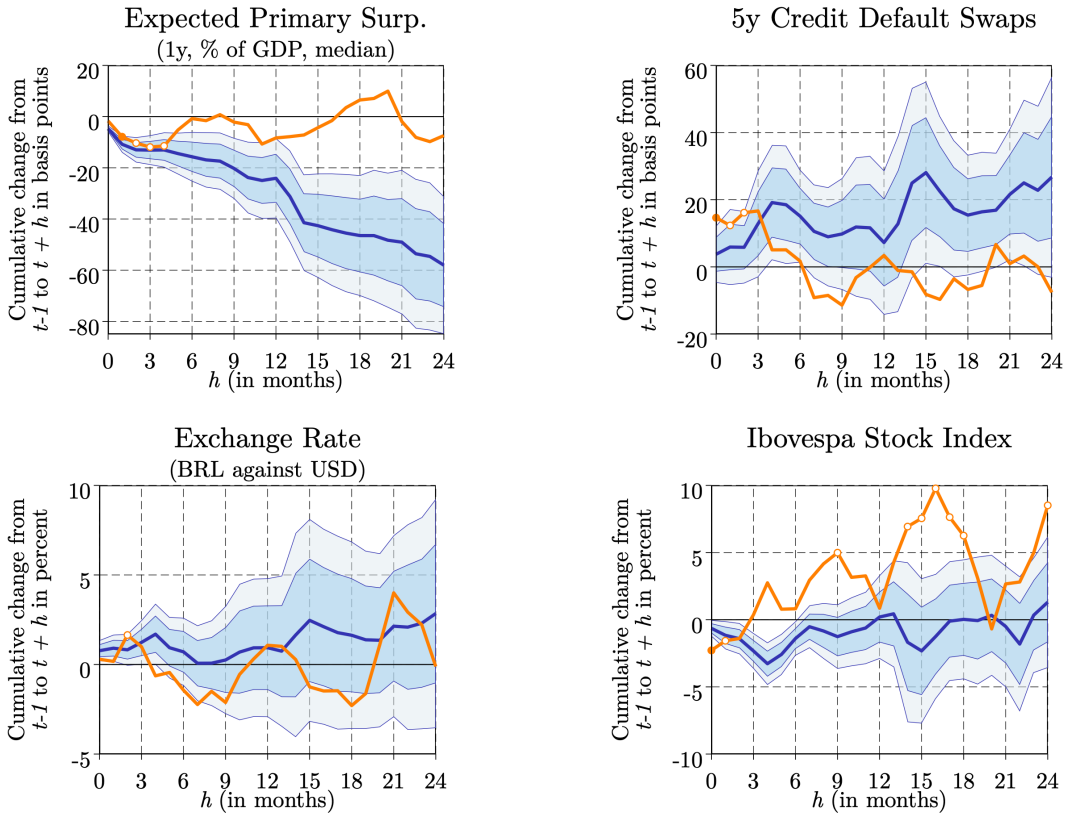


Figure 10: State-dependent effects on Confidence, Consumption and Investment

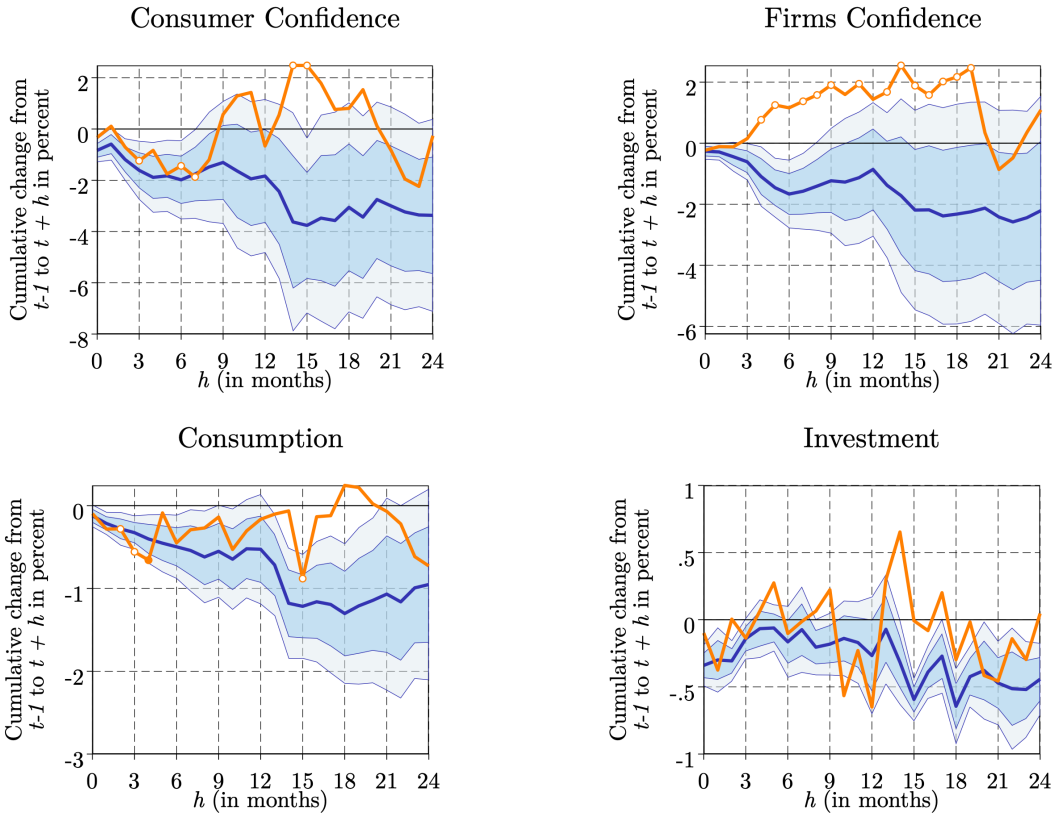


Figure 11: State-dependent effects on Credit Conditions, Labor Markets and Prices

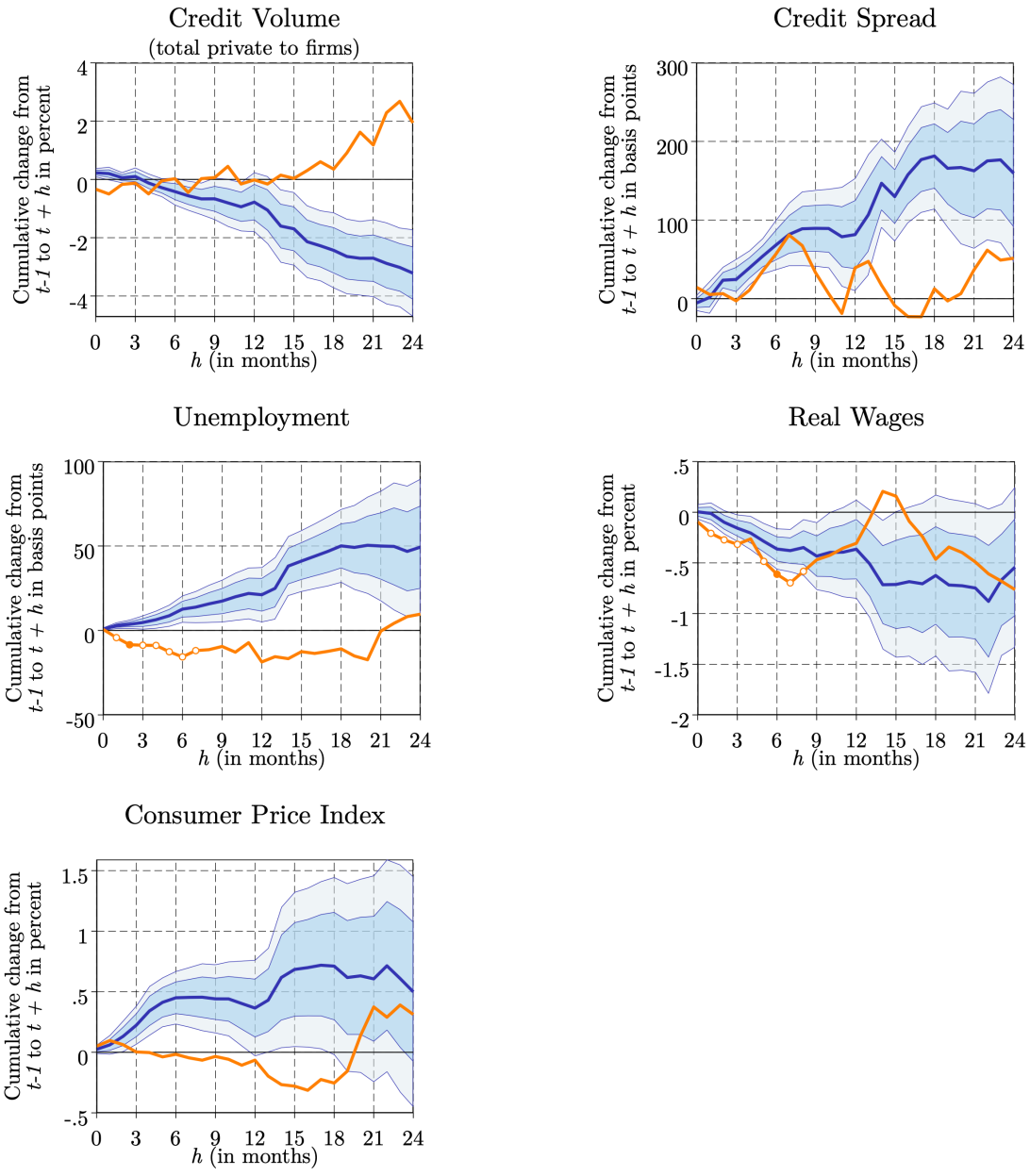


Figure 12: Sign-dependent effects for Fiscal Outcomes and Output

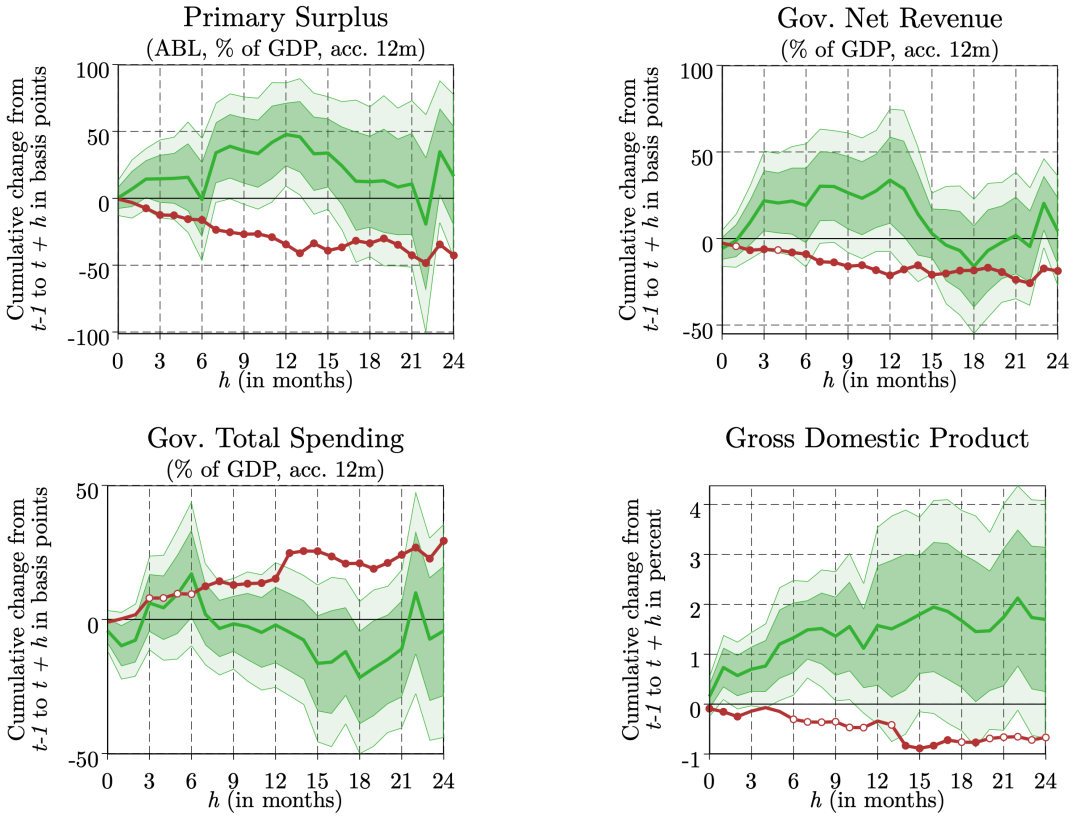


Figure 13: Sign-dependent effects for Fiscal Expectations and Asset Prices in the Short-run

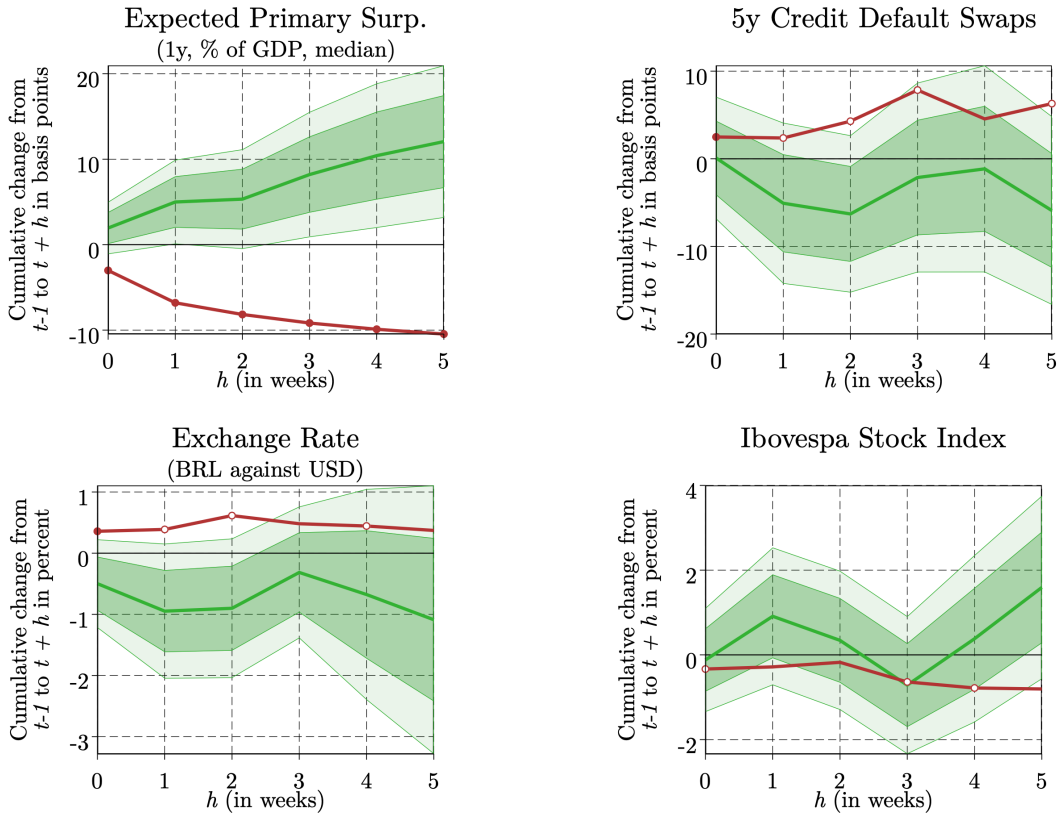


Figure 14: Sign-dependent effects for Fiscal Expectations and Asset Prices in the Medium-run

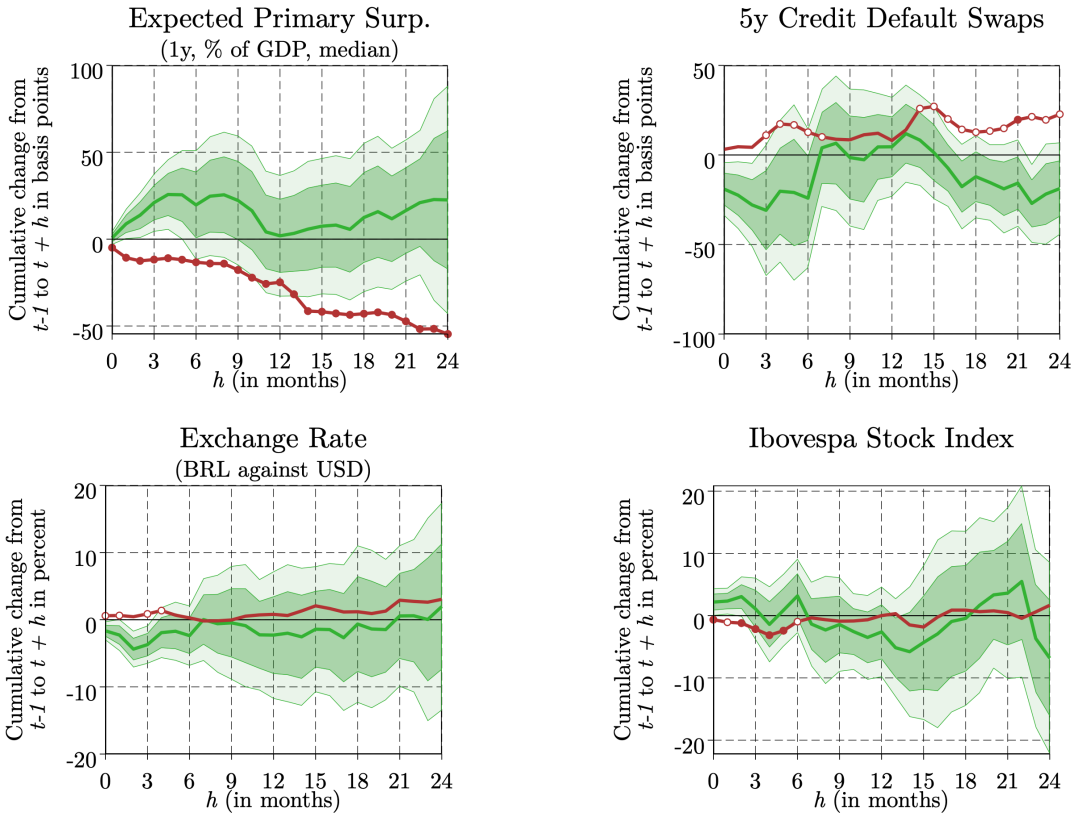


Figure 15: Sign-dependent effects for Confidence, Consumption, and Investment

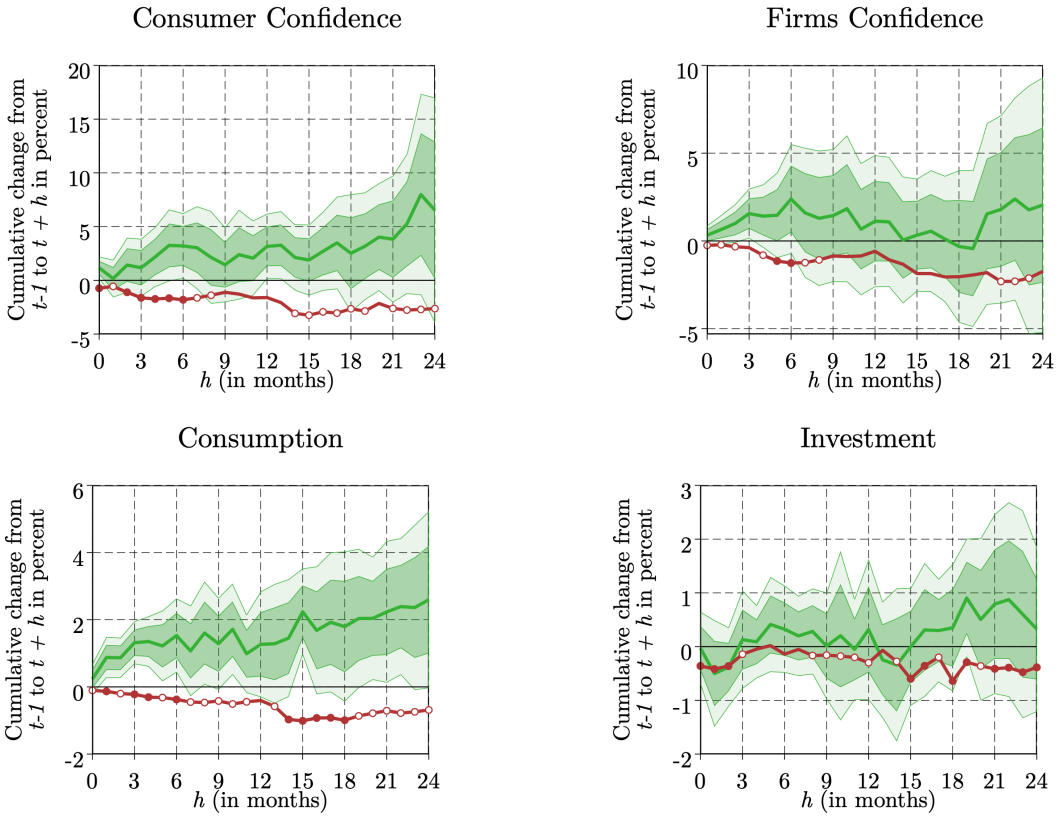


Figure 16: Sign-dependent effects for Credit Conditions, Labor Markets, and Prices

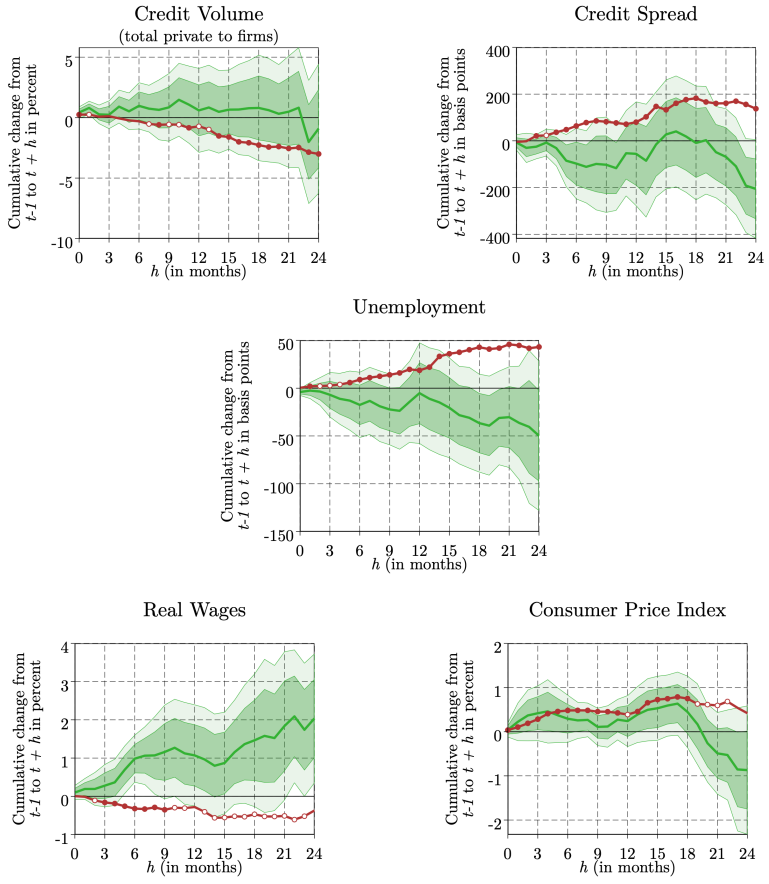
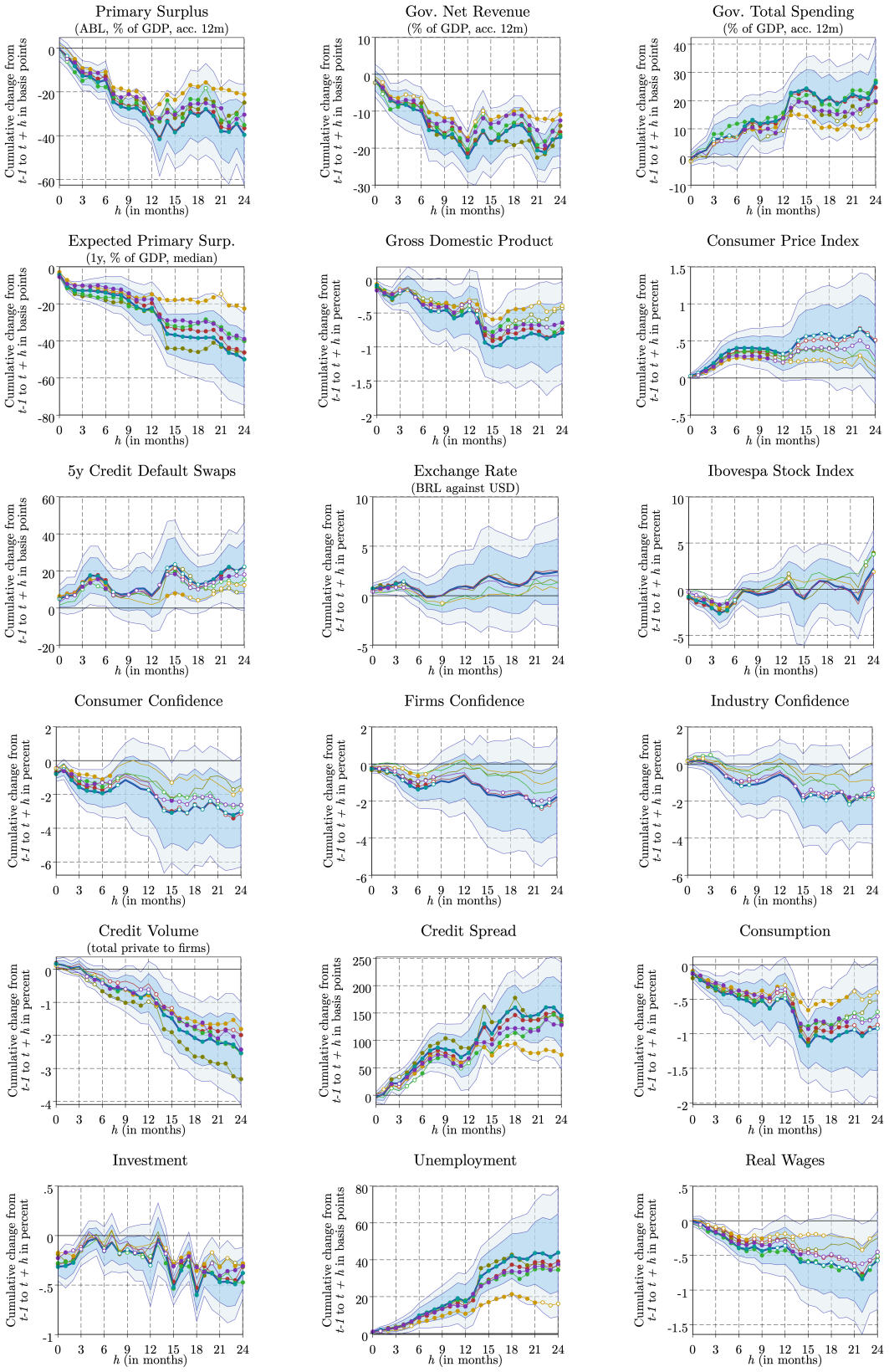
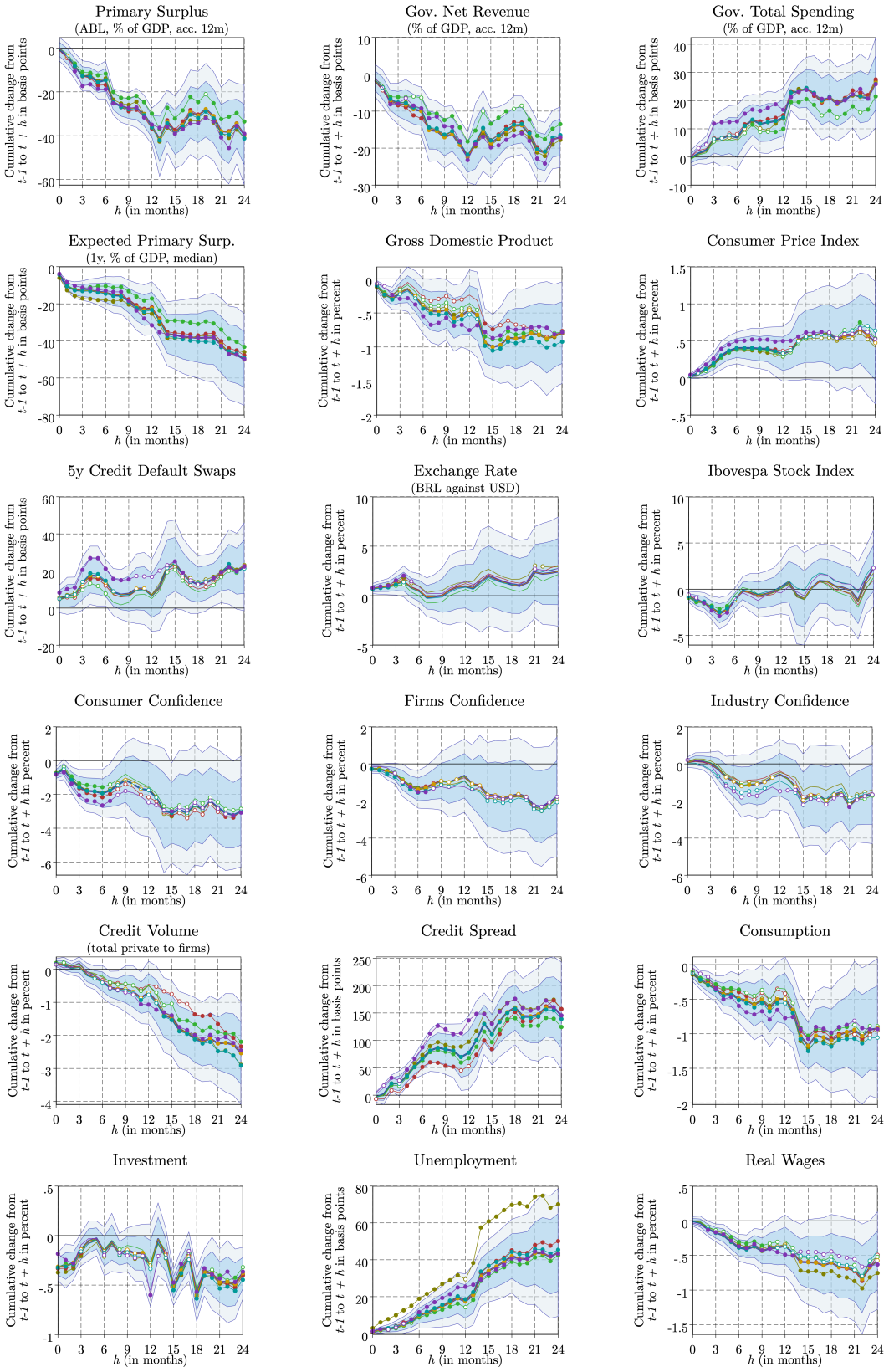


Figure 17: Sensitivity with respect to shock construction choices



Legend: ***average*** *expectations,* ***orthogonalized*** *median,* ***top 1*** *news as fiscal event day, 1-day window, more weight to earlier events in the window, aggregation of surprises à la Gertler and Karadi (2015).*

Figure 18: Sensitivity with respect to empirical specification choices



Legend: ***1 lag*** *as controls,* ***6 lags*** *as controls, controls for* ***1st PC of Brazilian macro factors****,* ***HAC*** *standard errors, use* ***longest possible sample*** *for each dependent variable, use* ***pre-pandemic sample*** *only.*

Appendix – Tables

Table 1: Events Behind the Largest Positive Shocks (Austerity Episodes)

		Shock
2003m2	Brazil's Lula May Cut Spending 7.5% to Trim Deficit	24.5
2020m11	Guedes Reinforces Push to Keep Spending Cap	11.9
2022m2	Brazil Posts Record Monthly Budget Surplus as Tax Income Jumps	10.5
2004m9	Brazil's Real Rises 2nd Day in 3 on Increased Surplus Target	7.9
2008m5	Brazil to Increase Surplus Target for Wealth Fund, Folha Says	7.3
2002m6	Brazil's Lula Promises to Heed Fiscal Targets, Fight Inflation	6.9
2021m7	Primary Deficit R$65.5B in June; Est. -R$70.1B	6.4
2017m11	Meirelles Said to Plan Talk W/AG on Petrobras Transfer of Rights	6.2
2012m2	Budget Cut Likely Below R$50B: Sources	5.4
2003m1	Brazil to Raise Primary Surplus to About 4% of GDP	4.8
2009m6	Brazil to Release Government Spending Plan in 2010, Estado Says	4.7
2023m6	Brazil Politics: Tax Reform Committee to Pitch Plan to Congress	4.2

Table 2: Events Behind the Largest Negative Shocks (Stimulus/Deterioration Episodes)

		Shock
2020m5	Brazil Economy Ministry Sees 2020 Fiscal Deficit in BRL 601.2B	-42.4
2015m9	Brazil's Savior, Joaquim Levy, Is Fed Up and Markets Are Nervous	-36.4
2009m4	Brazil Government Cuts 2010 Primary Surplus Target to 3.3%	-36.0
2022m11	Lula's Team Seeks to Exempt $32.4 Billion From Spending Cap	-32.0
2020m3	Brazil's Guedes Says Government Will Roll Over Municipal Debt	-27.9
2014m11	Brazil Government Seeks Budget Goal Change as Growth Slows	-27.7
2020m6	Brazil's Budget Gap Balloons w/ More Emergency Spending on Tap	-27.4
2022m12	Brazil Politics: Secret Budget in Focus as Key Votes Delayed	-24.0
2015m10	Brazil Assessing Measures to Stimulate Consumption: O Estado	-16.6
2016m7	Brazil Govt Targets 2017 Primary Budget Deficit of BRL139b	-15.3
2013m12	Gov't Central Primary Surplus R$28.8B in Nov; Est. +R$30B	-14.8
2020m9	Bolsonaro Revives Social Program With Controversial Funding	-13.3

Contractionary Fiscal Stimulus (and Expansionary Austerity)

Miguel Bandeira
Insper and CFM

Marco Bonomo
Insper

Carlos Carvalho
Kapitalo Investimentos
and PUC-Rio

Marcos Mendes
Insper

NBER Conference

Long-Term Fiscal Policy: The Economics of Debt and Deficits

16^{th} October, 2025

Motivation

Fiscal Policy in a New Fiscal Landscape

- The **fiscal landscape** is **changing** globally
  - Record **primary deficits** and **steep increases in debt** levels
  - Concerns about **debt sustainability** and **LT fiscal balance**
- What are the **effects** of **fiscal policy**...
  - ...in a context marked by **concerns about debt sustainability**?

This Paper

Brazilian context to estimate fiscal policy effects under fiscal concerns

- **Brazil** is an emerging economy...
  - **Long history** of **fiscal problems** (Ayres et al., 2022)
  - **Debt sustainability concerns** at the forefront of **public debate**
- ...with **fiscal expectations** available at **daily** frequency
  - **BCB's** Market Expectations System ("**Focus** Survey")
  - **High frequency (HF) identification** of **fiscal shocks**

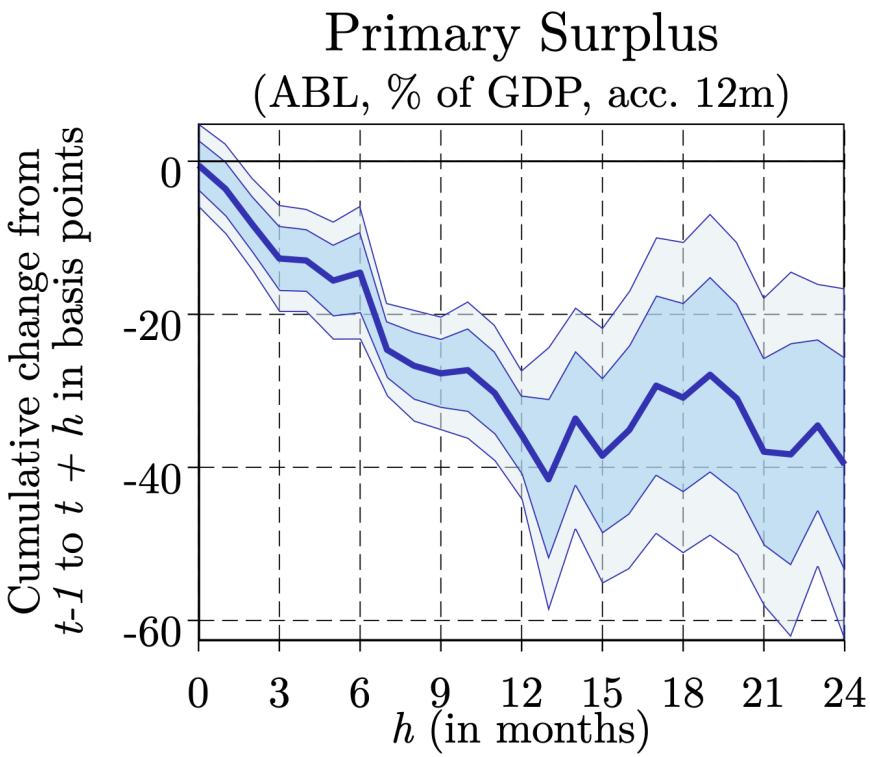
This Paper

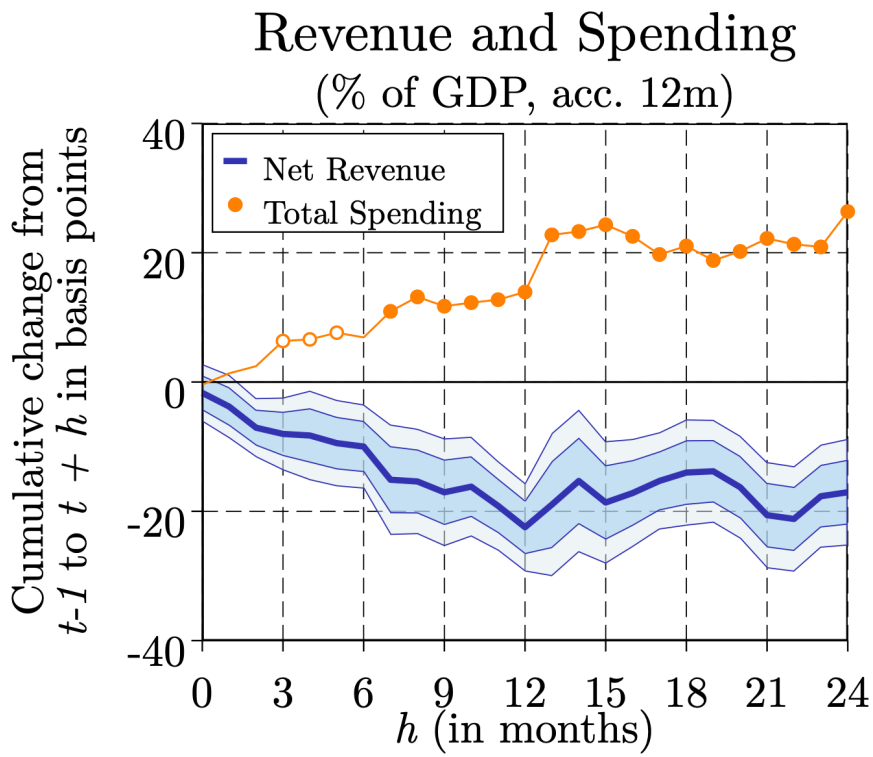
What we do?

- A new **high frequency** measure of **fiscal shocks**
  - Δ in primary surplus (PS) **expectations** around **fiscal events**
    - Expectations from **BCB's Market Expectations System**
    - Fiscal events identified by using an **LLM** to "read" over **25k** news
- Estimate **dynamic causal effects** using **local projections**

This Paper

What we find? Contractionary fiscal stimulus

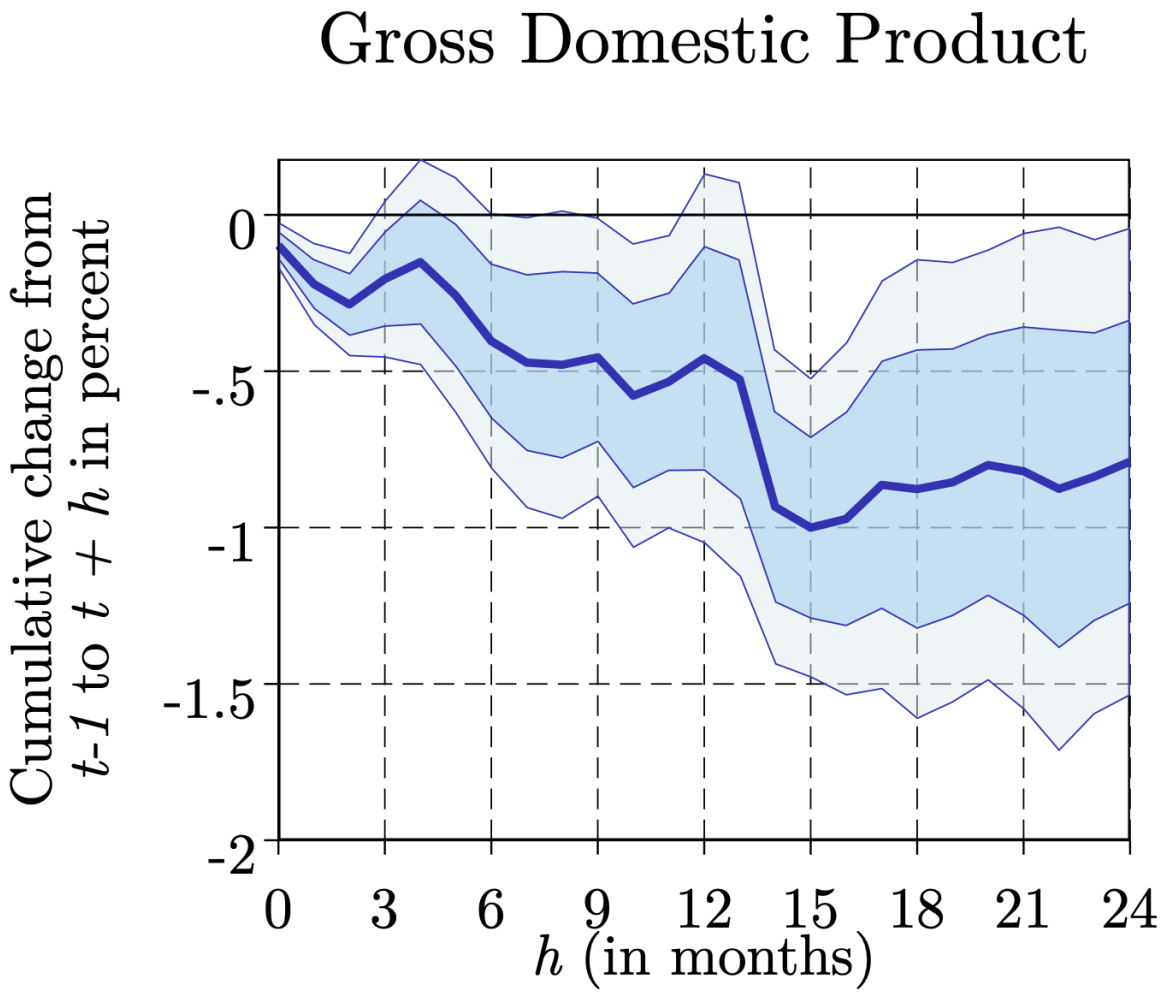




- A **6.4 bps (1 sd)** ↓ in **expected PS** 1-year ahead...
- ...leads to a ↓ **realized PS** after 1 year by **35 bps**...

This Paper

What we find? Contractionary fiscal stimulus (cont'd)



- ...and to ↓ **in GDP** of **0.3%**

This Paper

Illustrative case: Pedalada Cidadã



O ESTADO DE S. PAULO

FUNDADO EM 1875 · JULIO MESQUITA (1858 - 1927)

Terça-feira 29 DE SETEMBRO DE 2020 R$ 5,00 ANO 141 Nº 46368 estadão.com.br

Governo propõe Renda Cidadã e é acusado de armar pedalada

Plano de financiar programa social com recursos de precatórios e Fundeb acentua desconfiança sobre contas públicas

Dobra número de policiais e militares candidatos

O número de policiais civis, militares e de membros da ativa e da reserva das

Valor ECONÔMICO | Impresso

'Pedalada cidadã' provoca reações e assusta mercado

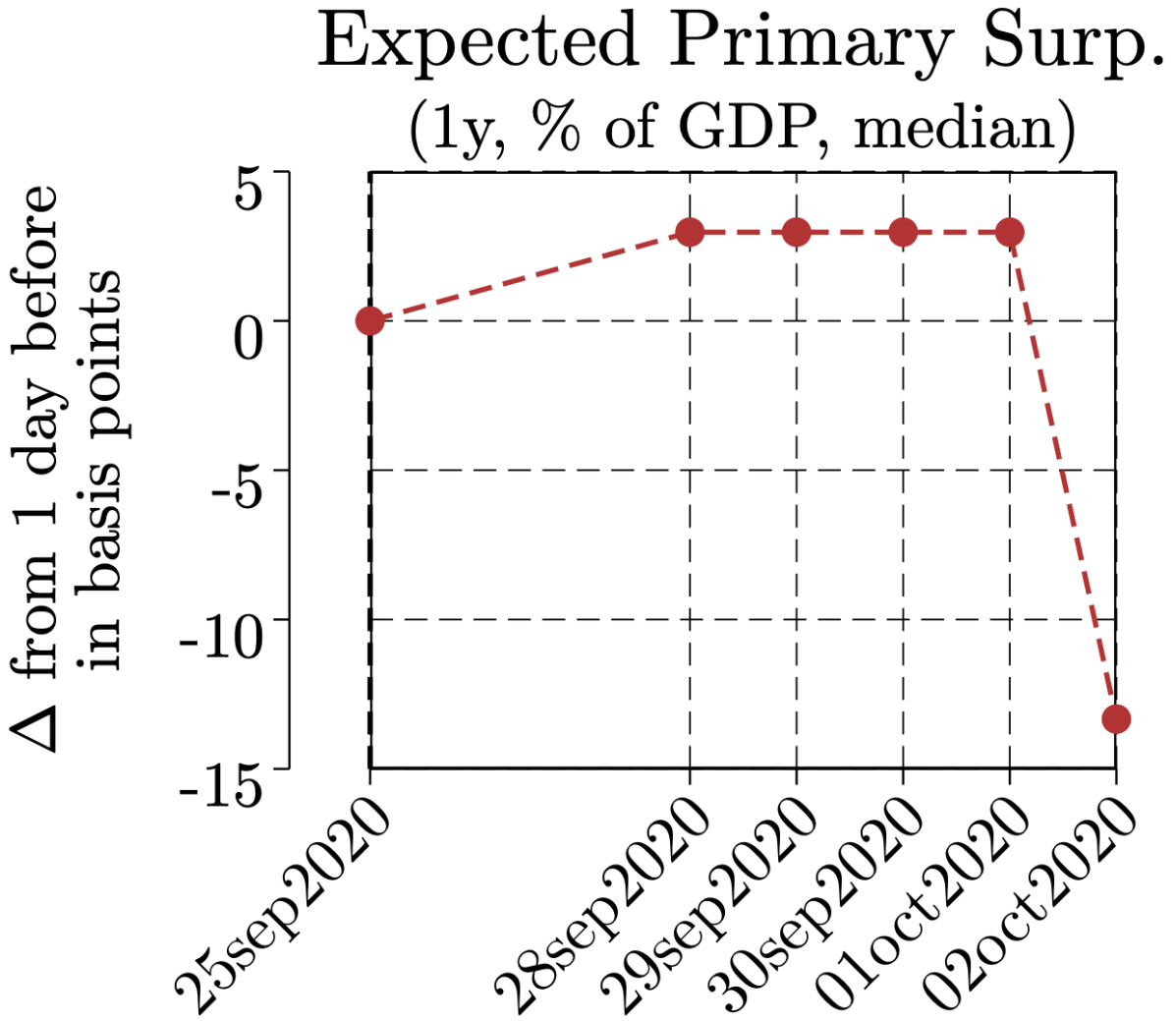
Dólar subiu 1,4%, a R$ 5,6358, no maior nível desde 20 de maio, e Ibovespa teve perdas de 2,4%, a 94.666 pontos, menor patamar desde 10 de junho. Os juros futuros dispararam

29/09/2020 05h00 · Atualizado há 3 anos

Presentear matéria

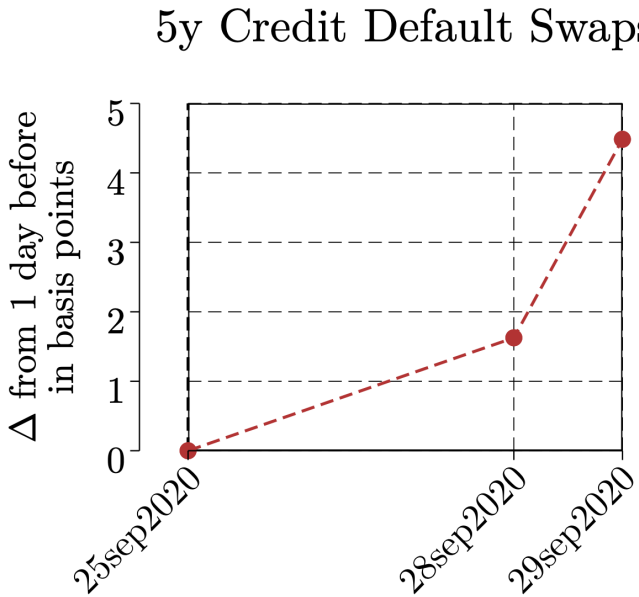
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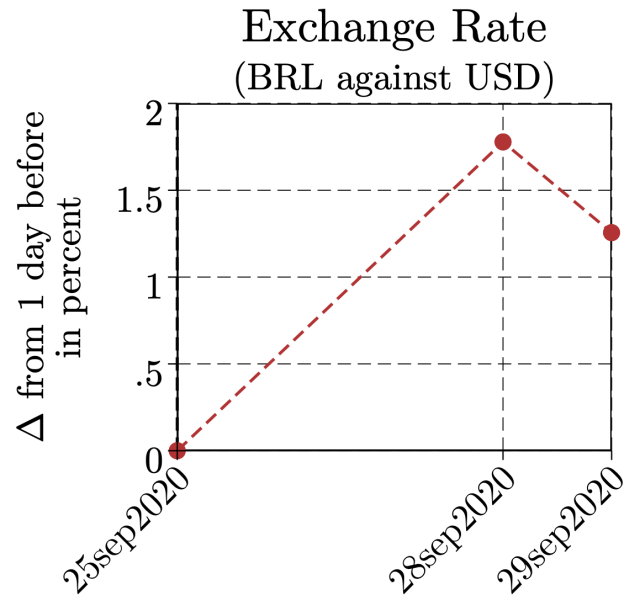
Pedalada Cidadã: Agents immediately descrease their expectations of 1y-ahead PS

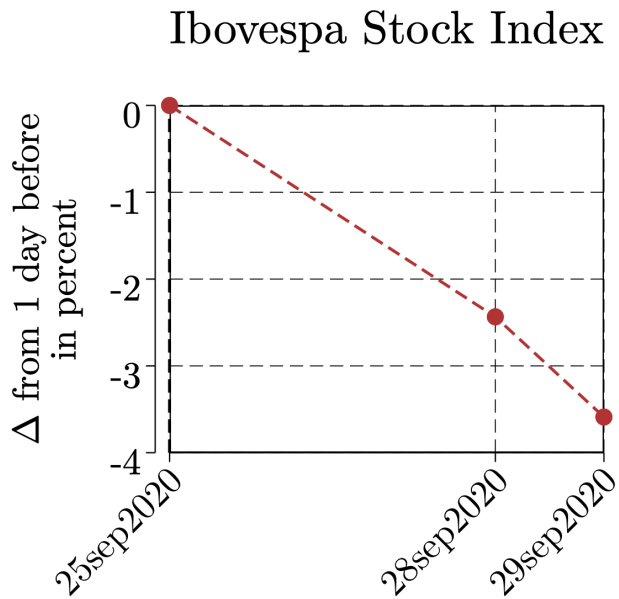


This Paper

Pedalada Cidadã: Financial markets react negatively







This Paper

What we find? Propagation channels literature

- **Fiscal stimulus increases the perception of fiscal risk**
  - Initial change in **1y-ahead PS** expectations is **amplified**
  - **Financial markets** react **negatively**: ↑ CDS, ER depr., ↓ Stocks
  - Effects **persist** beyond the immediate weeks after the shock
  - **Household** and **firm confidence** decrease
  - **Consumption** and **investment fall**
  - **Credit conditions** deteriorate
  - **Labor market** weakens
  - **Prices increase** partly due to **exchange rate depreciation**

Identification Strategy

Identification Strategy

Advantages of a high-frequency approach and ingredients needed

- Δ in 1y-ahead primary surp. **expectations around** fiscal events
  - "Δ in ... **expectations**" = acc. for **current shocks** and **news**
  - "**around** fiscal events" = those Δs reflect **only** fiscal shocks (exog.)

- Building this shock series takes on **two key ingredients**
  1. A set of days marked by **fiscal events**
  2. 1y-ahead primary surplus expectations at **high frequency**

Identification Strategy

Isolating Fiscal Events

- What is a "**fiscal event**"?
  - **Any event** that changes *current* or *expected* fiscal policy
  - For fiscal policy those events are **inherently unstructured**
  - **Challenges** the use of HF strategies for fiscal policy (*vs* MP & oth.)
- Use an **LLM** to identify fiscal events from **news headlines** more
  - Daily **top 3** of **BZECO** from **Bloomberg** (25,037 headlines)
  - News is a fiscal event if: (i) **direct effect on public finances**...
  - ...(ii) **statements on fiscal policy by gov. officials** or
  - ...(iii) **release of official reports on public finances** more
  - **Fiscal event day** if **2 or more top 3 headlines** are **fiscal**

- **BCB Market Expectations System** since 1999
  - **Survey of professional forecasters** incl. several macro variables
  - Participants **can** update their forecasts **at any given day**
  - We focus on **forecasts of primary surplus (PS) in % of GDP**
  - Use linear interpolation to construct **1y-ahead PS forecasts**...
  - Use Δ in the **median** of forecasts (no need for everyone to update)

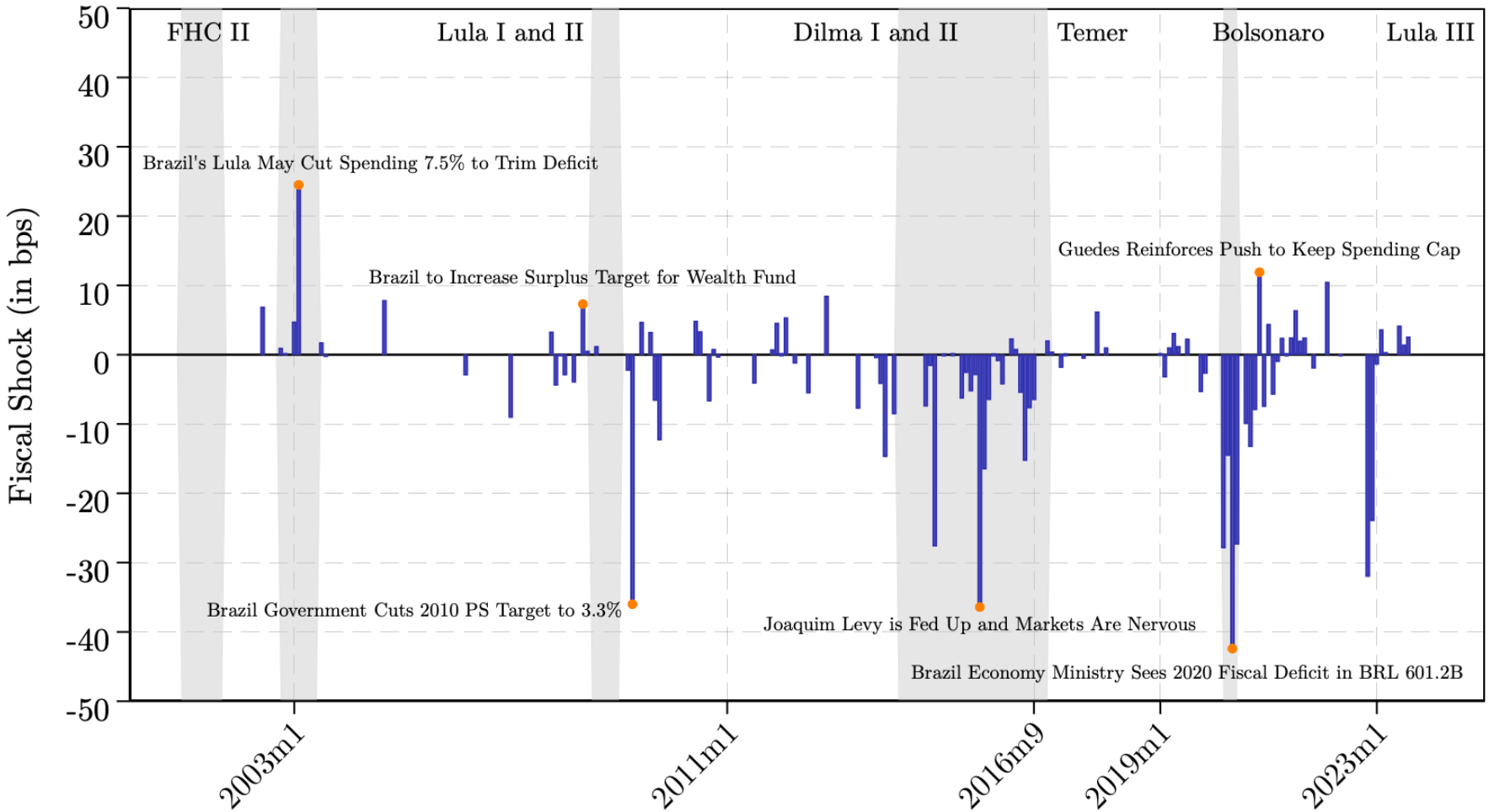
Identification Strategy

High-Frequency Fiscal Expectations Data (cont'd)

- **Tradeoff** in choosing the window to compute Δ in expectations
  - **Too wide**: risk that revisions are **contaminated** by oth. shocks
  - **Too narrow**: **no** time for agents to **update** their forecasts
- Choose **windows** from **event day** to **last** or **first** weekdays, whichever occurs first
  - Anedoctal: "update at the beginning or end of the week"
  - Use **median** of forecasts (no need for everyone to update!)

Identification Strategy

A New Measure of Fiscal Shocks formulas narrative



Econometric Approach

Econometric Approach

Local Projections

- Dynamic causal effects via **local projections**,

$$y_{t+h} = \alpha_h + \boldsymbol{\beta_h}\, \varepsilon_t^f + \boldsymbol{\gamma}_h\, \mathbf{X}_t + \nu_{t+h} \tag{1}$$

  where,

  - ε_t^f is our series of fiscal shocks
  - $\mathbf{X}_t$ includes 3 months of lagged values of dep. var and the shock...
  - ...and dummies to acc. for GFC, truckers strike and pandemic
  - Heterosk. robust SEs (Montiel-Olea and Plagborg-Møller, 2021)
  - Baseline sample from 2004m1 to 2023m12

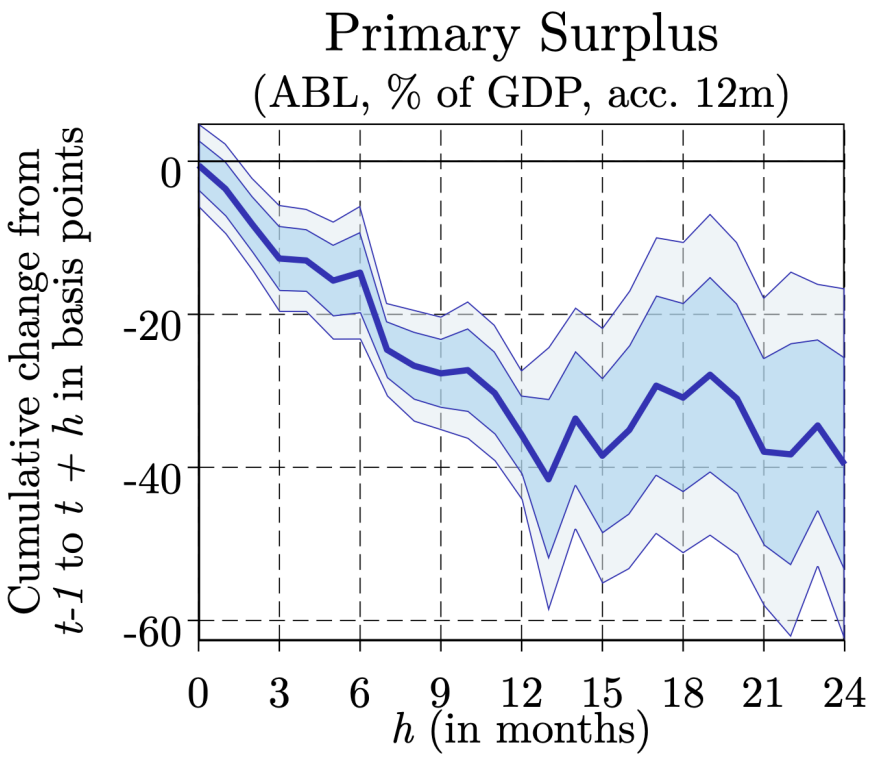
- Look at responses to a -6.4 bps shock (**fiscal stimulus**)

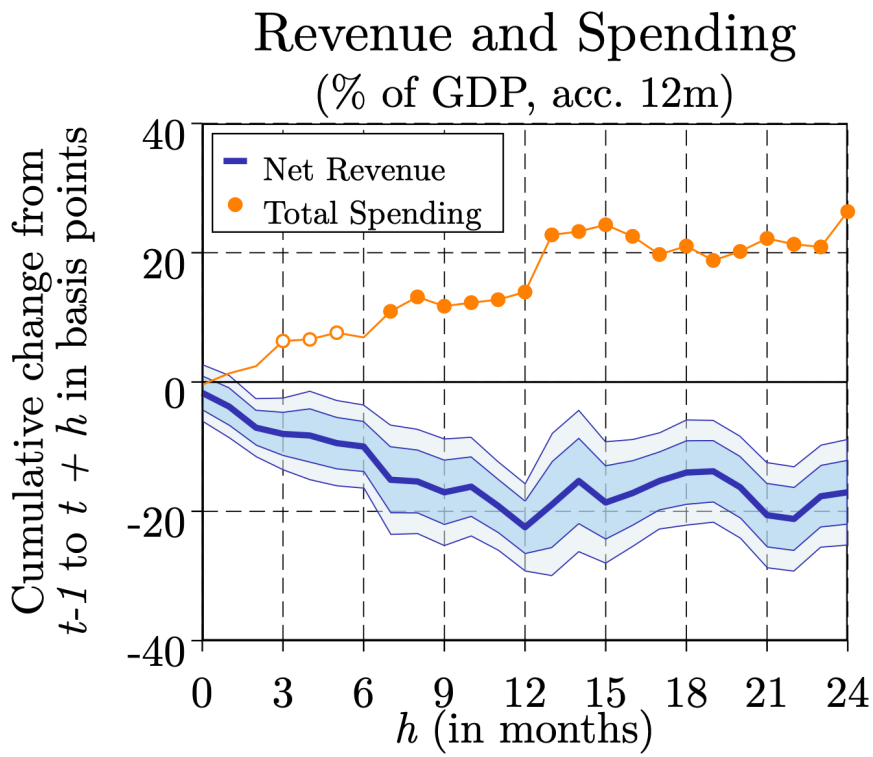
Dynamic Causal Effects

Effects on Fiscal Variables and the Macroeconomy

Effects on Fiscal Variables and the Macroeconomy

Responses to *minus* 1 std. dev. ($\approx$ 6.4 bps) fiscal shock: Fiscal variables

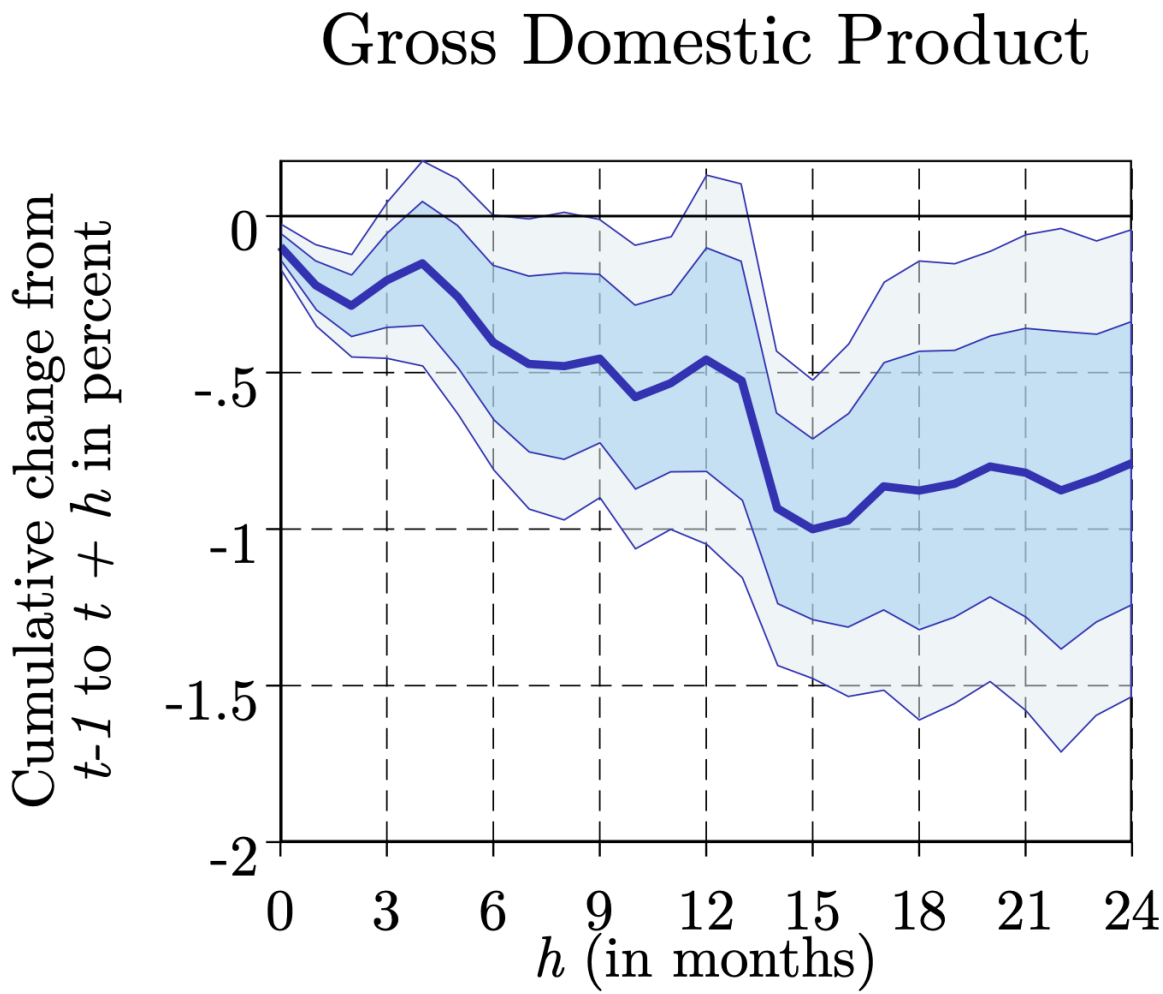




- A **6.4 bps (1 sd)** $\downarrow$ in **expected PS** 1-year ahead...
- ...leads to a $\downarrow$ **realized PS** after 1 year by **35 bps**...

Effects on Fiscal Variables and the Macroeconomy

Responses to *minus* 1 std. dev. ($\approx$ 6.4 bps) fiscal shock: Output more



- ...and to $\downarrow$ **in GDP** of **0.3%**

Wider Effects and Propagation Channels

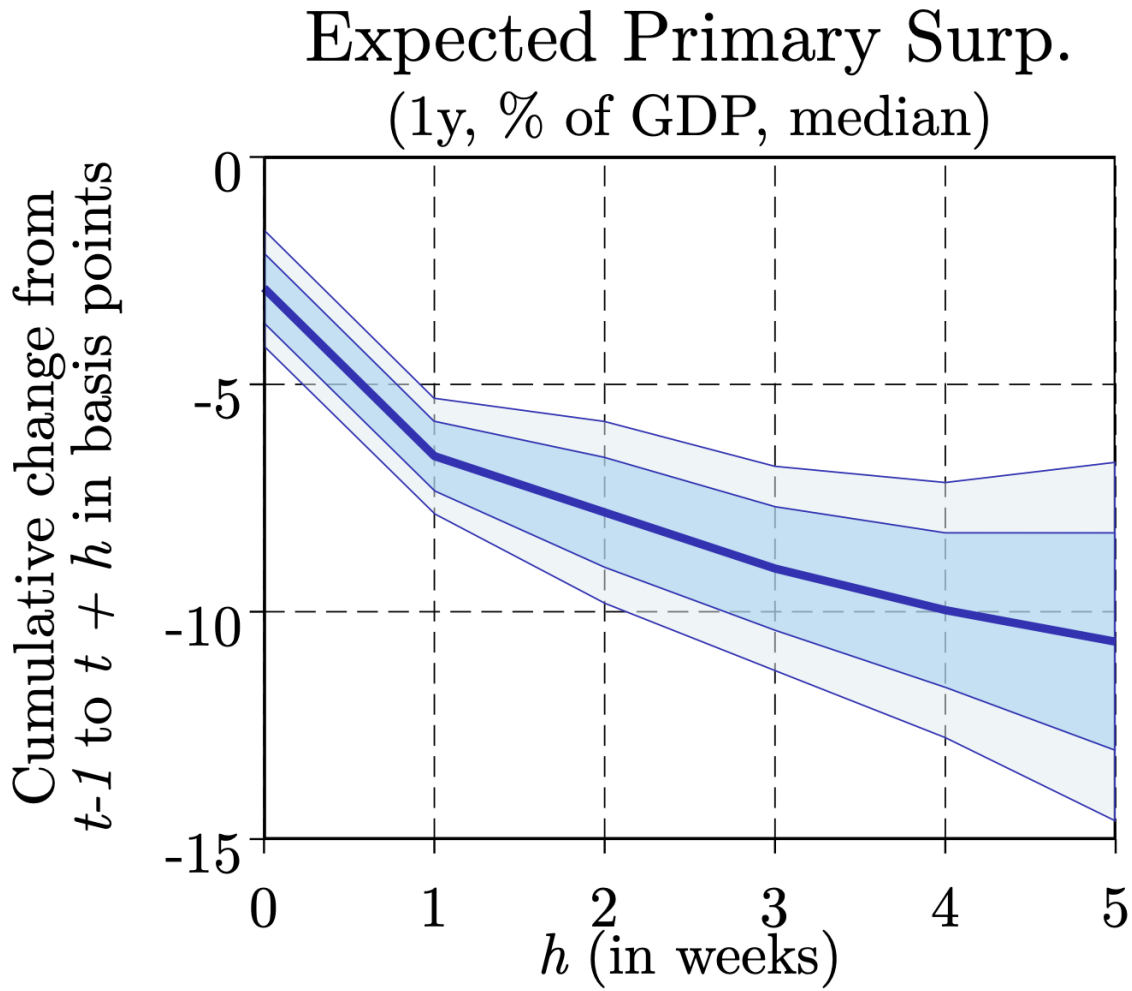
Wider Effects and Propagation Channels

What is the mechanism behind contractionary fiscal stimulus?

- **Fiscal stimulus increases the perception of fiscal risk**
  - Initial change in **1y-ahead PS** expectations is **amplified**

Wider Effects and Propagation Channels

Initial change in 1y-ahead PS expectations is amplified



Wider Effects and Propagation Channels

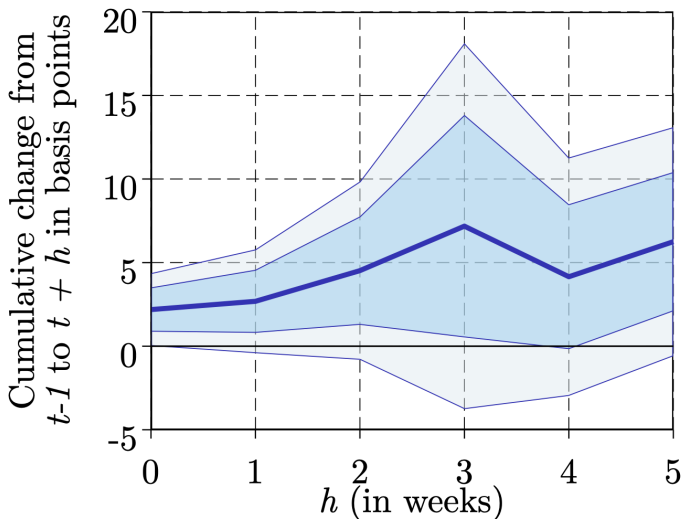
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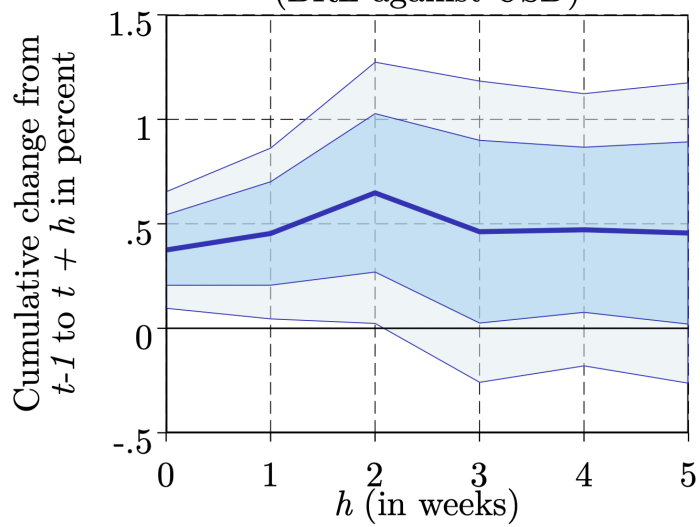
Wider Effects and Propagation Channels

Financial markets react negatively

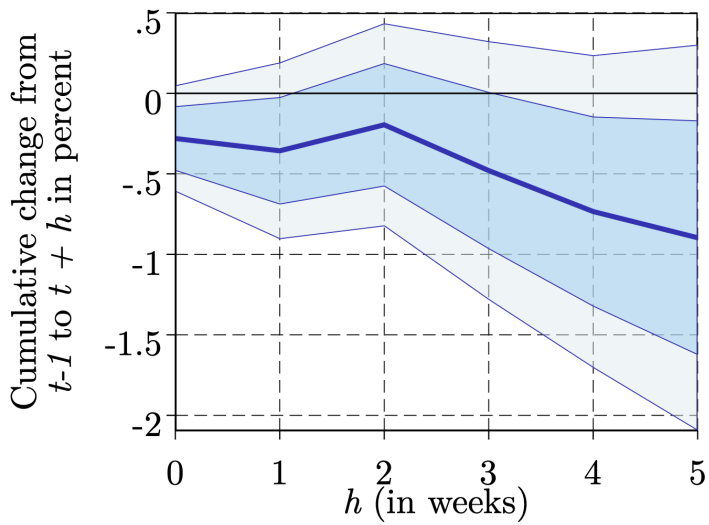
5y Credit Default Swaps



Exchange Rate
(BRL against USD)



Ibovespa Stock Index



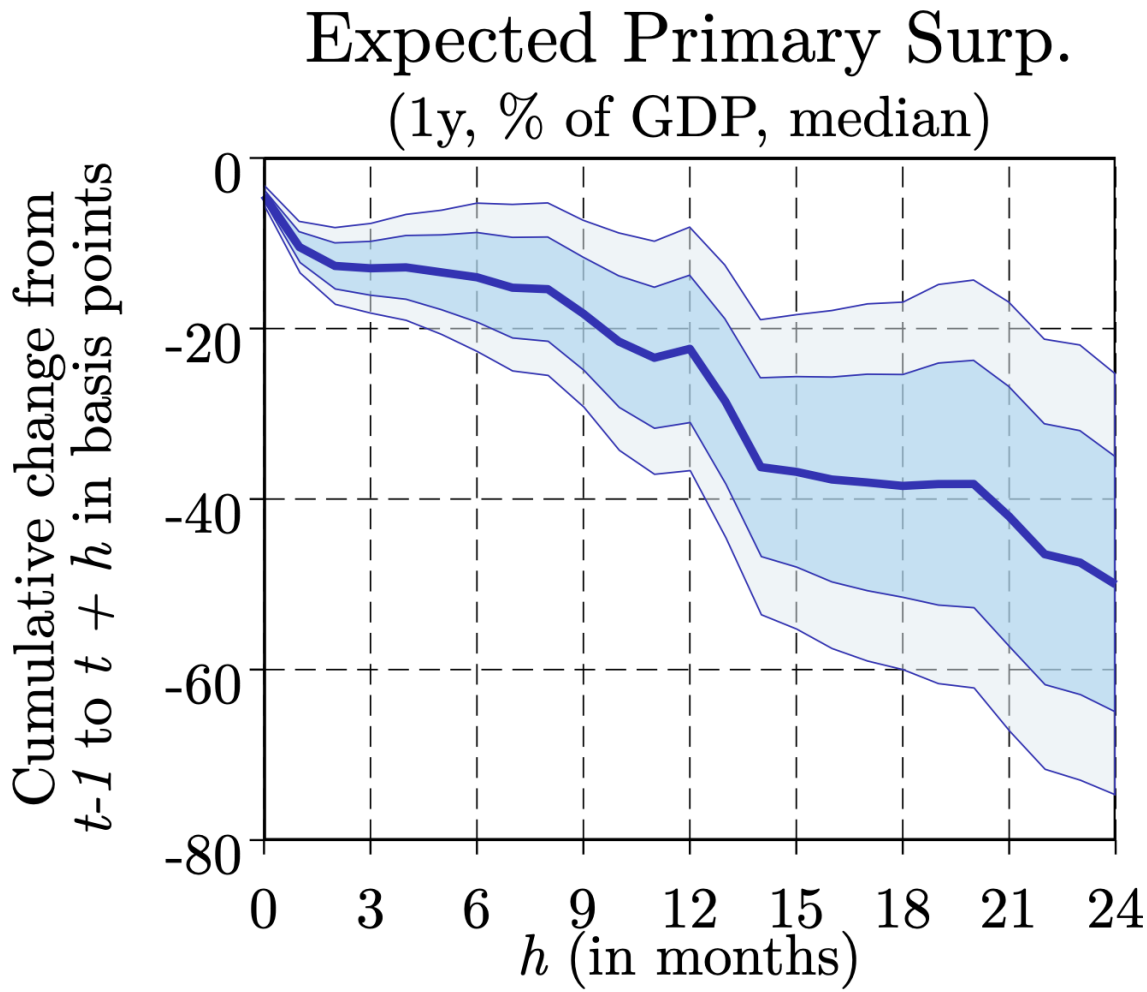
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Wider Effects and Propagation Channels

Effects persist beyond the immediate weeks after the shock more

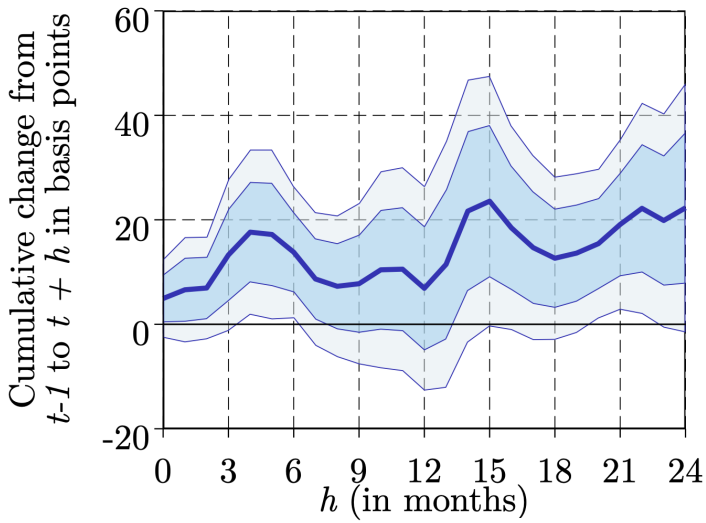


Wider Effects and Propagation Channels

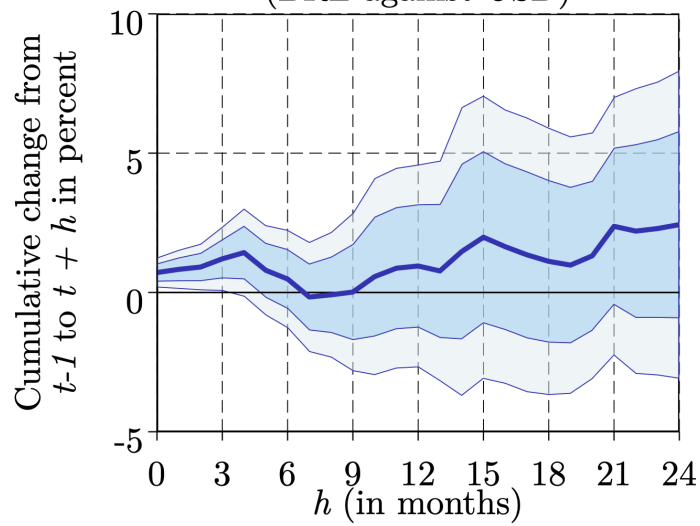
Effects persist beyond the immediate weeks after the shock

more

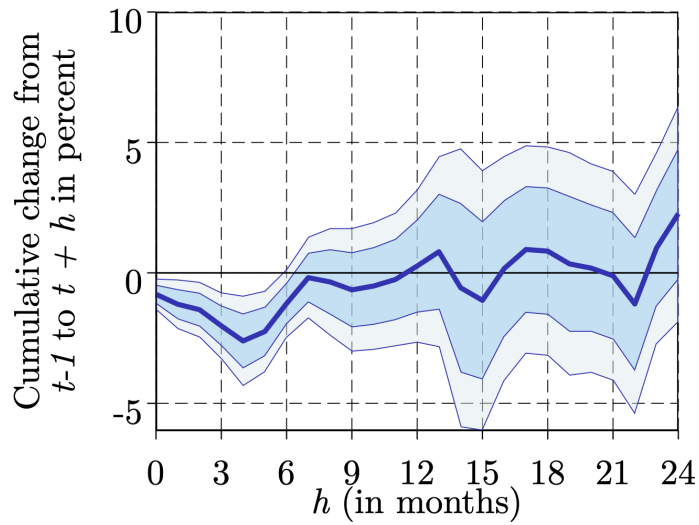
5y Credit Default Swaps



Exchange Rate
(BRL against USD)



Ibovespa Stock Index



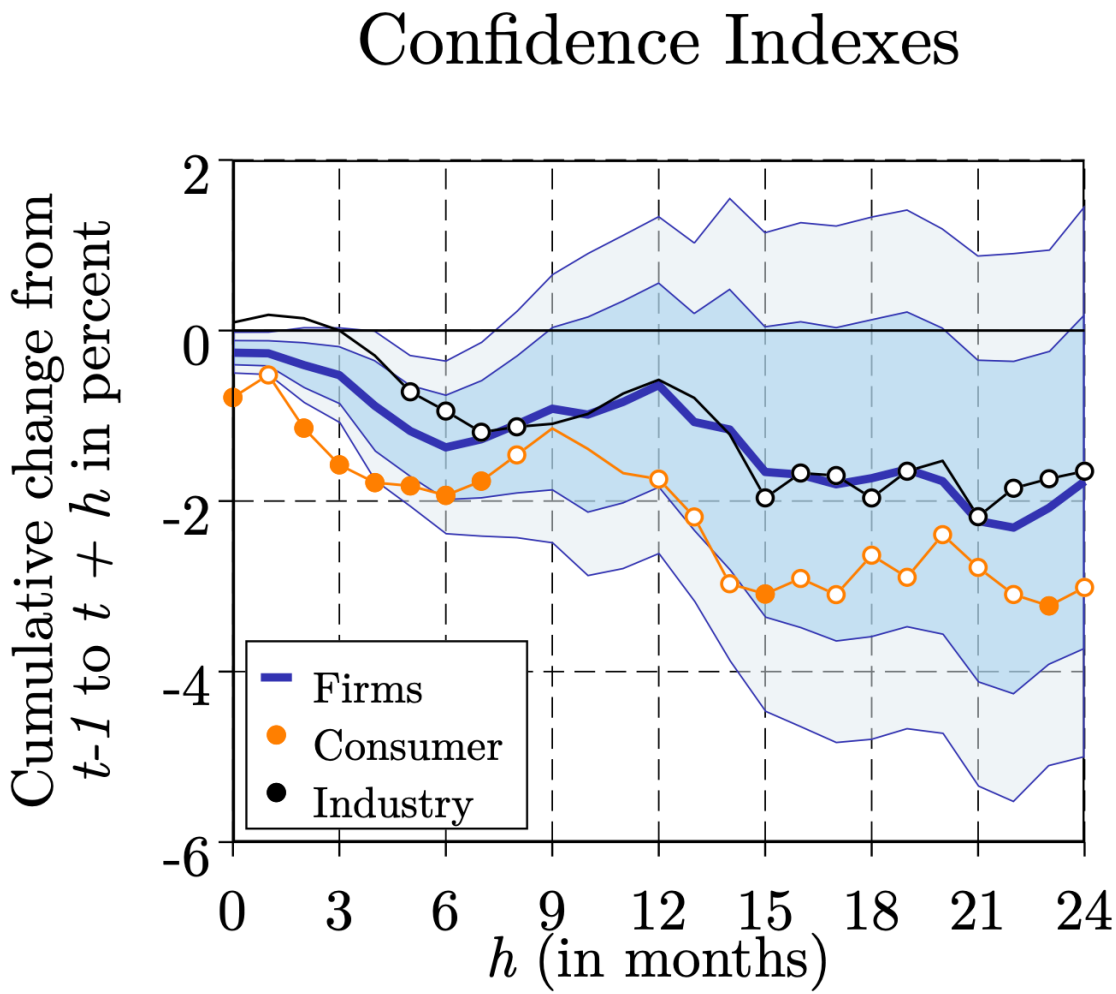
Wider Effects and Propagation Channels

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  - **Household** and **firm confidence** decrease

Wider Effects and Propagation Channels

Household and firm confidence decrease



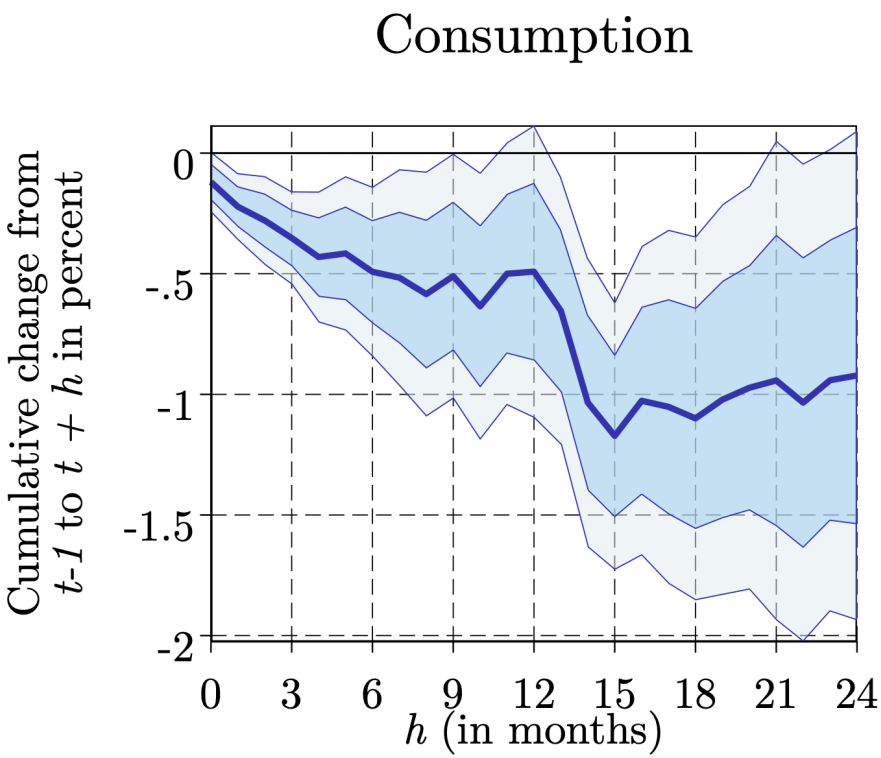
Wider Effects and Propagation Channels

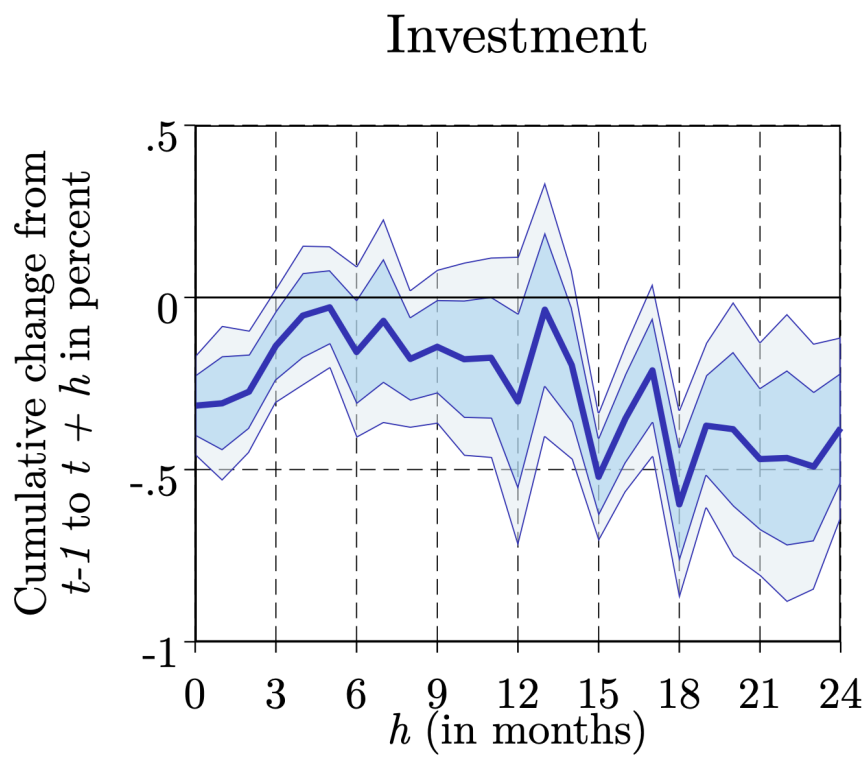
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  - **Consumption** and **investment fall**

Wider Effects and Propagation Channels

Consumption and investment fall





Wider Effects and Propagation Channels

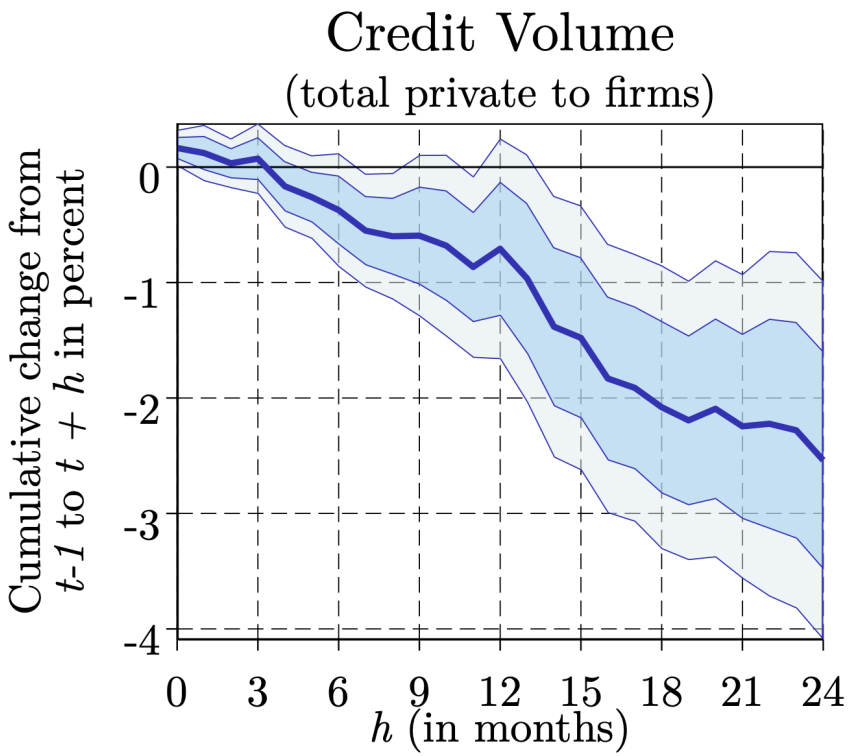
What is the mechanism behind contractionary fiscal stimulus?

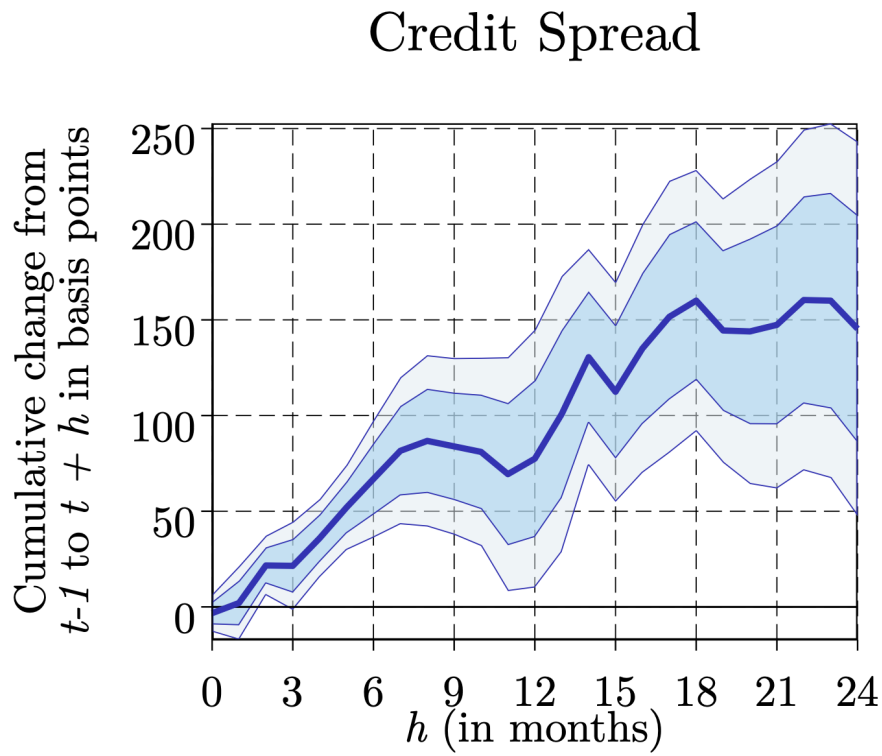
- **Fiscal stimulus increases the perception of fiscal risk**
  - Initial change in **1y-ahead PS** expectations is **amplified**
  - **Financial markets** react **negatively**: ↑ CDS, ER depr., ↓ Stocks
  - Effects **persist** beyond the immediate weeks after the shock
  - **Household** and **firm confidence** decrease
  - **Consumption** and **investment fall**
  - **Credit conditions** deteriorate

Wider Effects and Propagation Channels

Credit conditions deteriorate

more





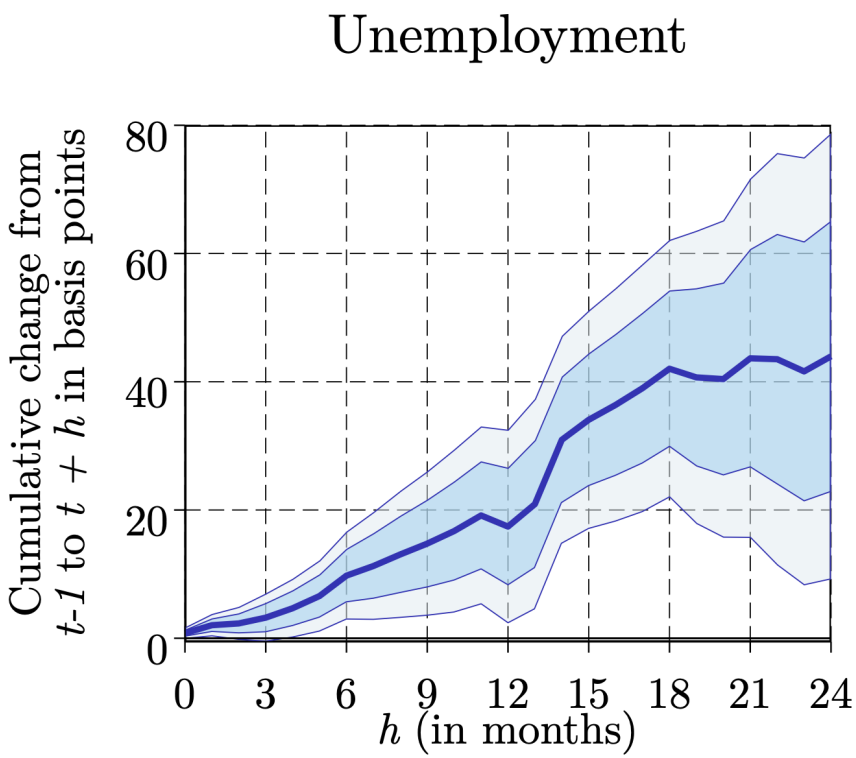
Wider Effects and Propagation Channels

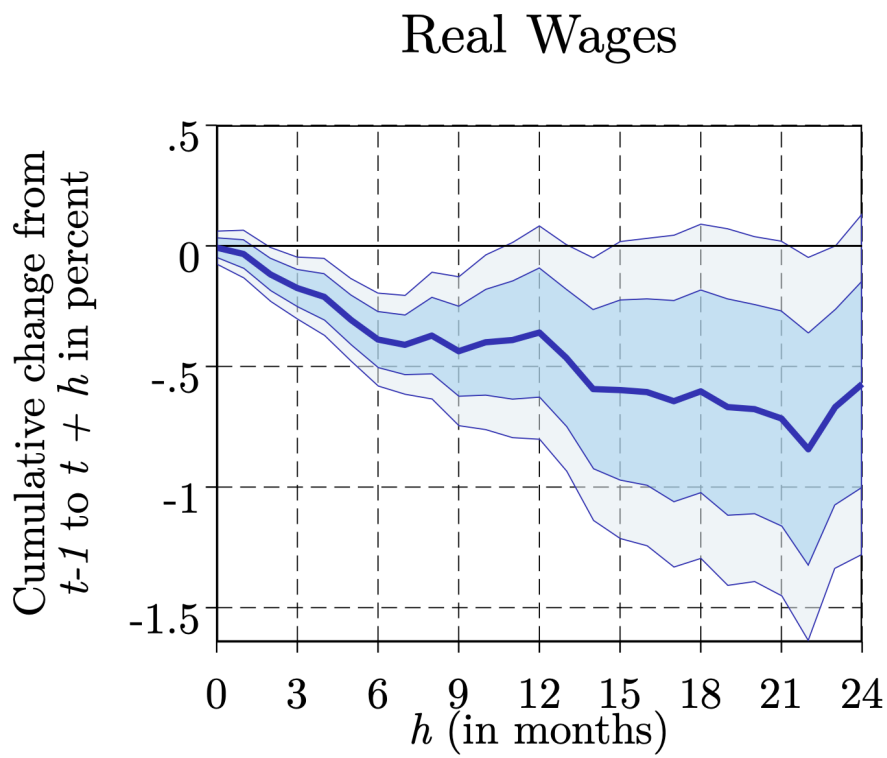
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  - **Credit conditions** deteriorate
  - **Labor market** weakens

Wider Effects and Propagation Channels

Labor market weakens





Wider Effects and Propagation Channels

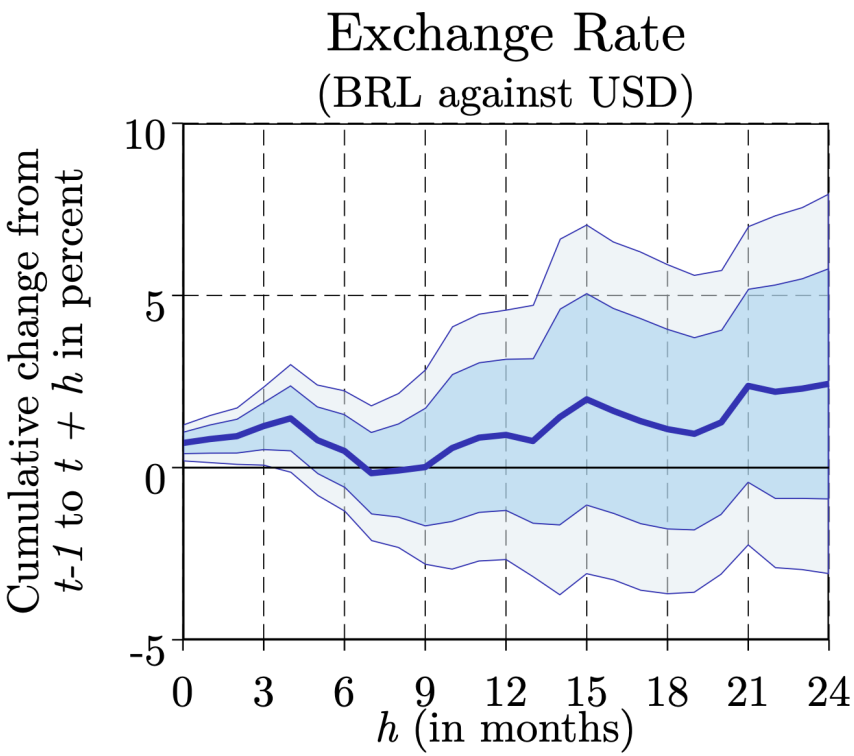
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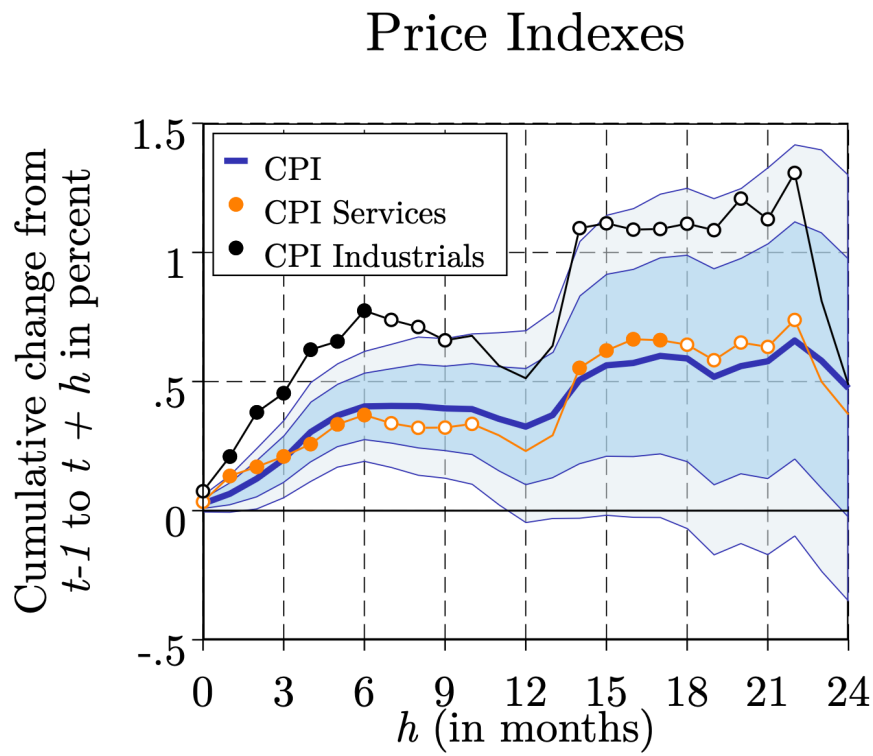
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  - **Prices increase** partly due to **exchange rate depreciation**

Wider Effects and Propagation Channels

Prices increase partly due to exchange rate depreciation

more





Wider Effects and Propagation Channels

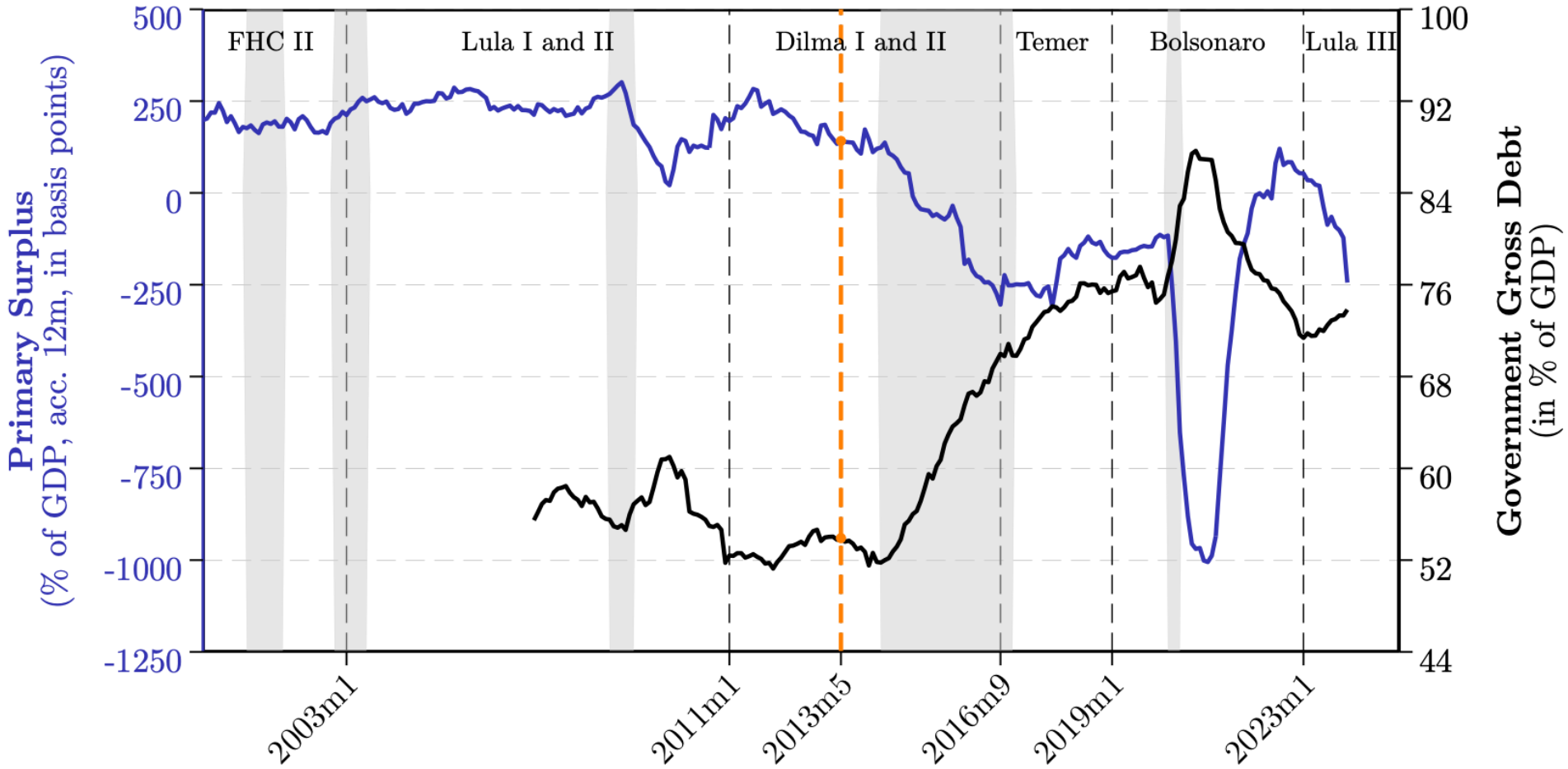
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The Role of Fiscal Sustainability Concerns

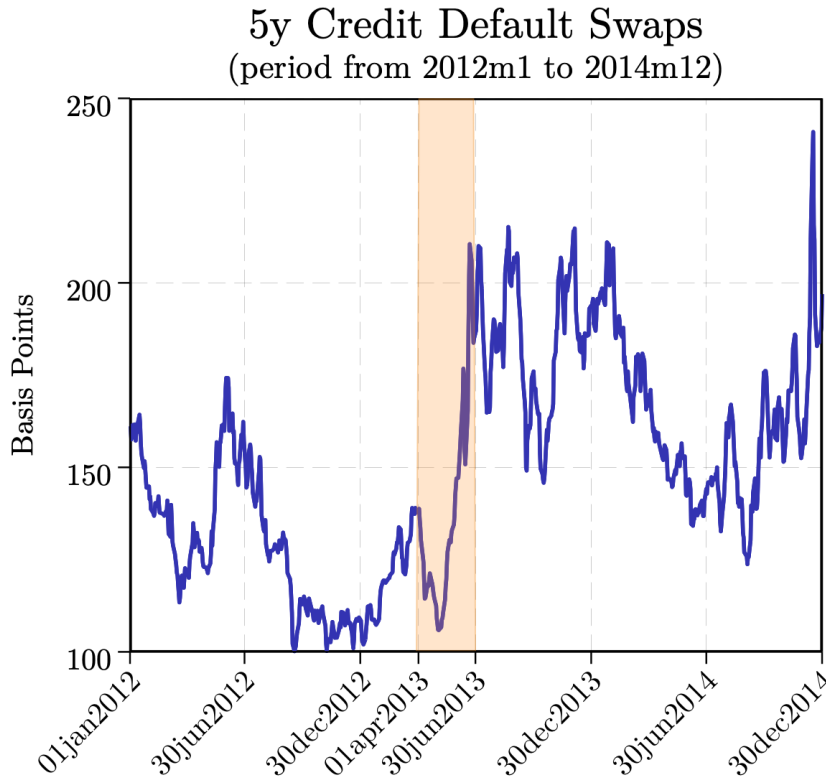
The Role of Fiscal Sustainability Concerns

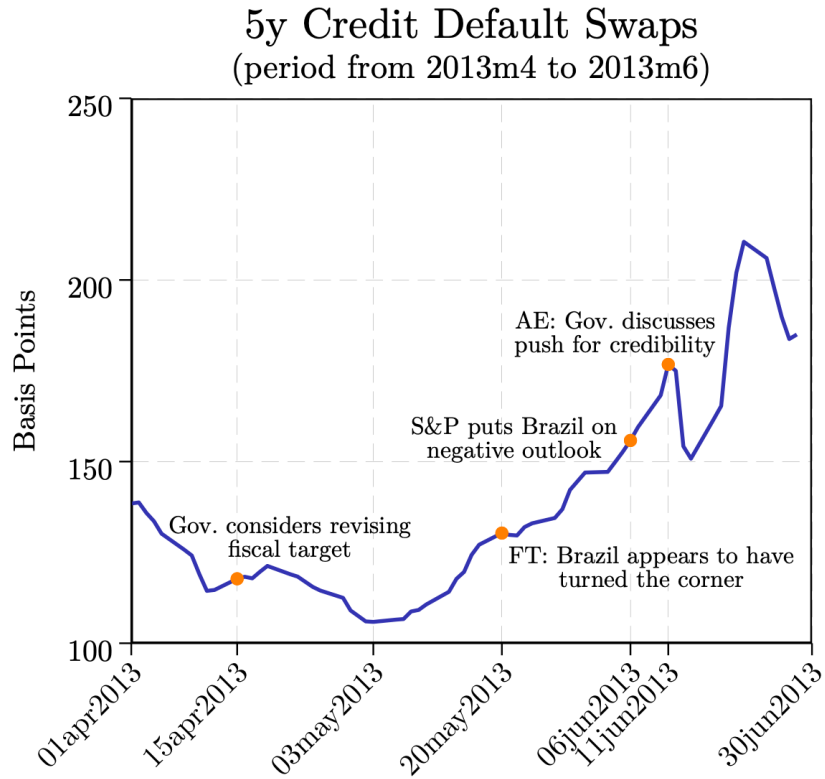
Identifying a turning point in fiscal concerns



The Role of Fiscal Sustainability Concerns

Identifying a turning point in fiscal concerns (cont'd)





- As a baseline choice we consider **2013m5** as the **turning point**

The Role of Fiscal Sustainability Concerns

State-dependent local projections

- Estimate **state-dependent local projections**,

$$y_{t+h} = \alpha_h + \boldsymbol{\beta_h^1}\, \varepsilon_t^f\, d_{1,t} + \boldsymbol{\beta_h^2}\, \varepsilon_t^f\, d_{2,t} + \boldsymbol{\gamma}_h\, \mathbf{X}_t + \nu_{t+h} \qquad (2)$$

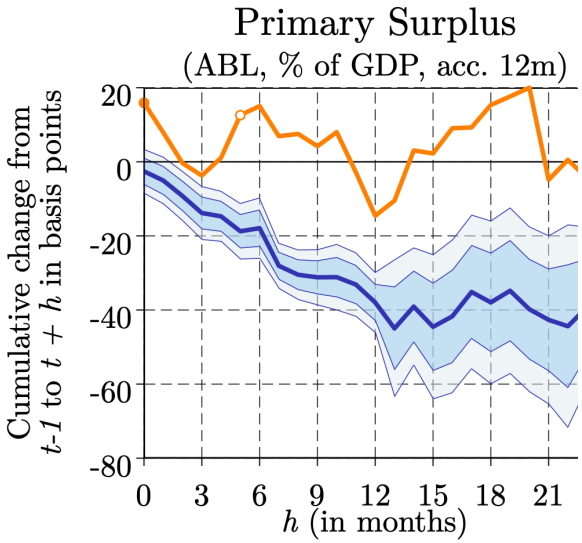
  where,

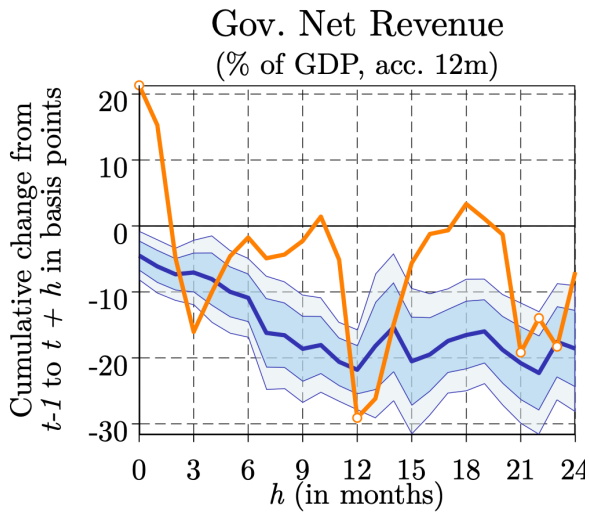
  - ε_t^f is our series of fiscal shocks
  - $d_{1,t}$ is a dummy equal to 1 for t **before** 2013m5
  - $d_{2,t}$ is a dummy equal to 1 for t **equal** or **after** 2013m5
  - $\mathbf{X}_t$ is identical to the baseline specification (1)

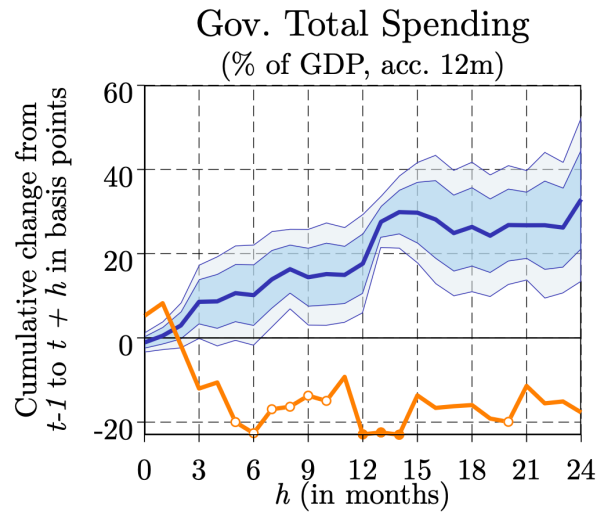
- Responses to a -6.4 bps (**fiscal stimulus**) shock under...
- ... **low(er)** *vs* **high(er)** fiscal sustainability concerns

The Role of Fiscal Sustainability Concerns

Effects on Fiscal Variables and the Macroeconomy: Fiscal variables





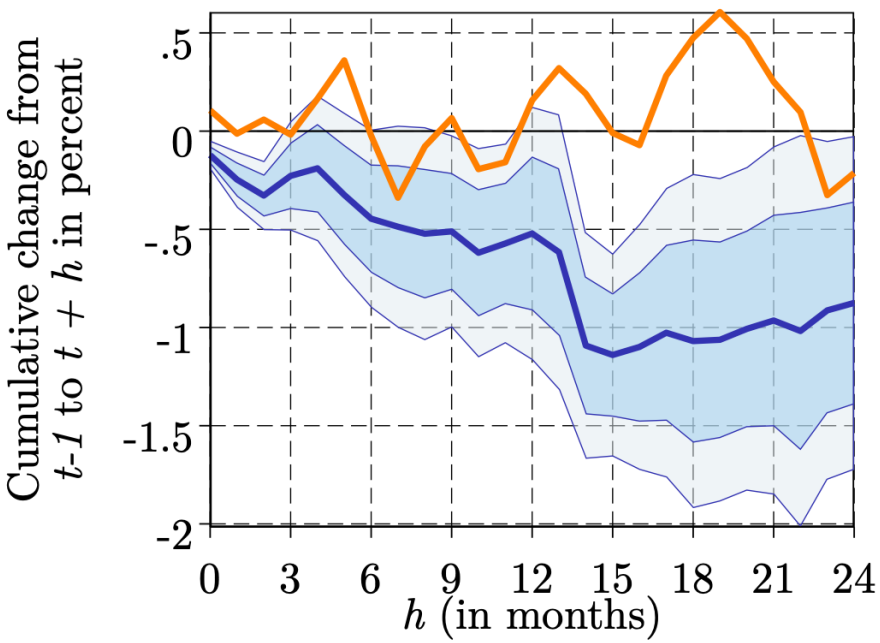


Legend: *effects from* ***2004m1 to 2013m4***, *effects from* ***2013m5 to 2023m12***.

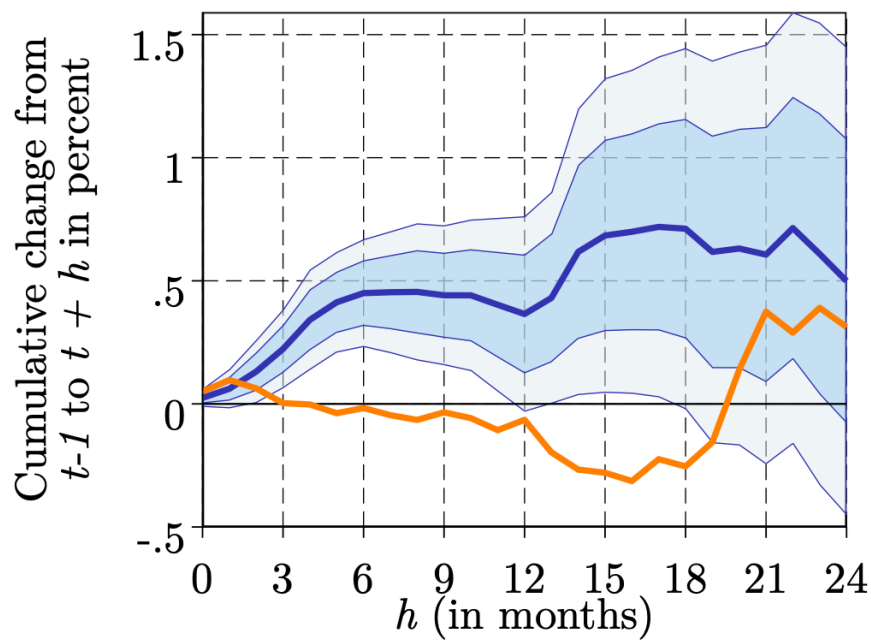
The Role of Fiscal Sustainability Concerns

Effects on Fiscal Variables and the Macroeconomy: Output and Prices

Gross Domestic Product



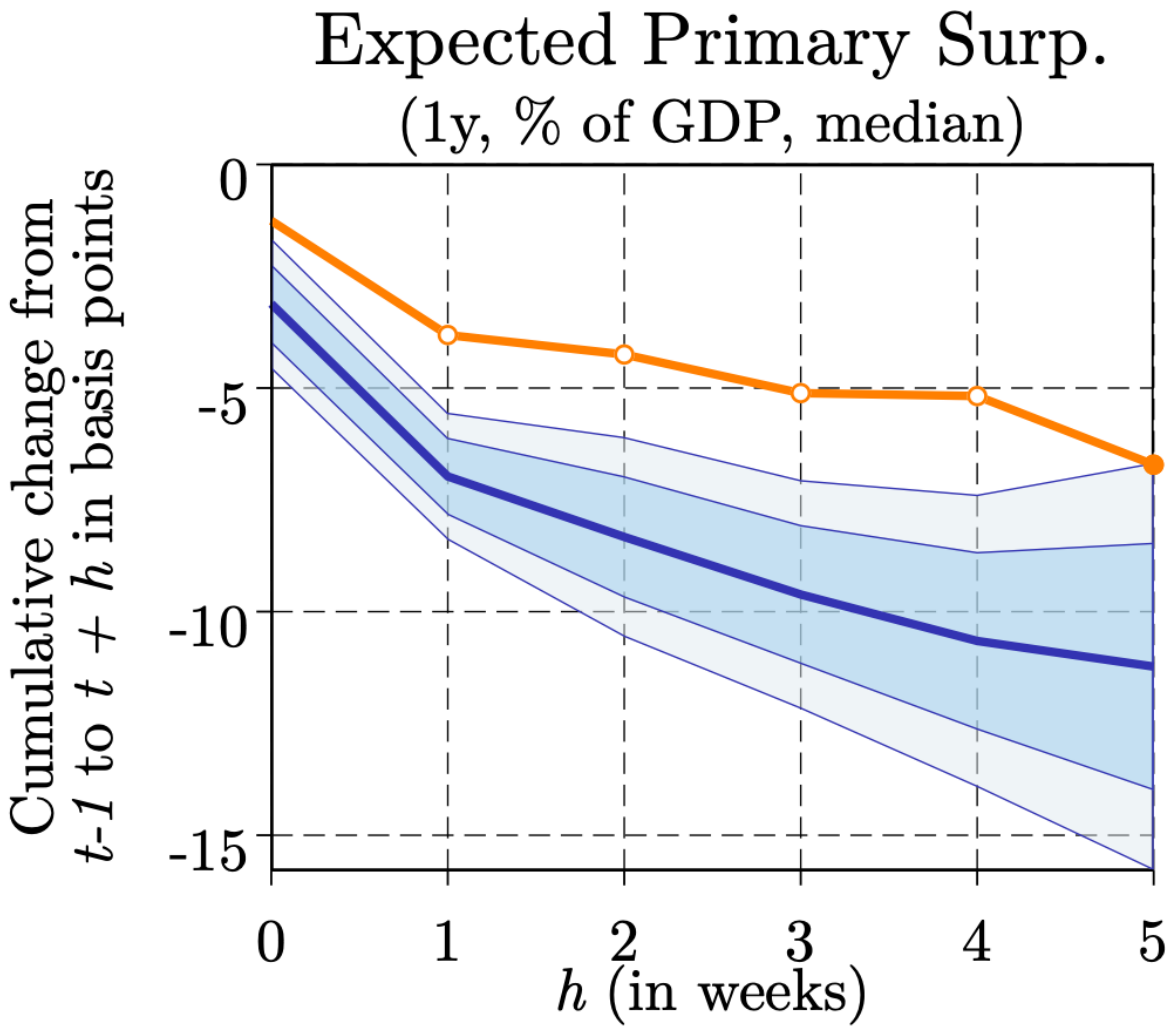
Consumer Price Index



Legend: *effects from* ***2004m1 to 2013m4***, *effects from* ***2013m5 to 2023m12***.

The Role of Fiscal Sustainability Concerns

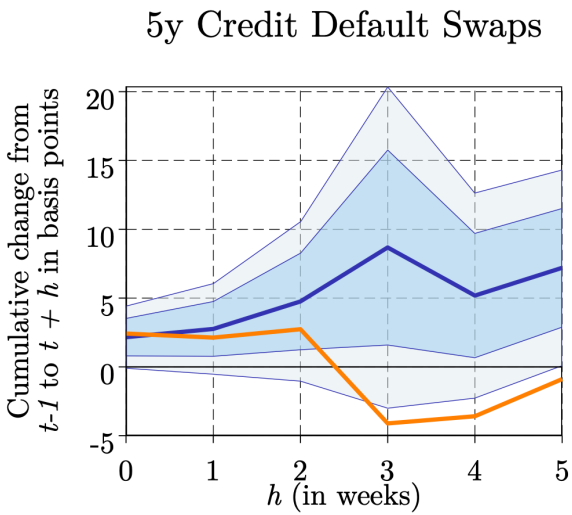
Propagation Channels: Fiscal Expectations in the short run

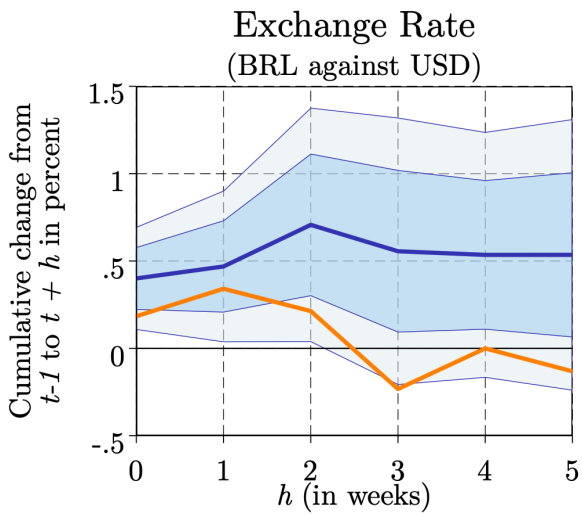


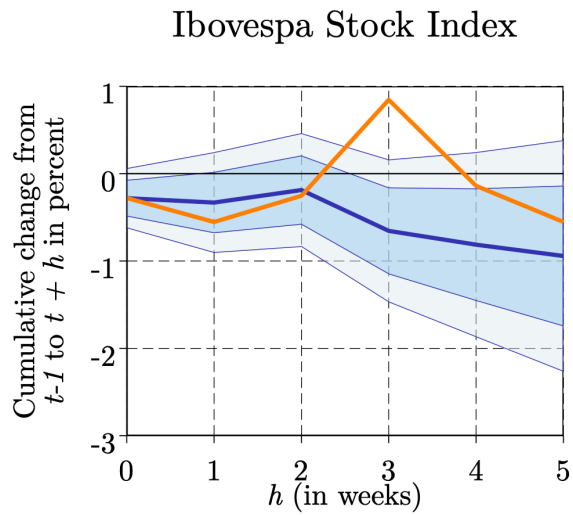
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Wider Effects and Propagation Channels

Propagation Channels: Financial markets in the short run



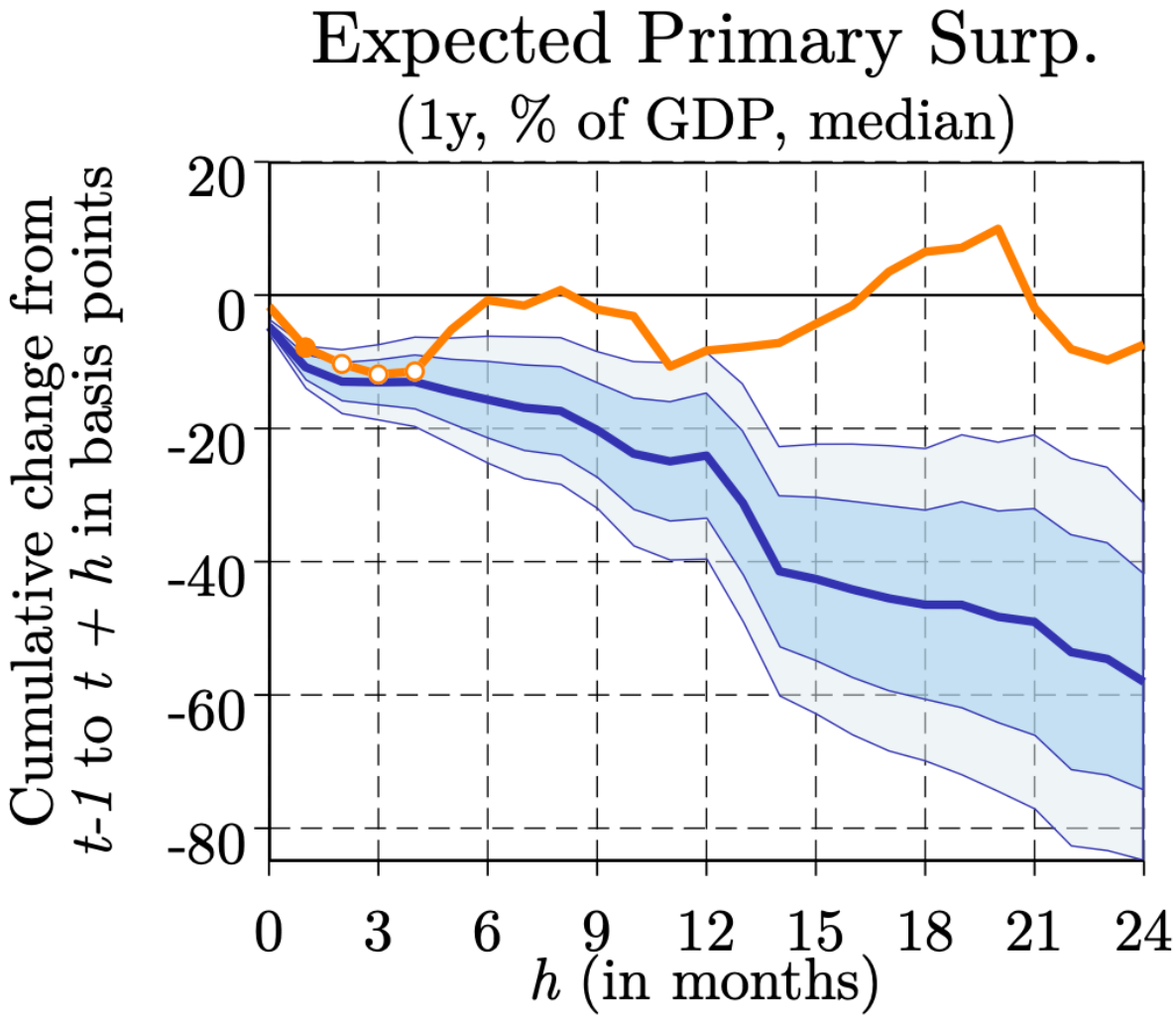




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The Role of Fiscal Sustainability Concerns

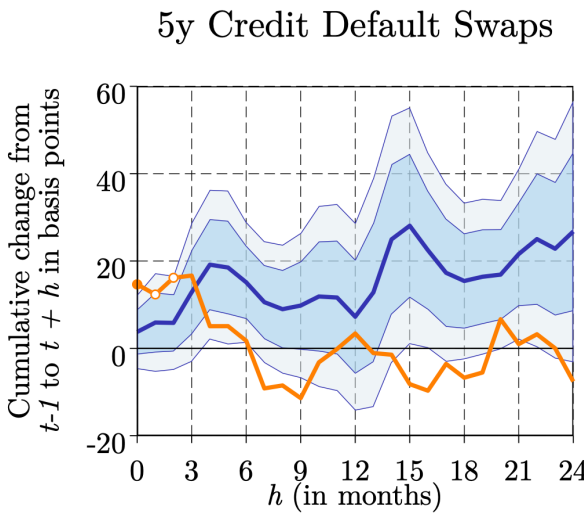
Propagation Channels: Fiscal Expectations in the medium run

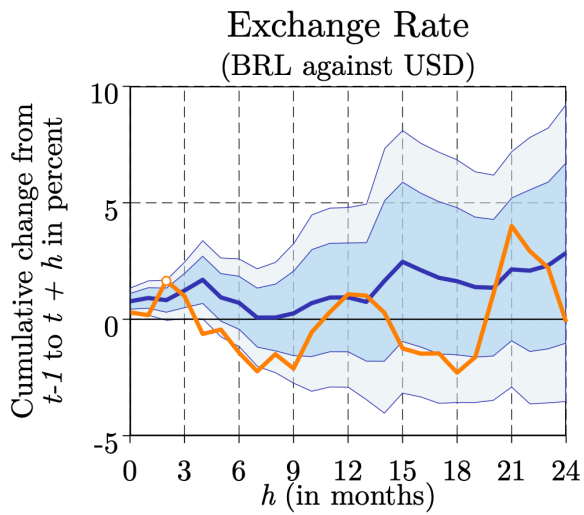


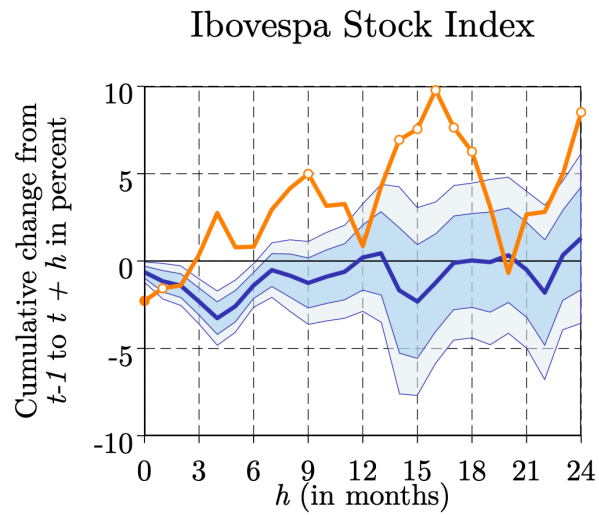
Legend: *effects from* ***2004m1 to 2013m4***, *effects from* ***2013m5 to 2023m12***.

Wider Effects and Propagation Channels

Propagation Channels: Financial markets in the medium run



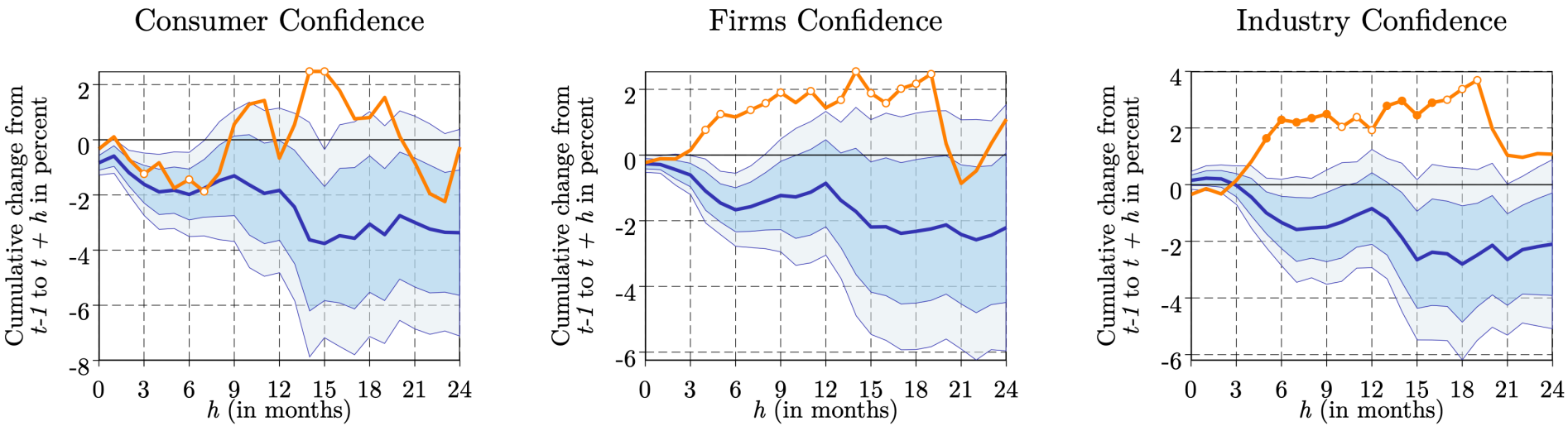




Legend: *effects from* ***2004m1 to 2013m4***, *effects from* ***2013m5 to 2023m12***.

The Role of Fiscal Sustainability Concerns

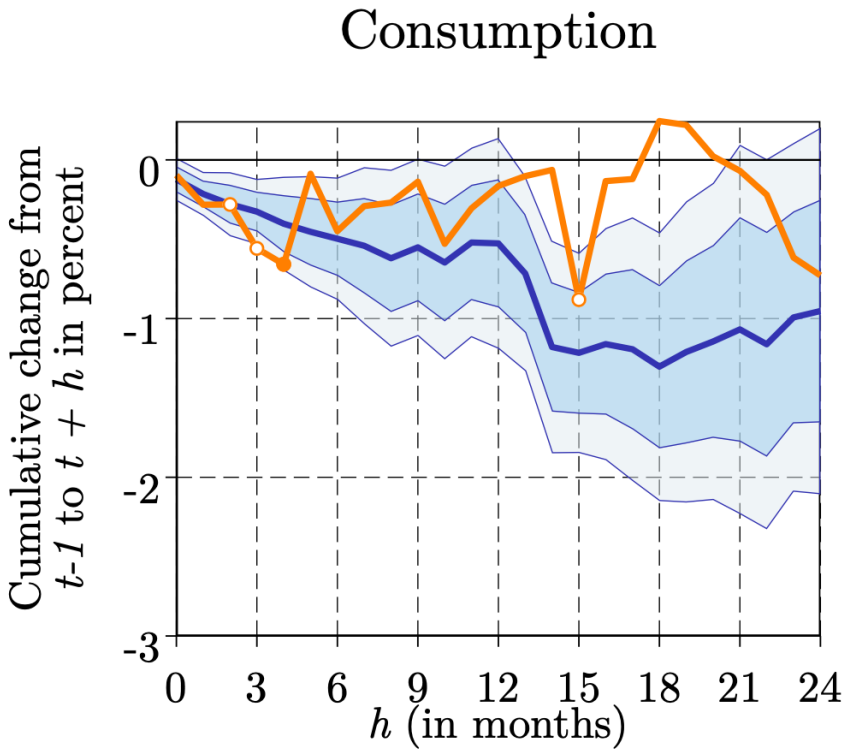
Propagation Channels: Confidence Indexes

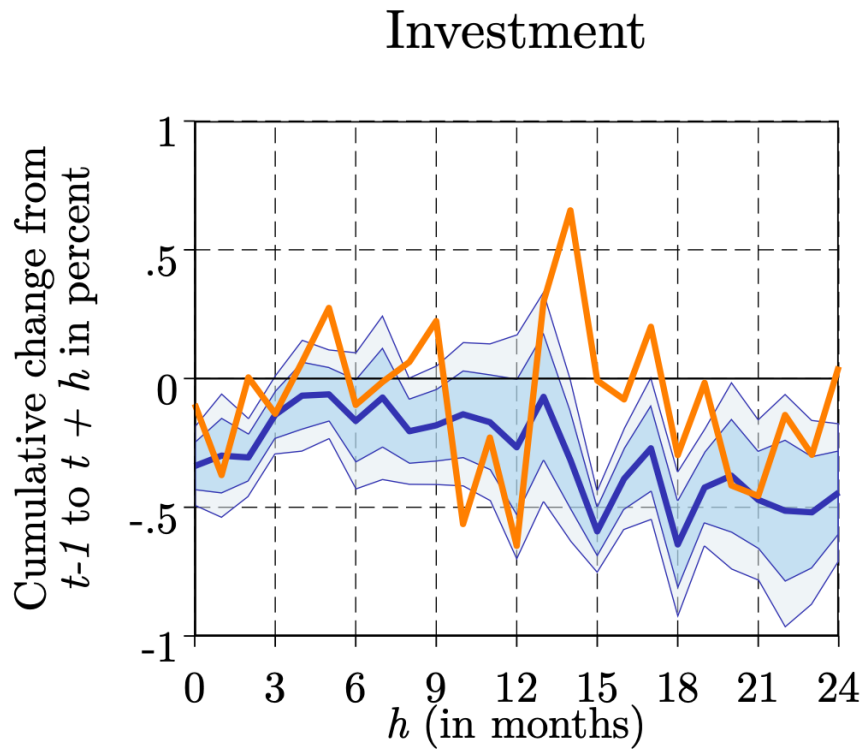


Legend: *effects from* ***2004m1 to 2013m4***, *effects from* ***2013m5 to 2023m12***.

The Role of Fiscal Sustainability Concerns

Propagation Channels: Consumption and Investment

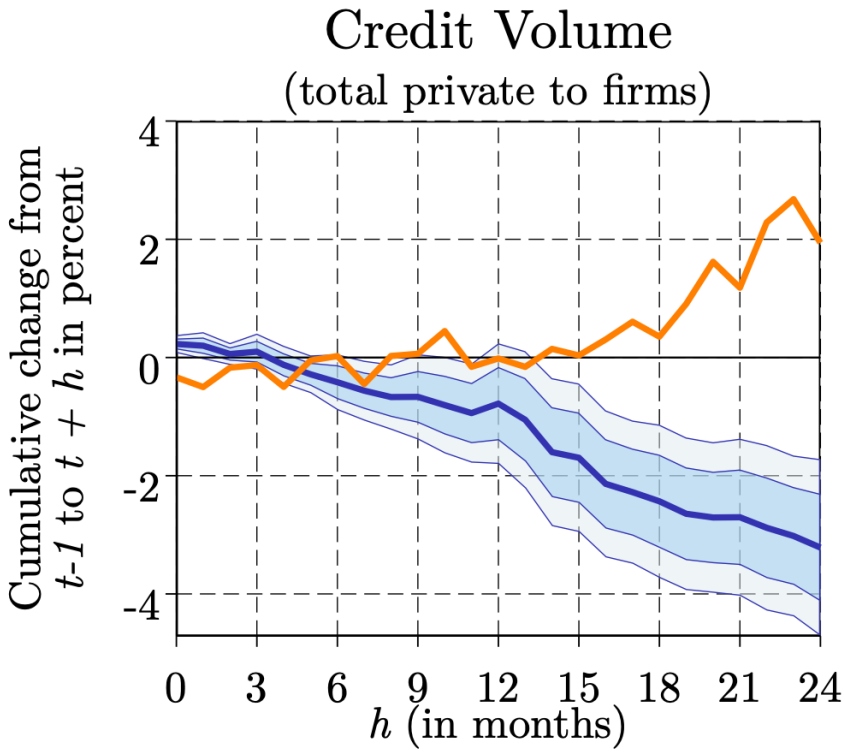


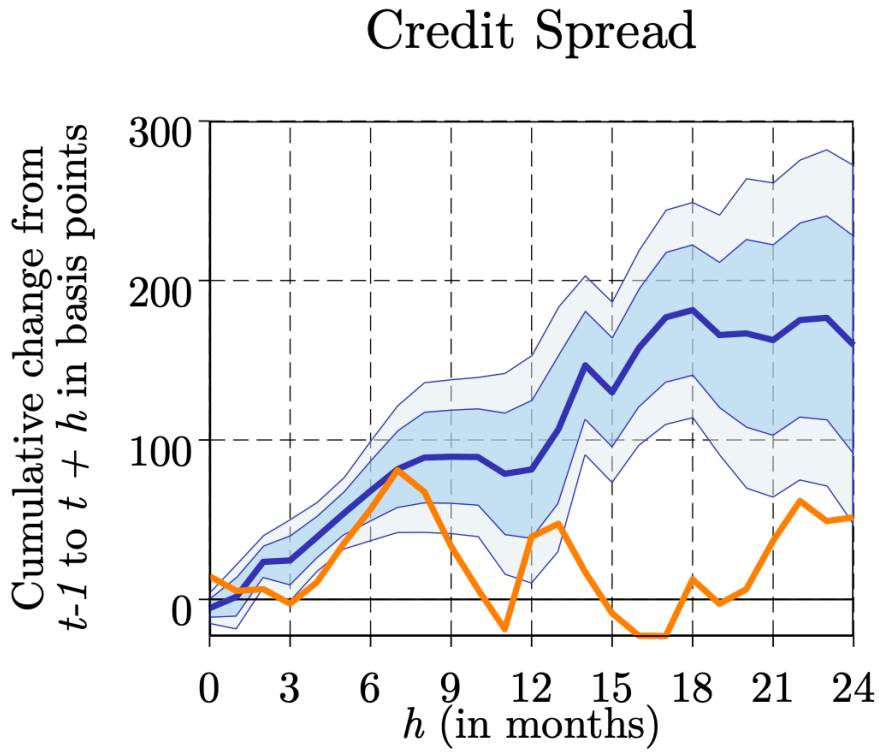


Legend: *effects from* ***2004m1 to 2013m4***, *effects from* ***2013m5 to 2023m12***.

The Role of Fiscal Sustainability Concerns

Propagation Channels: Credit Conditions

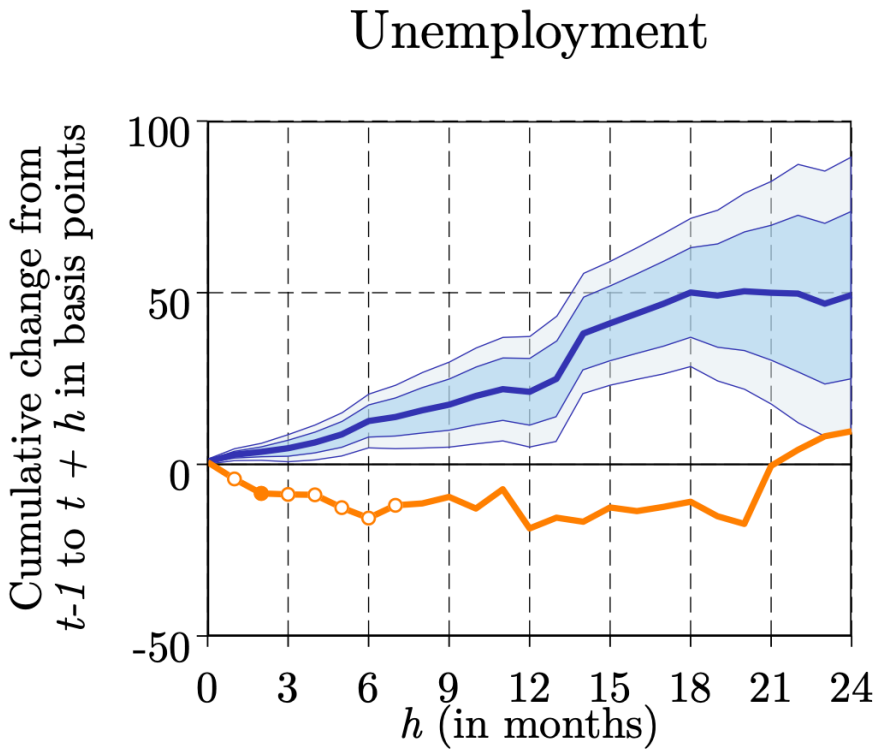


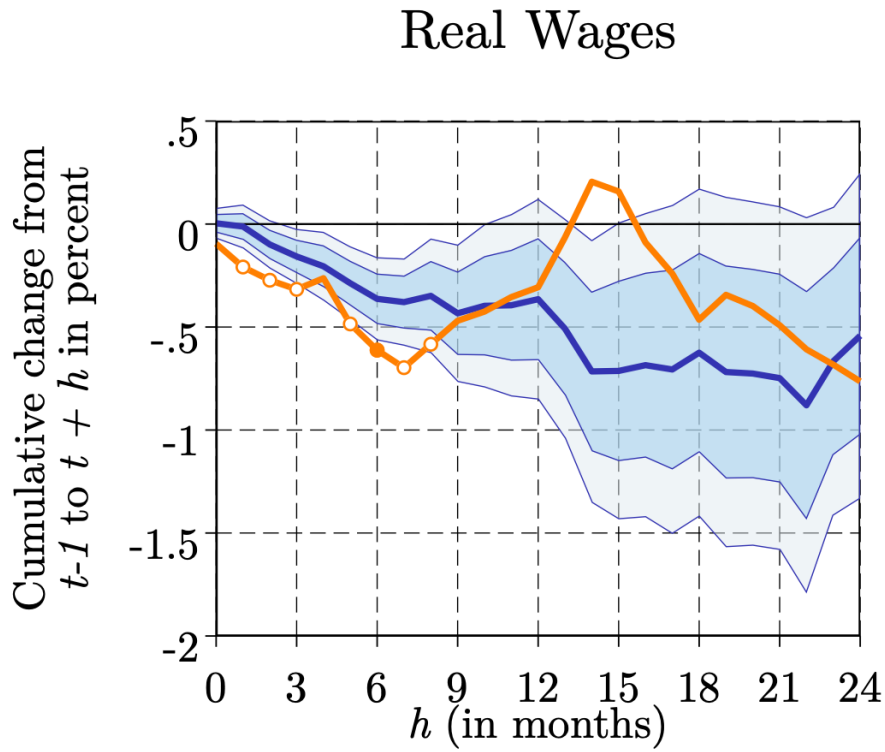


Legend: *effects from* ***2004m1 to 2013m4***, *effects from* ***2013m5 to 2023m12***.

The Role of Fiscal Sustainability Concerns

Propagation Channels: Labor Market

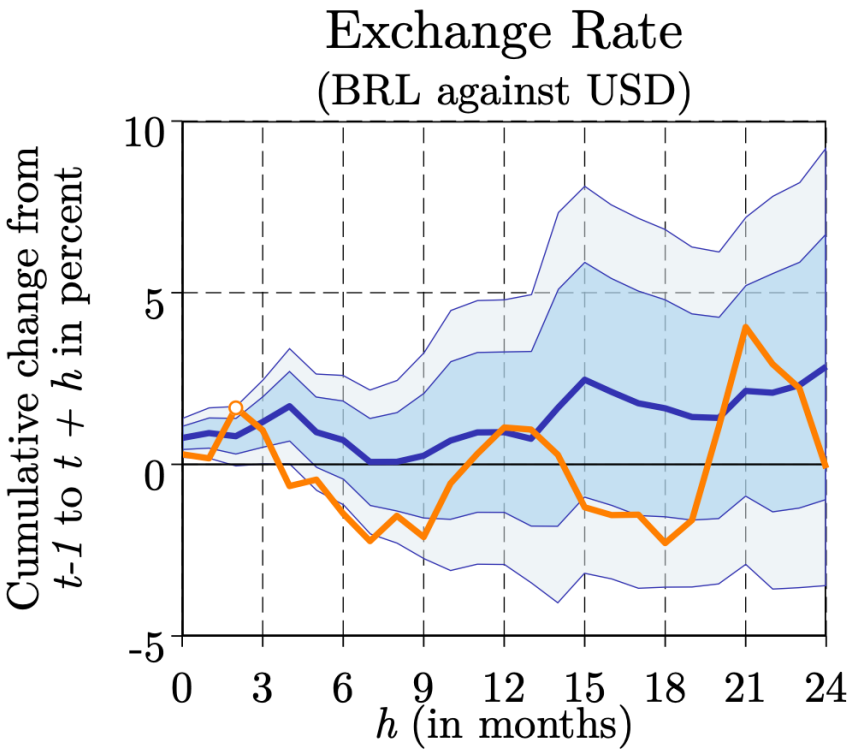


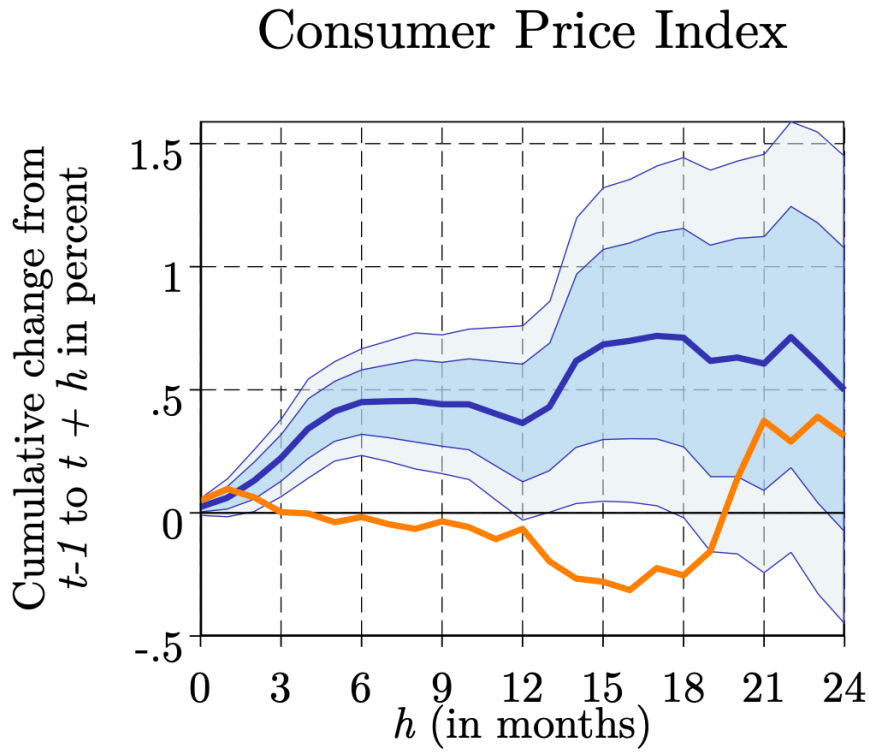


Legend: *effects from* ***2004m1 to 2013m4***, *effects from* ***2013m5 to 2023m12***.

The Role of Fiscal Sustainability Concerns

Propagation Channels: Exchange Rate and CPI





Legend: *effects from* ***2004m1 to 2013m4***, *effects from* ***2013m5 to 2023m12***.

Contractionary Fiscal Stimulus or Expansionary Austerity?

- Dynamic effects via **sign-dependent local projections**,

$$y_{t+h} = \alpha_h + \boldsymbol{\beta_h^-}\, \varepsilon_t^{f,-} + \boldsymbol{\beta_h^+}\, \varepsilon_t^{f,+} + \boldsymbol{\gamma}_h\, \mathbf{X}_t + \nu_{t+h} \tag{3}$$

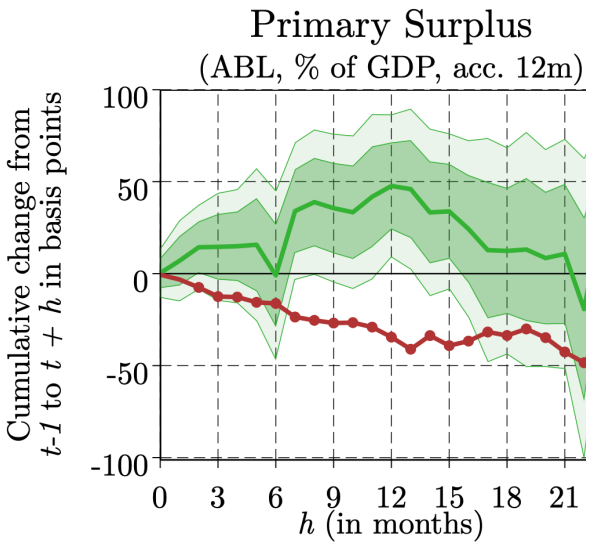
  where,

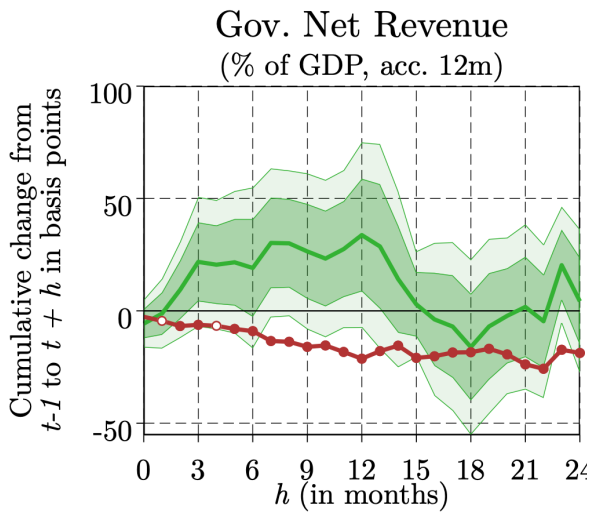
  - ε_t^f are fiscal shocks, $\varepsilon_t^{f,-} \equiv \varepsilon_t^f\, \mathbb{1}\{\varepsilon_t^f < 0\}$ and $\varepsilon_t^{f,+} \equiv \varepsilon_t^f\, \mathbb{1}\{\varepsilon_t^f \geqslant 0\}$
  - $\mathbf{X}_t$ is identical to the baseline specification (1)
  - Heterosk. robust SEs (Montiel-Olea and Plagborg-Møller, 2021)
  - Baseline sample from 2004m1 to 2023m12

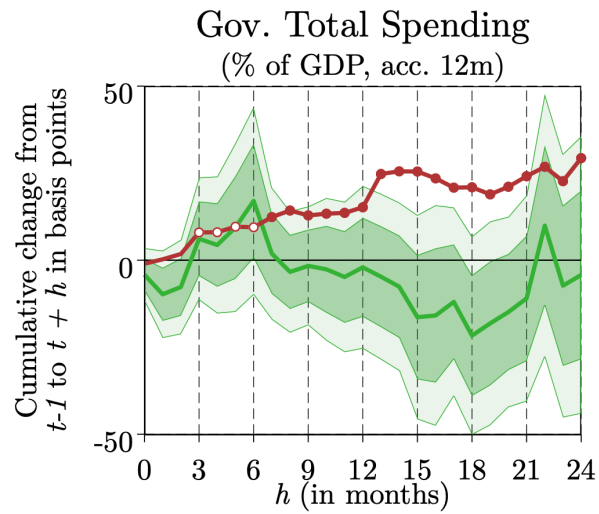
- Look at responses to shocks of $-$ and $+$ **6.4 bps**
- $\boldsymbol{\beta_h^-}$ the effects of **fiscal stimulus** and $\boldsymbol{\beta_h^+}$ the effects of **austerity**

Contractionary Fiscal Stimulus or Expansionary Austerity?

Effects on Fiscal Variables and the Macroeconomy: Fiscal variables





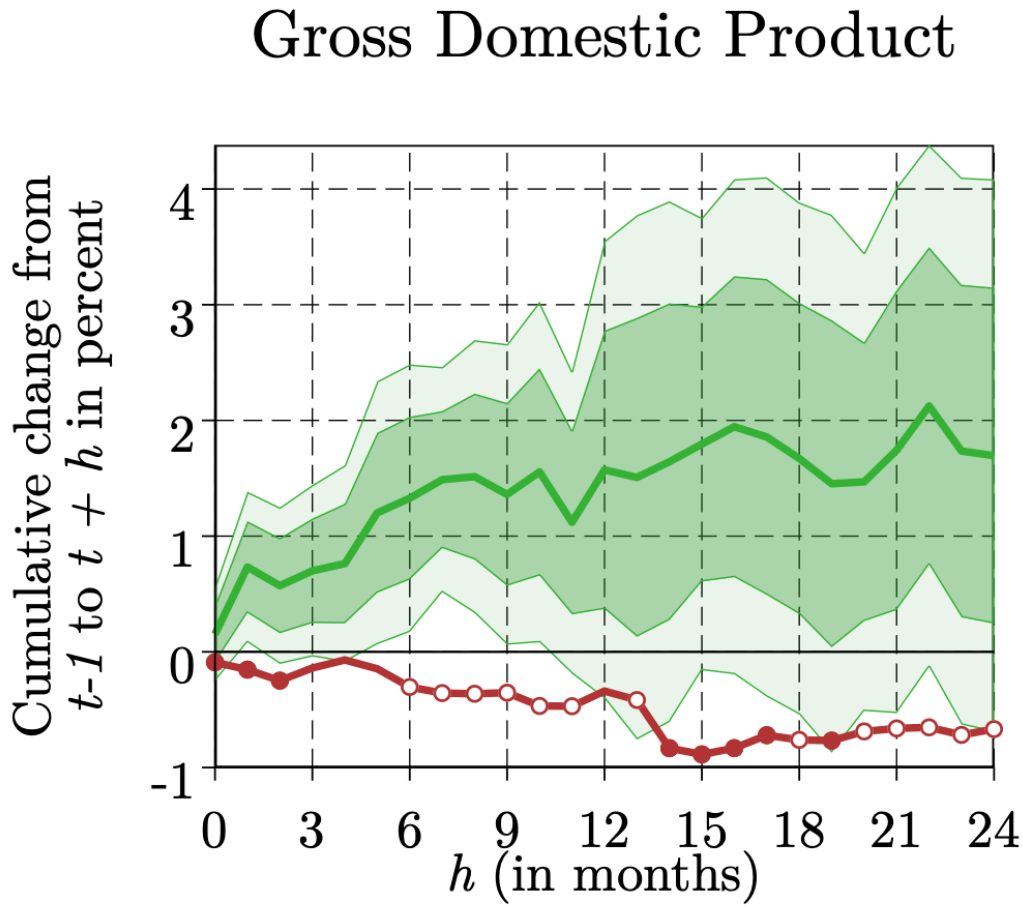


Legend: effects of ***-6.4 bps*** *shock in* ε_t^f, *effects of* ***+6.4 bps*** *shock in* ε_t^f

- A fiscal shock that ↑ **realized PS after** 1 year by **48 bps**...

Contractionary Fiscal Stimulus or Expansionary Austerity?

Effects on Fiscal Variables and the Macroeconomy: Output

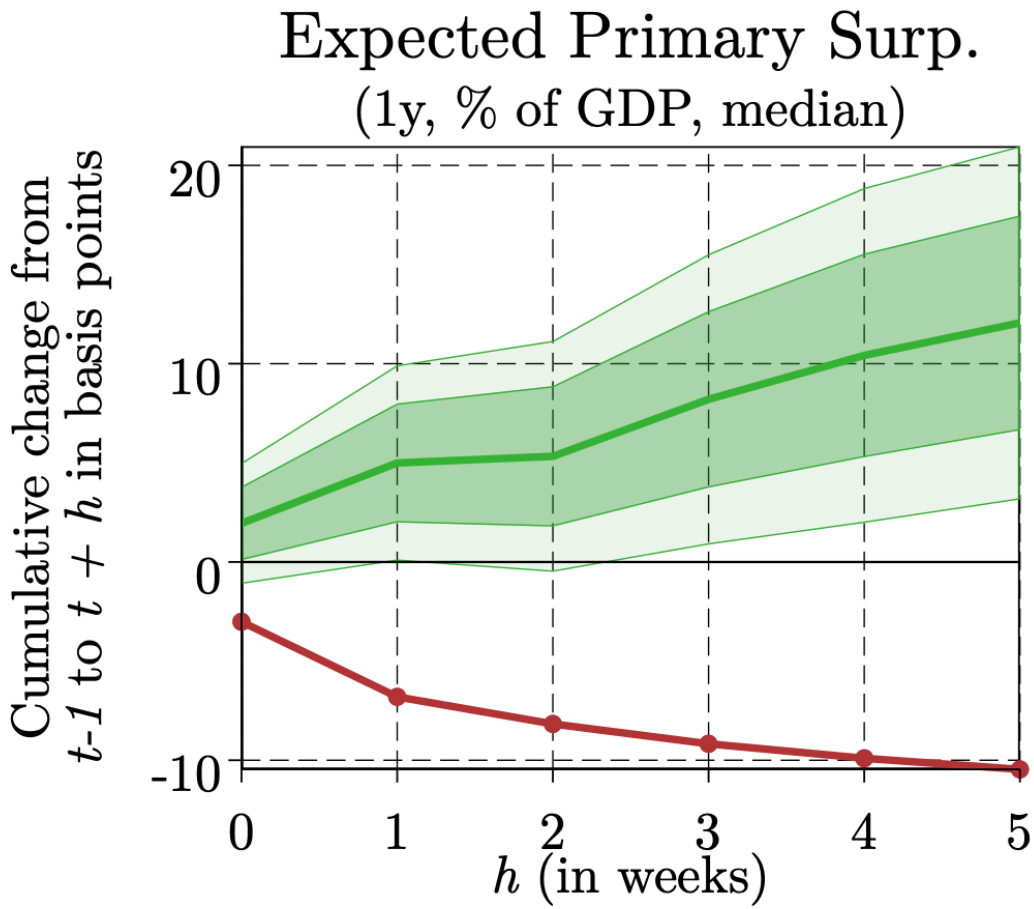


Legend: effects of ***-6.4 bps*** *shock in* ε_t^f, *effects of* ***+6.4 bps*** *shock in* ε_t^f

- ...leads to ↑ **in GDP** of **1.6%**

Contractionary Fiscal Stimulus or Expansionary Austerity?

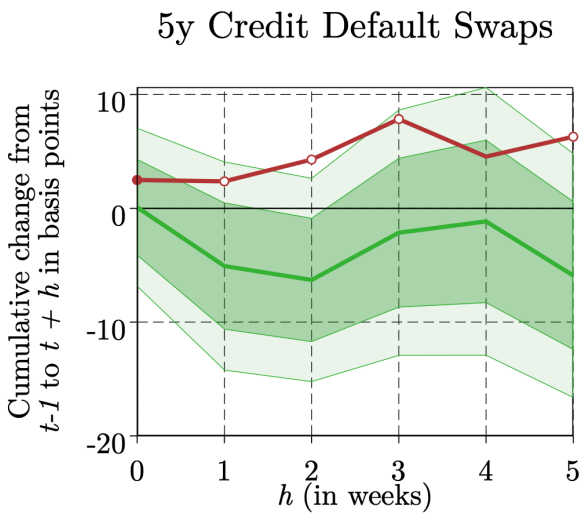
Propagation Channels: Fiscal Expectations in the short run

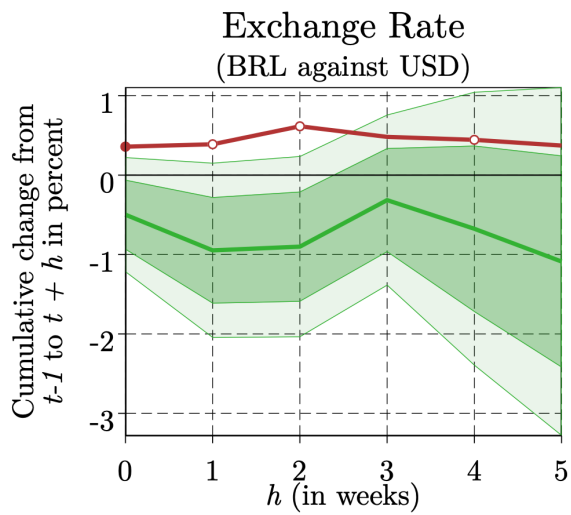


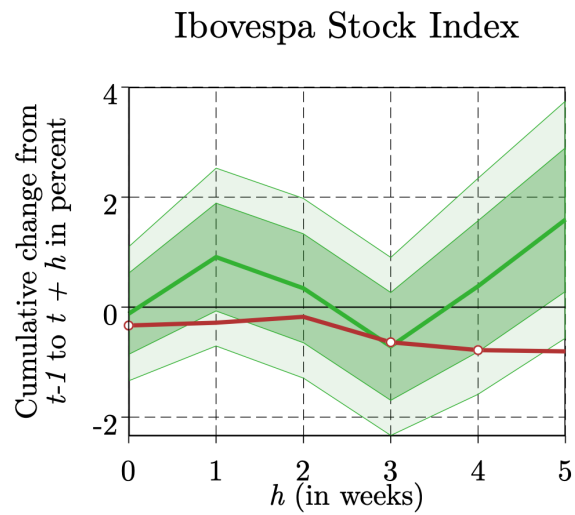
Legend: *effects of* ***-6.4 bps*** *shock in* ε_t^f, *effects of* ***+6.4 bps*** *shock in* ε_t^f

Contractionary Fiscal Stimulus or Expansionary Austerity?

Propagation Channels: Financial Markets in the short run





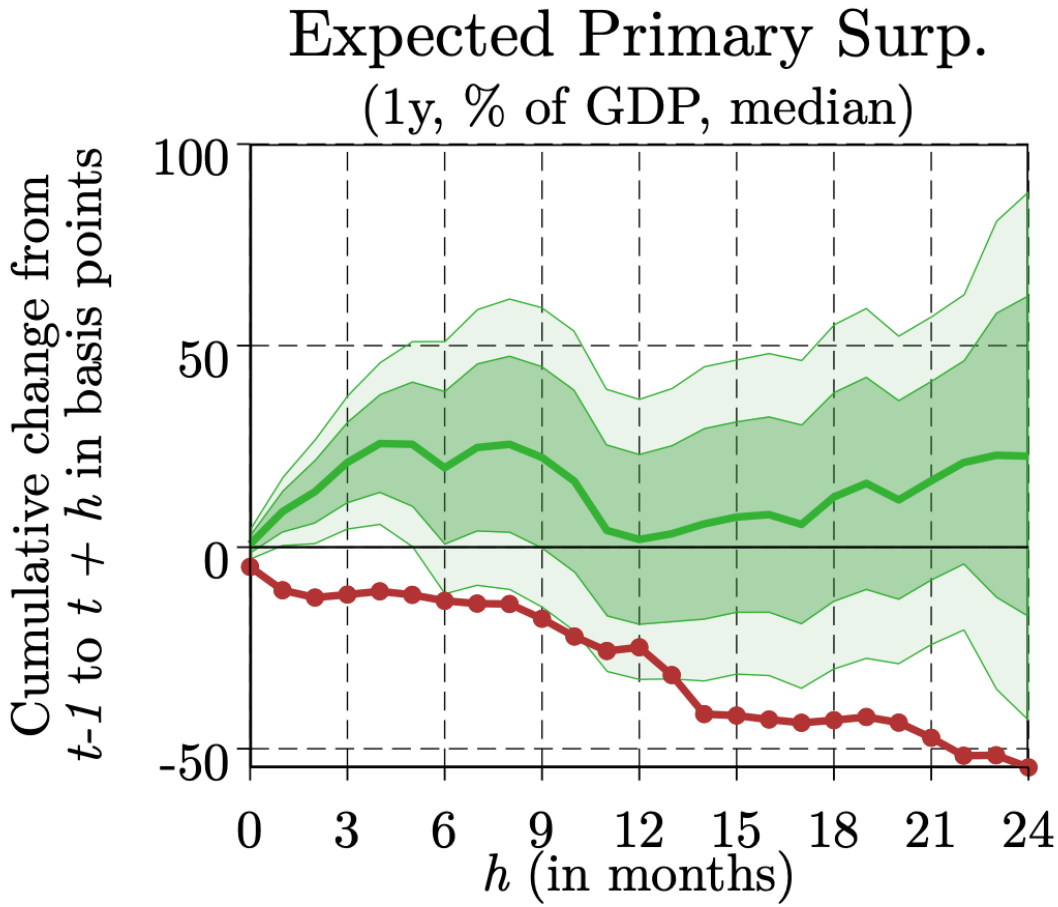


Legend: *effects of* ***-6.4 bps*** *shock in* ε_t^f , *effects of* ***+6.4 bps*** *shock in* ε_t^f

Contractionary Fiscal Stimulus or Expansionary Austerity?

Propagation Channels: Fiscal Expectations in the medium run

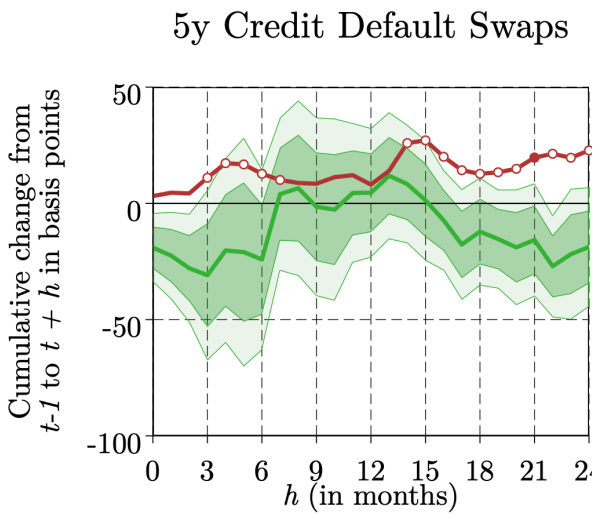
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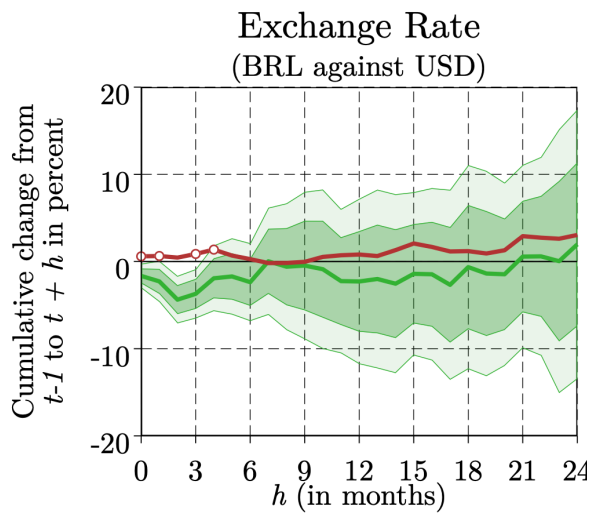


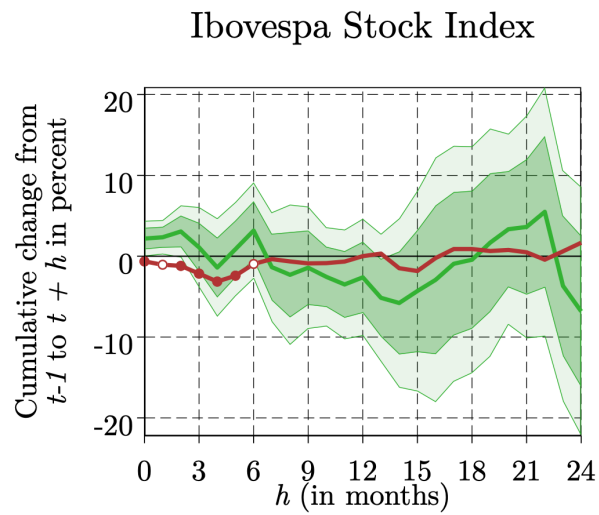
Legend: *effects of* ***-6.4 bps*** *shock in* ε_t^f, *effects of* ***+6.4 bps*** *shock in* ε_t^f

Contractionary Fiscal Stimulus or Expansionary Austerity?

Propagation Channels: Financial Markets in the medium run



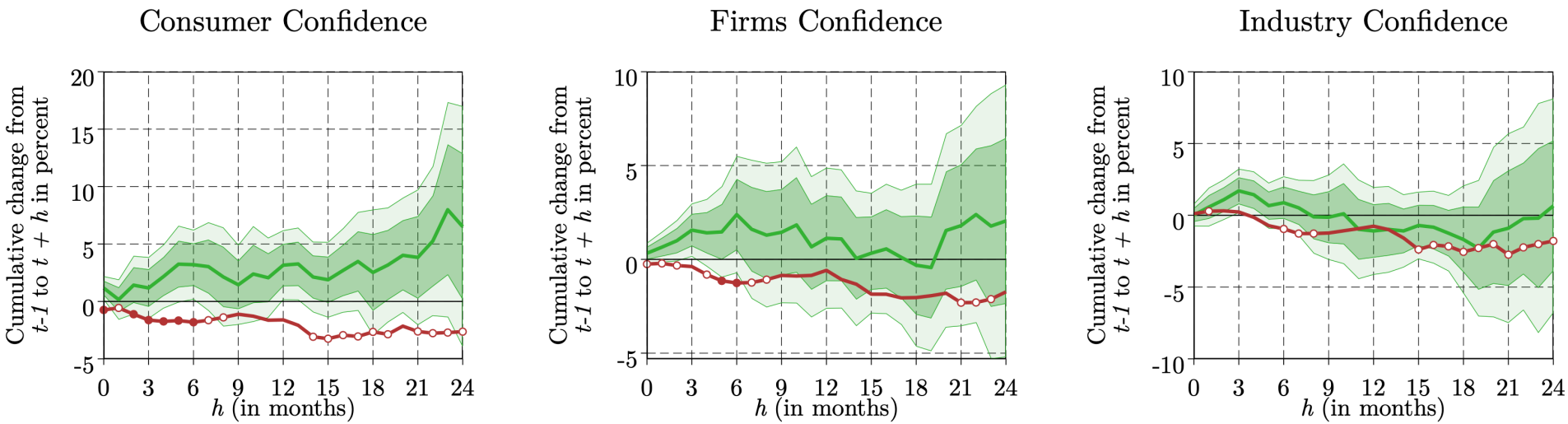




Legend: *effects of* ***-6.4 bps*** *shock in* ε_t^f , *effects of* ***+6.4 bps*** *shock in* ε_t^f

Contractionary Fiscal Stimulus or Expansionary Austerity?

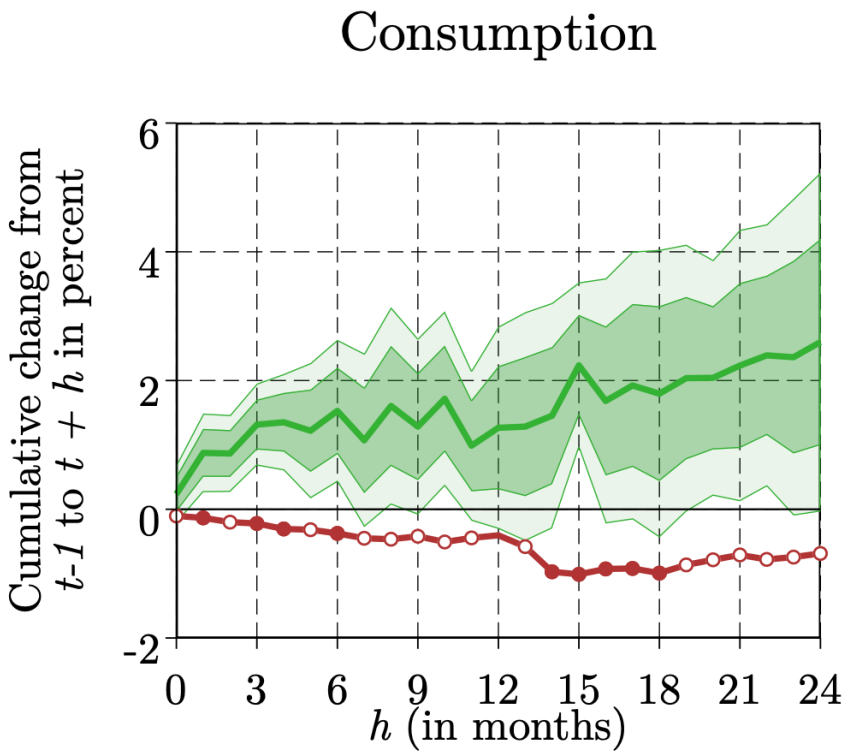
Propagation Channels: Confidence Indexes

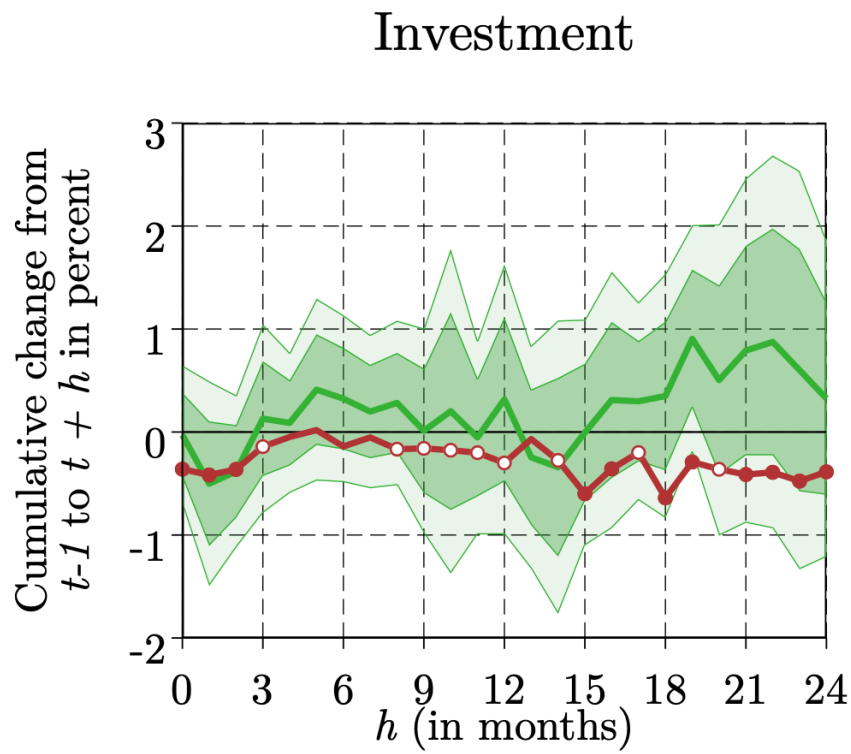


Legend: *effects of* ***-6.4 bps*** *shock in* ε_t^f , *effects of* ***+6.4 bps*** *shock in* ε_t^f

Contractionary Fiscal Stimulus or Expansionary Austerity?

Propagation Channels: Consumption and Investment

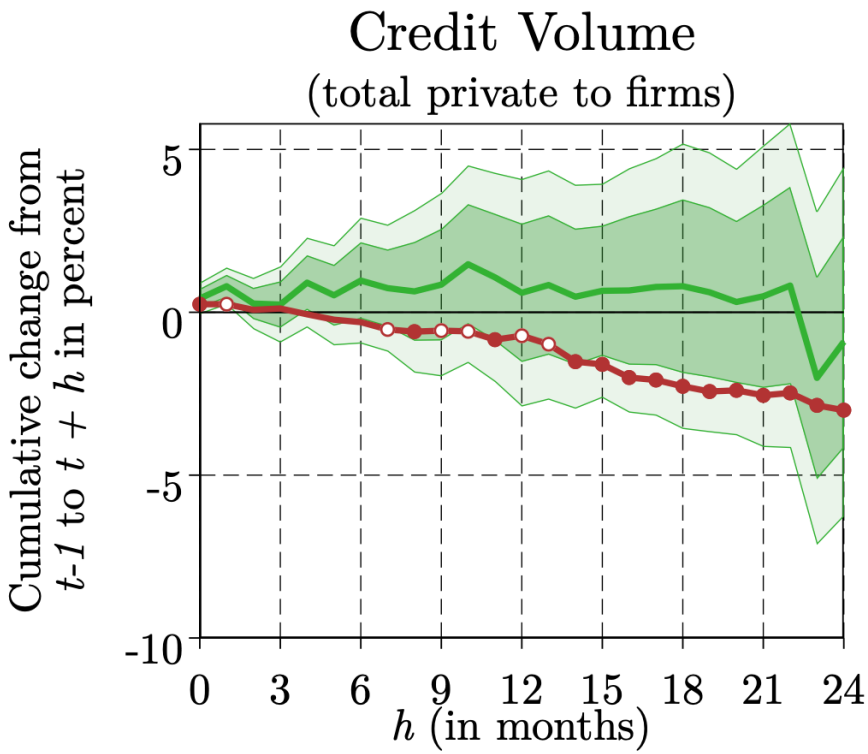


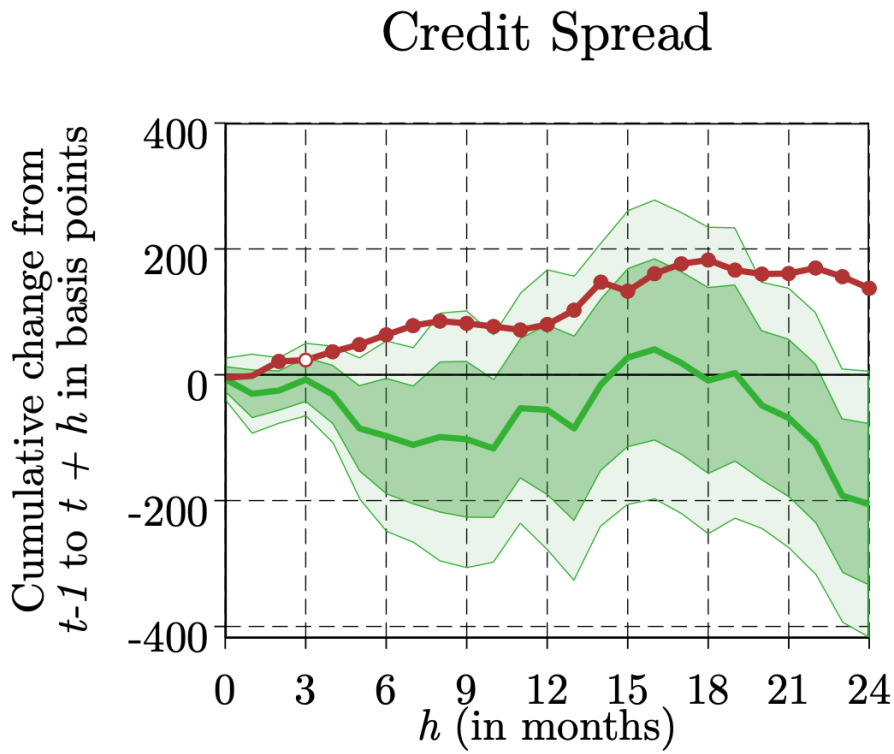


Legend: *effects of* ***-6.4 bps*** *shock in* ε_t^f, *effects of* ***+6.4 bps*** *shock in* ε_t^f

Contractionary Fiscal Stimulus or Expansionary Austerity?

Propagation Channels: Credit Conditions

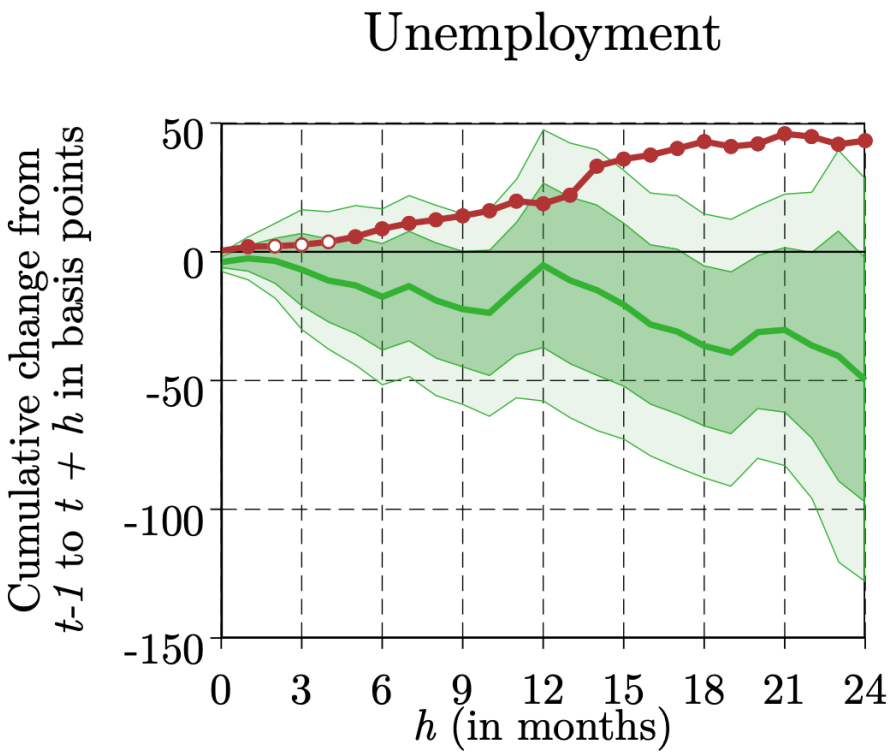


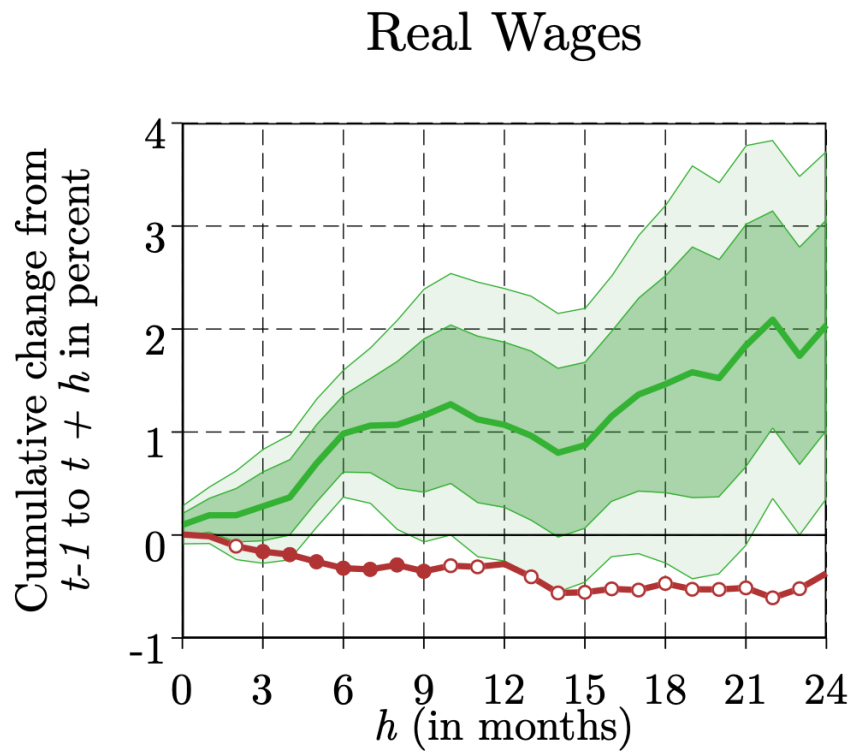


Legend: effects of ***-6.4 bps*** *shock in* ε_t^f, *effects of* ***+6.4 bps*** *shock in* ε_t^f

Contractionary Fiscal Stimulus or Expansionary Austerity?

Propagation Channels: Labor Market

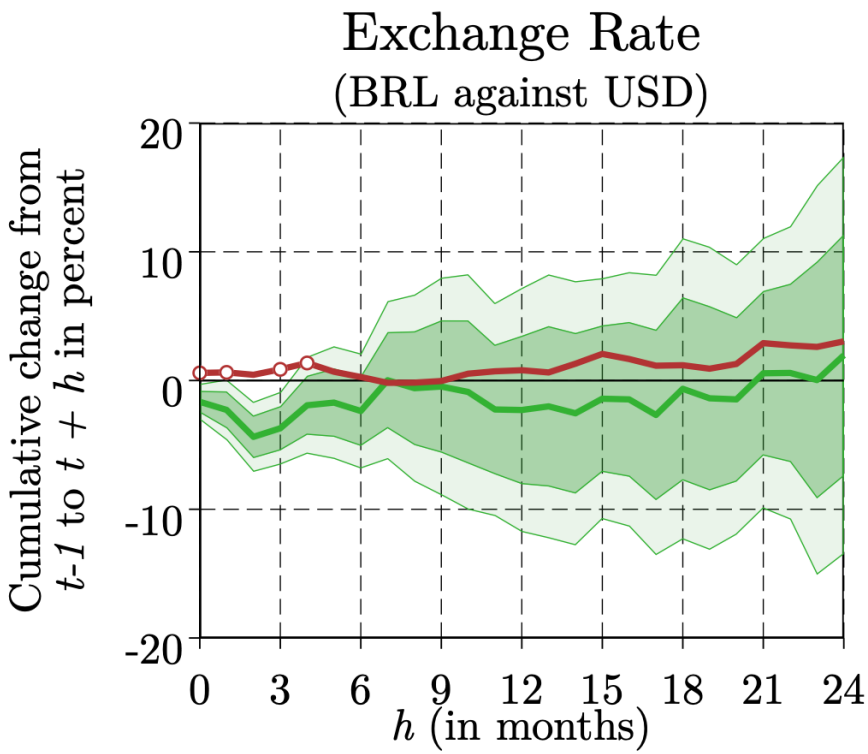


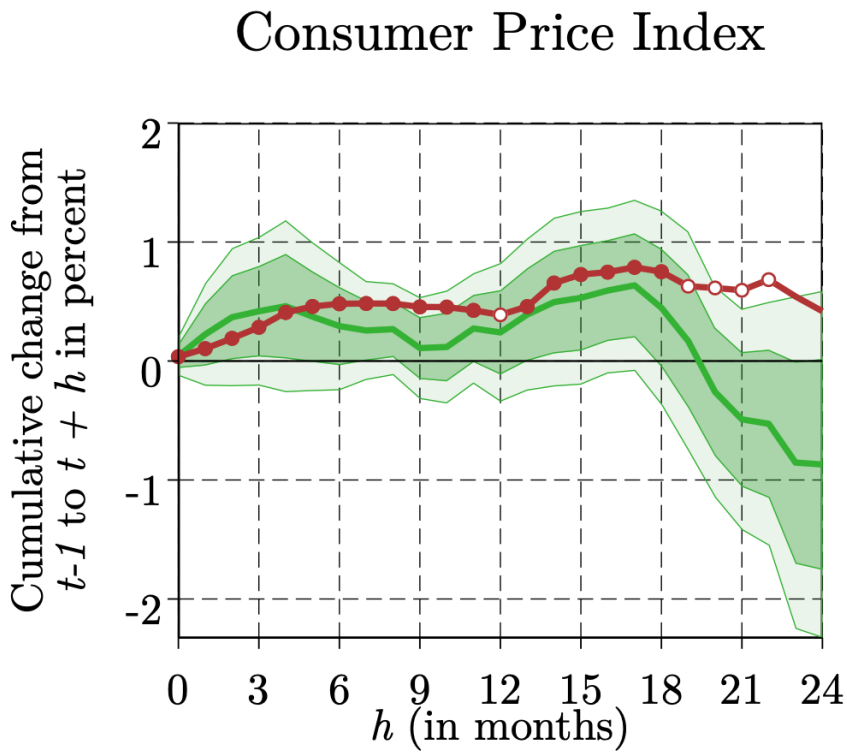


Legend: effects of ***-6.4 bps*** *shock in* ε_t^f, *effects of* ***+6.4 bps*** *shock in* ε_t^f

Contractionary Fiscal Stimulus or Expansionary Austerity?

Propagation Channels: Exchange Rate and CPI





Legend: effects of ***-6.4 bps*** *shock in* ε_t^f, *effects of* ***+6.4 bps*** *shock in* ε_t^f

Sensitivity Analysis

Sensitivity Analysis

A battery of robustness checks all

- **Fiscal Shock Construction** show
  - Using changes in **average expectations** or **orth. median**
  - Using **top 1 headline** as the criterion for fiscal event days
  - Using alternative **windows**, **split rules** and **aggregation**
- **Empirical Specification** show
  - Using **different lags** and **additional controls**
  - Using **HAC standard errors** for inference
  - Using **longest possible sample** or **pre-pandemic sample**

Conclusion

Contractionary Fiscal Stimulus (and Expansionary Austerity)

Concluding Remarks

- The **fiscal landscape** is **changing** globally
  - What are **the effects of fiscal policy** in a context marked...
  - ...by **concerns about debt sustainability**?
- **Brazilian** context: **HF** identification of **fiscal policy shocks**
- **We find**,
  - On average **fiscal stimulus** is **contractionary**
  - **Fiscal stimulus** increases the perception of **fiscal risk**
  - Results **originate** in periods of **higher fiscal concerns**
  - Also evidence that **austerity** is **expansionary**

Appendix

Literature

Relation to previous work and contributions back

- **Effects of fiscal policy in emerging markets**
  - Ilzetzki et al. (2013), Diniz (2018) & others
  - **Contribution**: *first to do HF ident. for an emerging economy*
- **High frequency identification of fiscal shocks**
  - Wiegand (2025) and Hazell and Hobler (2025)
  - **Contribution**: EM + *more comprehensive set of fiscal events*

Literature

Relation to previous work and contributions (cont'd)

back

- **Fiscal Policy and Asset Prices**
  - Croce et al. (2012), Pástor and Veronesi (2012) & others
  - **Contribution**: *asset prices as key to understand macro effects*
- **Shock identification using high frequency**
  - Gertler and Karadi (2015), Känzig (2021, 2023) & others
  - **Contribution**: *LLM to identify unstructured events from news*

A New Measure of Fiscal Shocks

Ingredient 2: Identifying days marked by fiscal events

back

Category 1: News about events with direct impact on public finances
2002-06-10 "Congress will demand the reversal of budget cuts"
2015-07-23 "Government lowers primary surplus target and loosens fiscal policy"
Category 2: Statements on fiscal policy by government officials
2005-11-09 "Dilma rules out fiscal adjustment proposed by the planning ministry"
2023-10-28 "Lula says zero deficit may not be reached and contradicts Fin. Ministry"
Category 3: Release of official reports on public finances
2012-12-09 "Dilma records first public accounts deficit and misses fiscal target"
2014-12-28 "Levy and Barbosa hunt for hidden expenditures in public accounts"

A New Measure of Fiscal Shocks

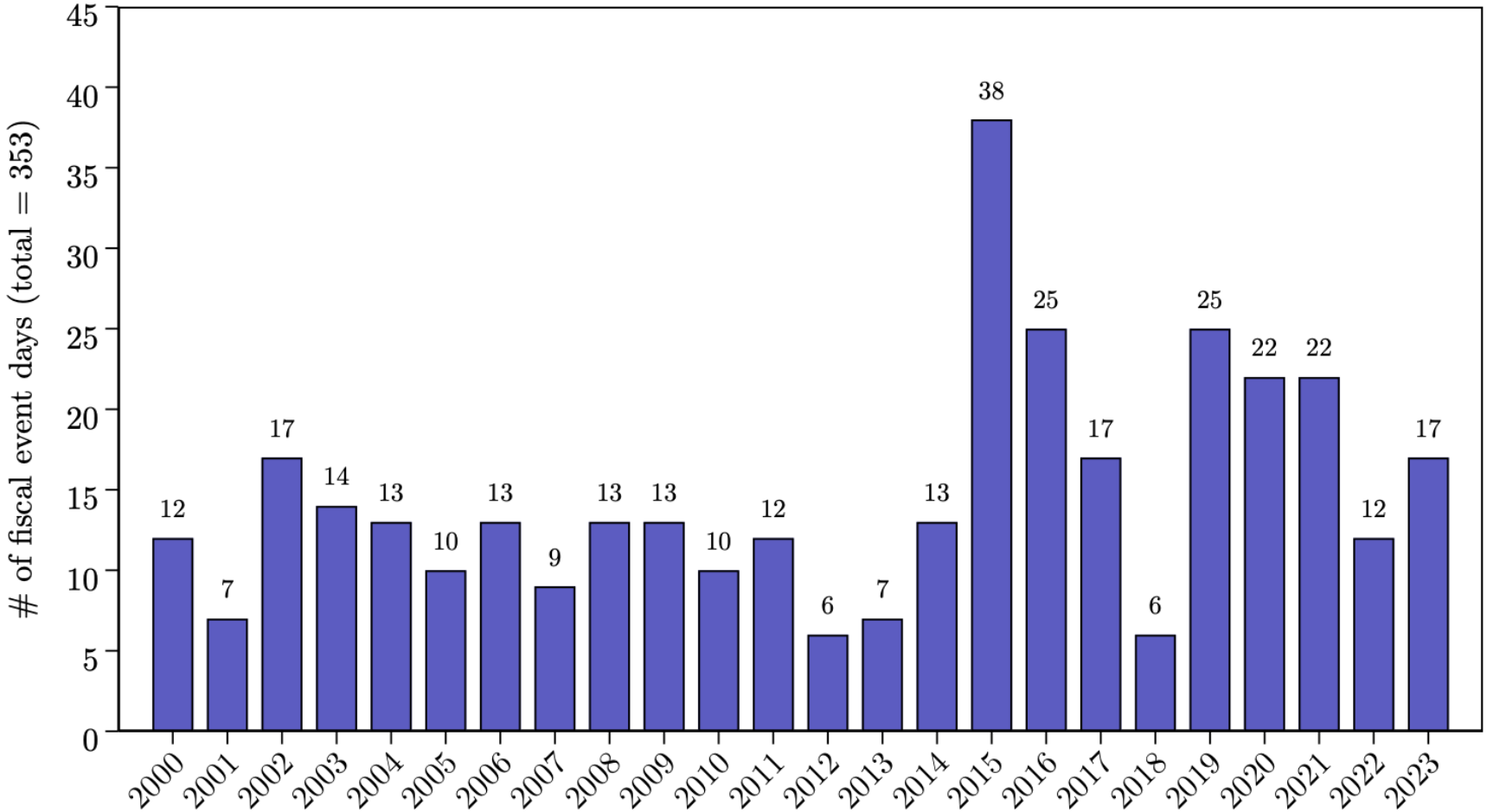
Ingredient 2: Identifying days marked by fiscal events back

- **Procedure overview**
  - Total of **25,037 news headlines** from **3jan2000** to **31dec2023**
  - Spread over **8,508 days** including weekends and public holidays
  - For prompt engineering we use **3 samples** of 1,000 headlines
  - Identified **2,080 fiscal headlines** (8,3% of total) over **1,668 days**
  - **Fiscal event day** if **2 or more top 3 headlines** are **fiscal**
  - **353 fiscal event days** ($\approx$ 1.2 fiscal event days/month) more

A New Measure of Fiscal Shocks

Ingredient 1: Identifying days marked by fiscal events (cont'd)

back



A New Measure of Fiscal Shocks

Combining the two ingredients to produce the shock series

back

- Let $\mathcal{D}^f$ denote the set of identified **fiscal event days**
- Let $\mathcal{D}^{fl}$ denote the set of **first** and **last** days of the weeks
- Define the **operator** $\bar{d}(d) \equiv \min \{j \in \mathcal{D}^{fl} \mid j > d\}$
- In a given day d the **fiscal shock** is given by,

$$\varepsilon_d^f = \begin{cases} 0, & \text{if } d \notin \mathcal{D}^f \\ \sum_{j=d}^{\bar{d}(d)} \delta \widehat{PS}_j^{m,1y} \div \sum_{j=d}^{\bar{d}(d)} \mathbb{1}\{j \in \mathcal{D}^f\}, & \text{if } d \in \mathcal{D}^f \end{cases}$$

- $\delta \widehat{PS}_j^{m,1y}$ = chg. in the median of 1y-ahead PS forecasts in day j
- **Aggregation** using the **sum** of daily shocks w/in the period

A New Measure of Fiscal Shocks

Key events behind selected *positive* shocks

back

		Shock
2003m2	Brazil's Lula May Cut Spending 7.5% to Trim Deficit	24.5
2020m11	Guedes Reinforces Push to Keep Spending Cap	11.9
2022m2	Brazil Posts Record Monthly Budget Surplus as Tax Income Jumps	10.5
2004m9	Brazil's Real Rises 2nd Day in 3 on Increased Surplus Target	7.9
2008m5	Brazil to Increase Surplus Target for Wealth Fund, Folha Says	7.3
2002m6	Brazil's Lula Promises to Heed Fiscal Targets, Fight Inflation	6.9
2021m7	Primary Deficit R$65.5B in June; Est. -R$70.1B	6.4
2017m11	Meirelles Said to Plan Talk W/AG on Petrobras Transfer of Rights	6.2
2012m2	Budget Cut Likely Below R$50B: Sources	5.4
2003m1	Brazil to Raise Primary Surplus to About 4% of GDP	4.8
2009m6	Brazil to Release Government Spending Plan in 2010, Estado Says	4.7
2023m6	Brazil Politics: Tax Reform Committee to Pitch Plan to Congress	4.2

A New Measure of Fiscal Shocks

Key events behind selected *negative* shocks

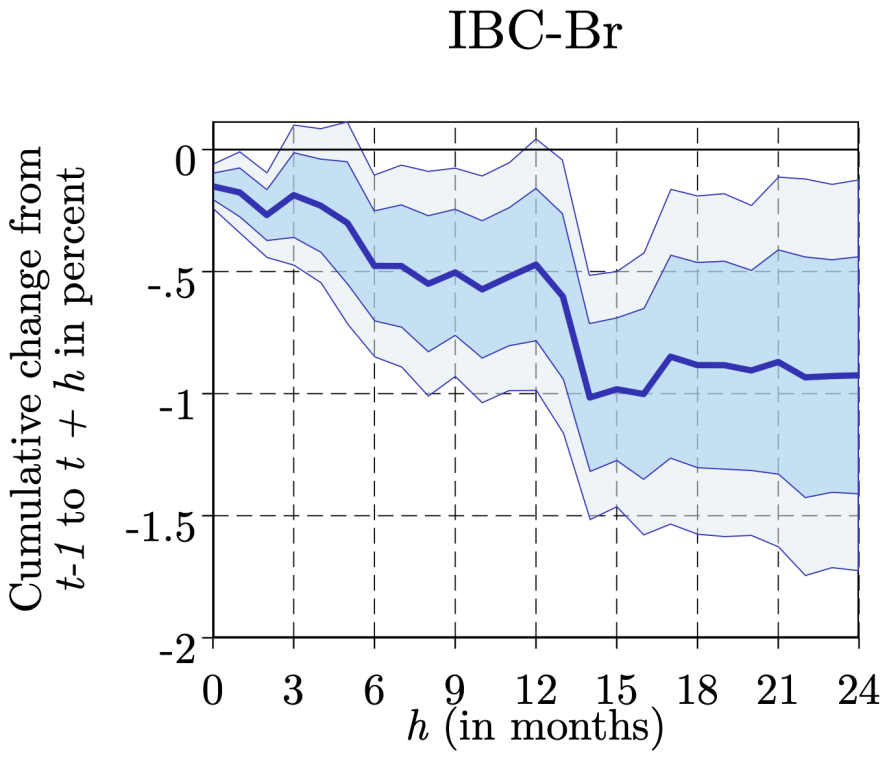
back

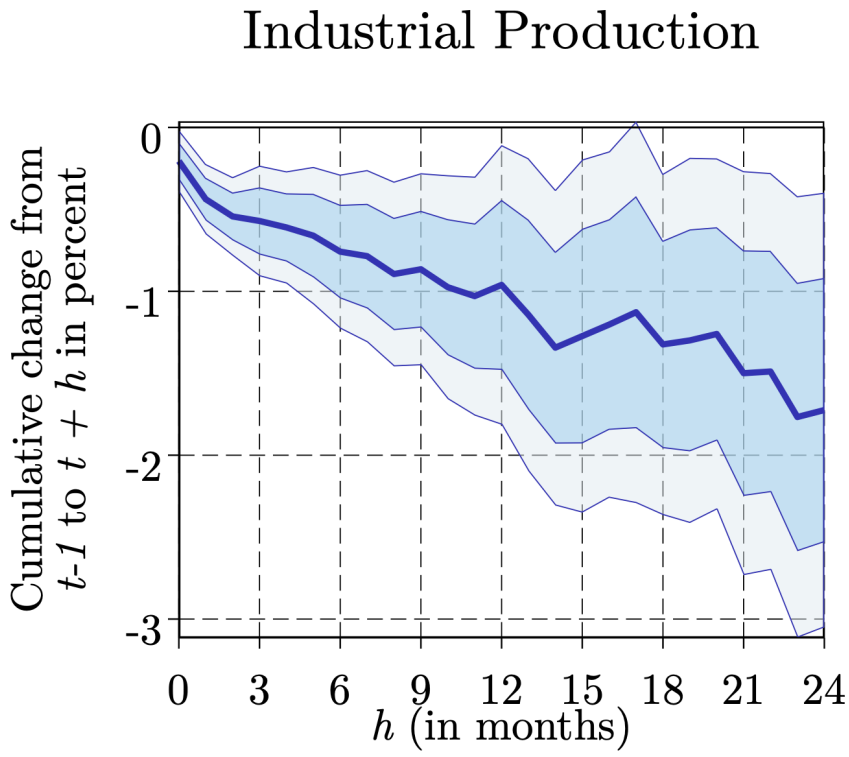
		Shock
2020m5	Brazil Economy Ministry Sees 2020 Fiscal Deficit in BRL 601.2B	-42.4
2015m9	Brazil's Savior, Joaquim Levy, Is Fed Up and Markets Are Nervous	-36.4
2009m4	Brazil Government Cuts 2010 Primary Surplus Target to 3.3%	-36
2022m11	Lula's Team Seeks to Exempt $32.4 Billion From Spending Cap	-32
2020m3	Brazil's Guedes Says Government Will Roll Over Municipal Debt	-27.9
2014m11	Brazil Government Seeks Budget Goal Change as Growth Slows	-27.7
2020m6	Brazil's Budget Gap Balloons w/ More Emergency Spending on Tap	-27.4
2022m12	Brazil Politics: Secret Budget in Focus as Key Votes Delayed	-24
2015m10	Brazil Assessing Measures to Stimulate Consumption: O Estado	-16.6
2016m7	Brazil Govt Targets 2017 Primary Budget Deficit of BRL139b	-15.3
2013m12	Gov't Central Primary Surplus R$28.8B in Nov; Est. +R$30B	-14.8
2020m9	Bolsonaro Revives Social Program With Controversial Funding	-13.3

Effects on Fiscal Variables and the Macroeconomy

IBC-Br and Industrial Production

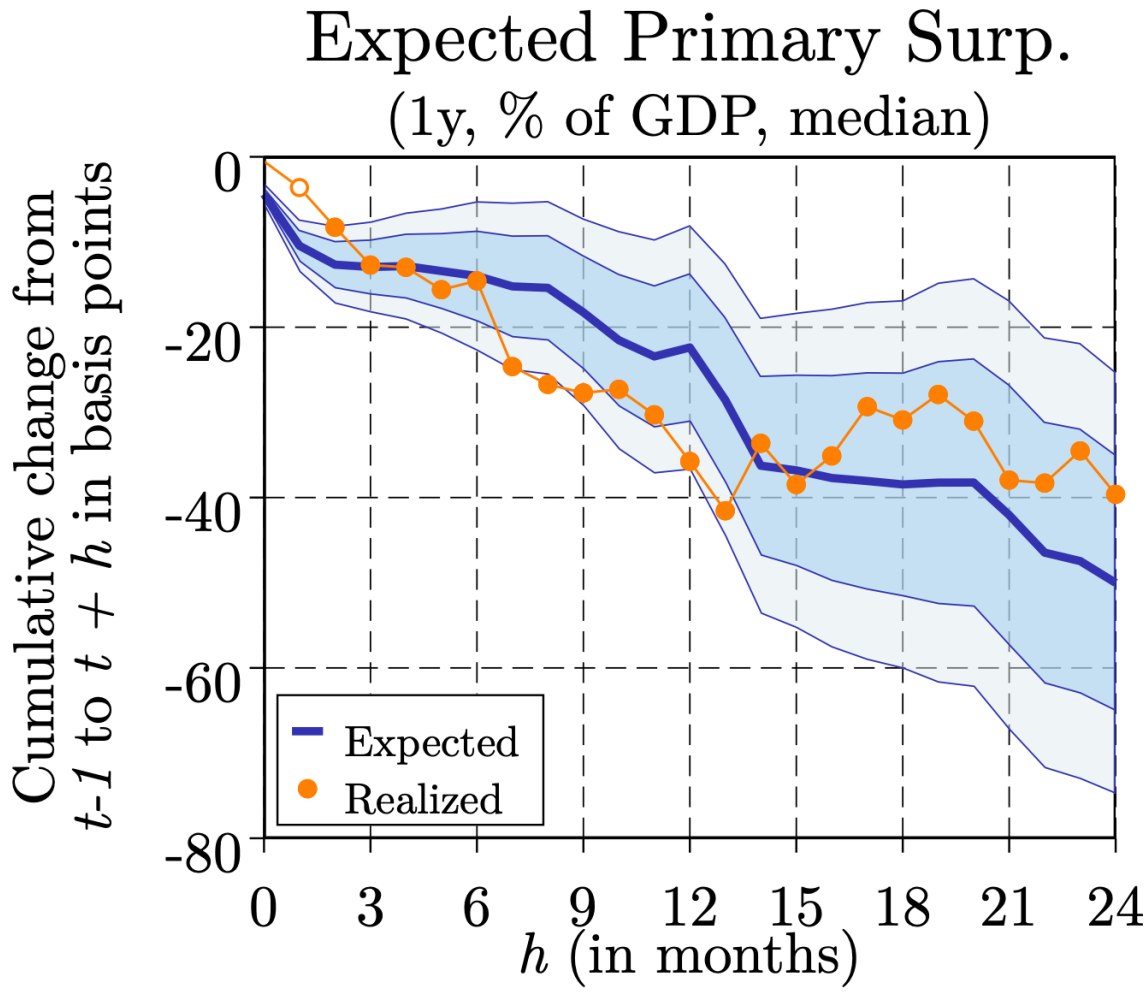
back





Wider Effects and Propagation Channels

Agents immediately decrease their expectations of 1y-ahead PS back

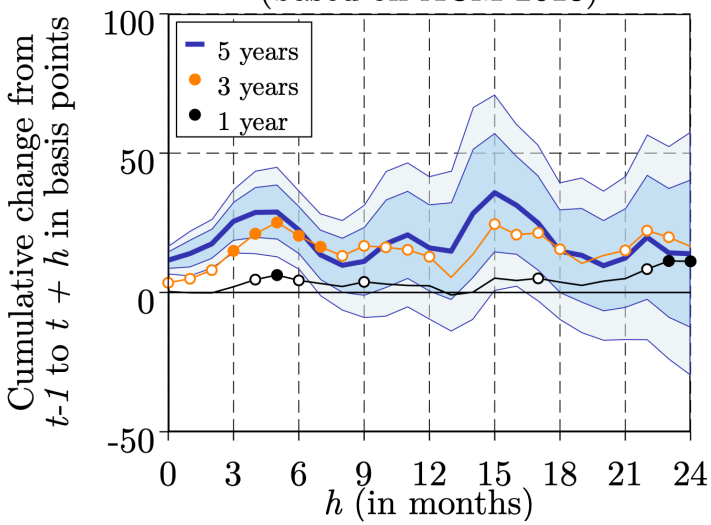


Wider Effects and Propagation Channels

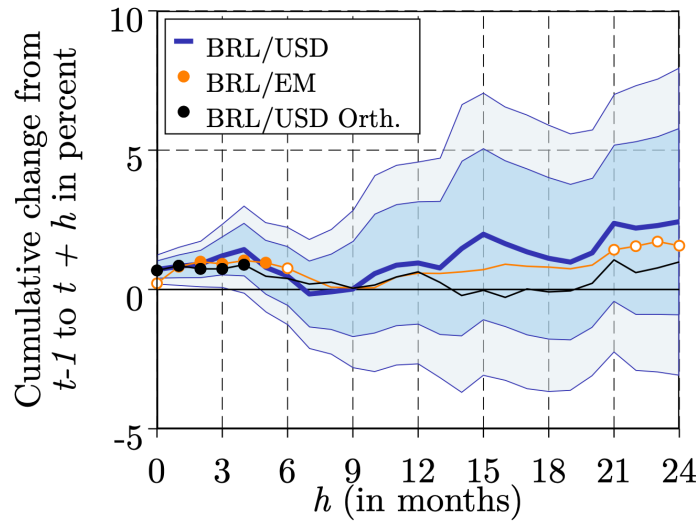
Financial markets react negatively

back

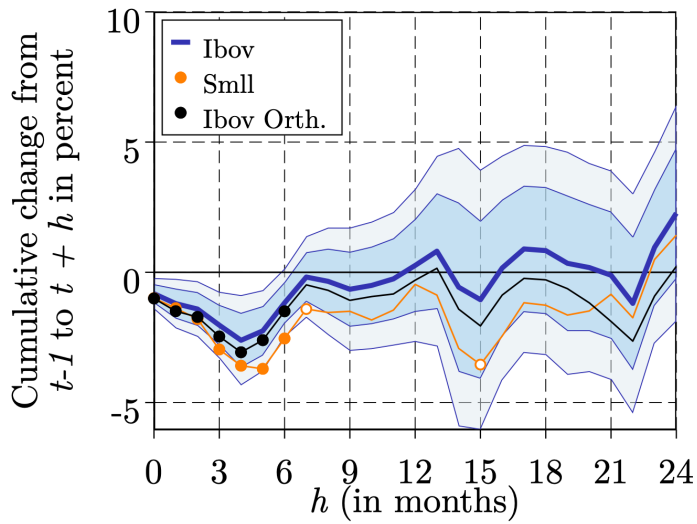
Treasury Premia
(based on ACM 2013)



Exchange Rates



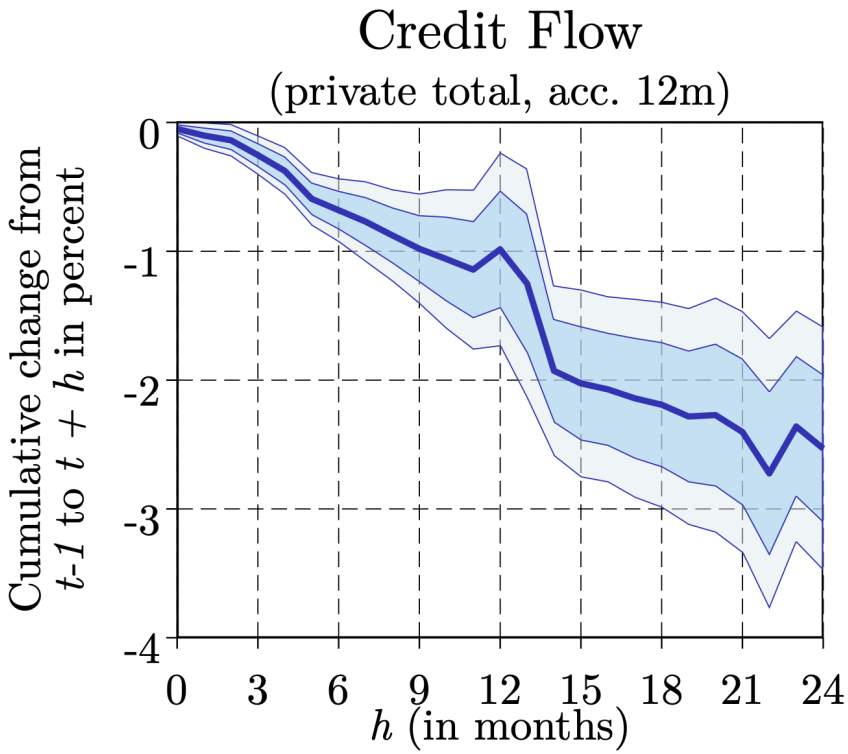
Stock Market Indexes

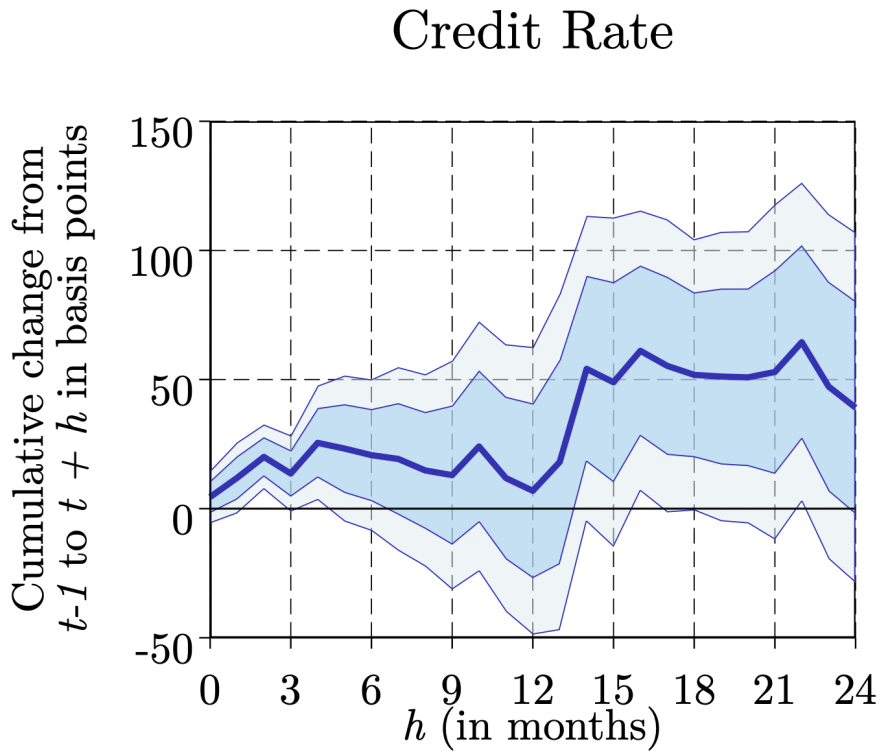


Wider Effects and Propagation Channels

Credit conditions deteriorate

back

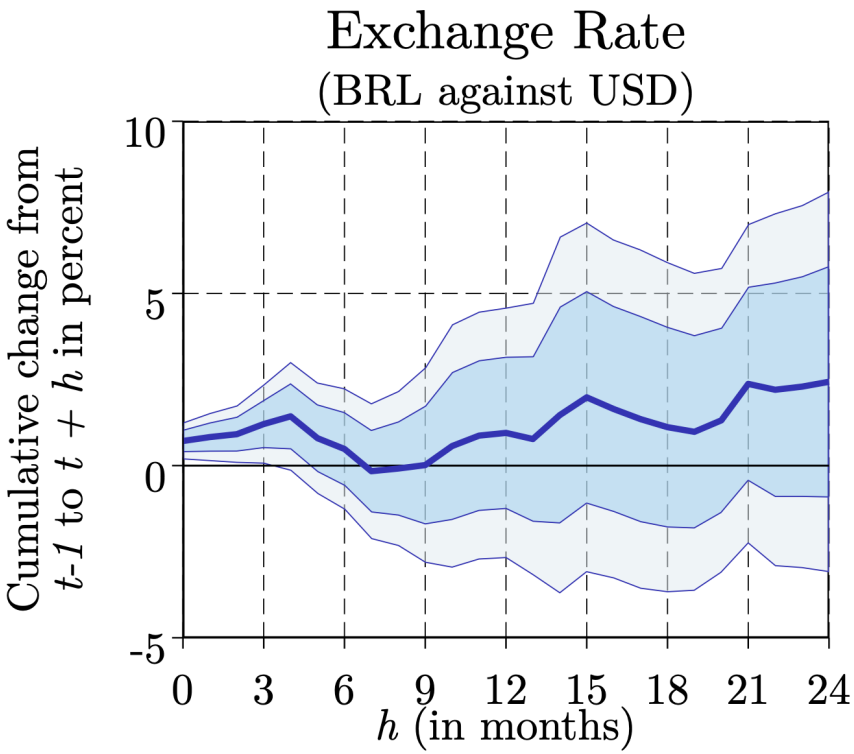


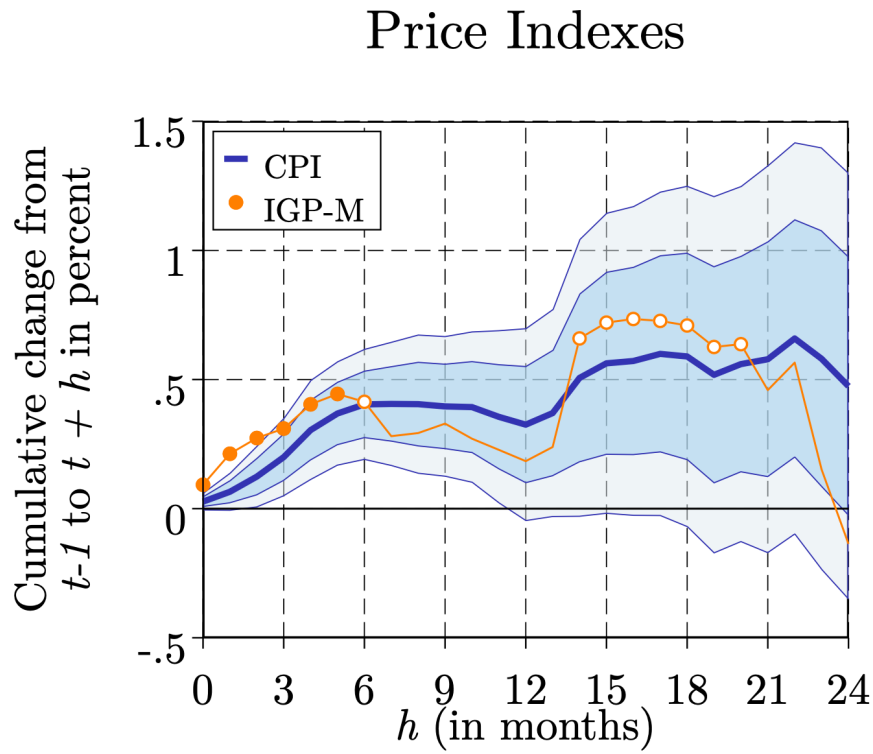


Wider Effects and Propagation Channels

But prices increase due to exchange rate depreciation

back

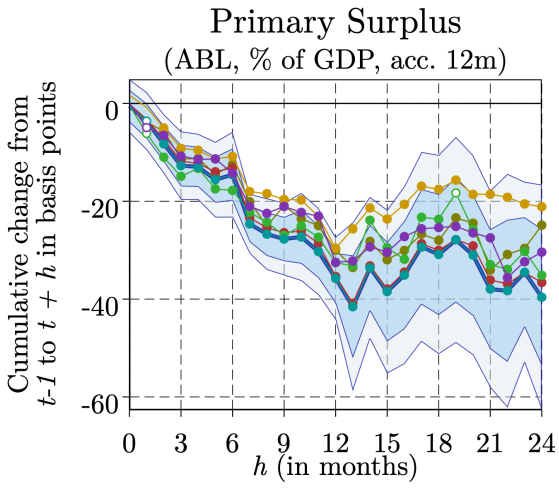


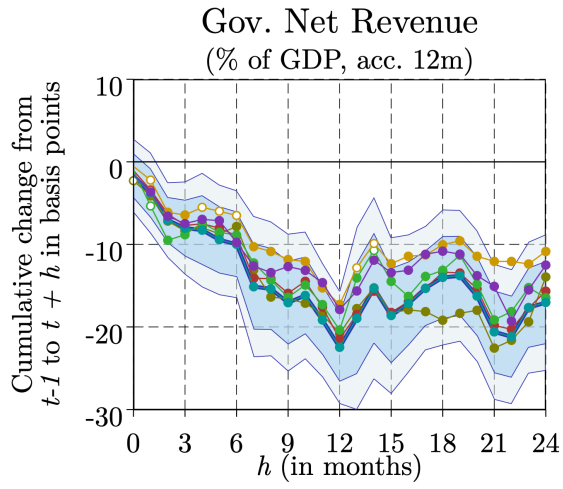


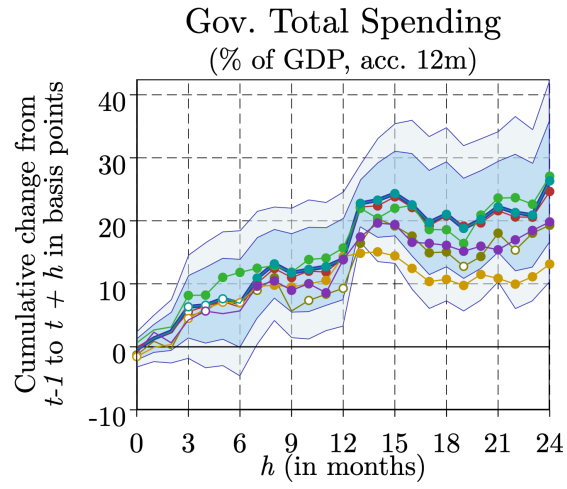
Sensitivity Analysis

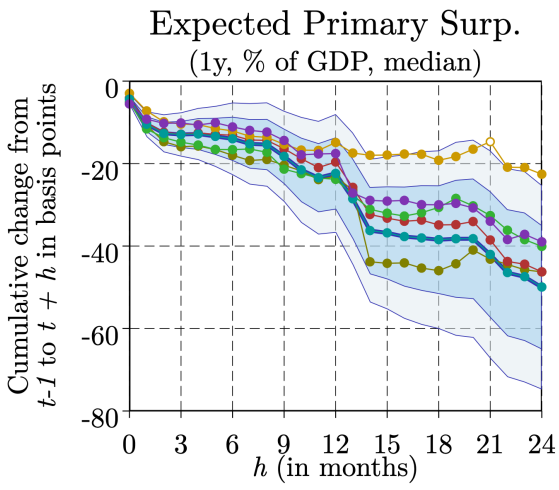
Robustness w.r.t. shock construction

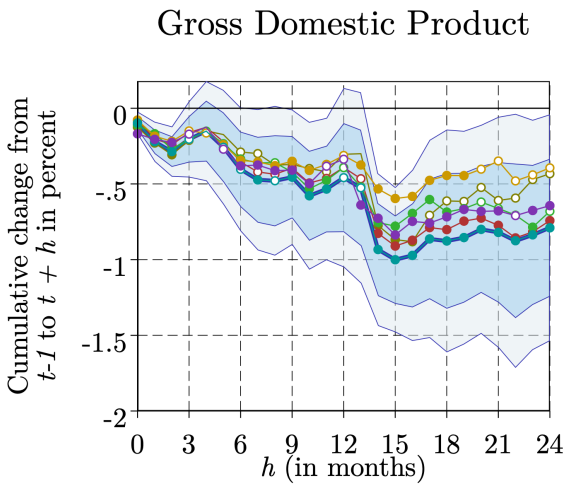
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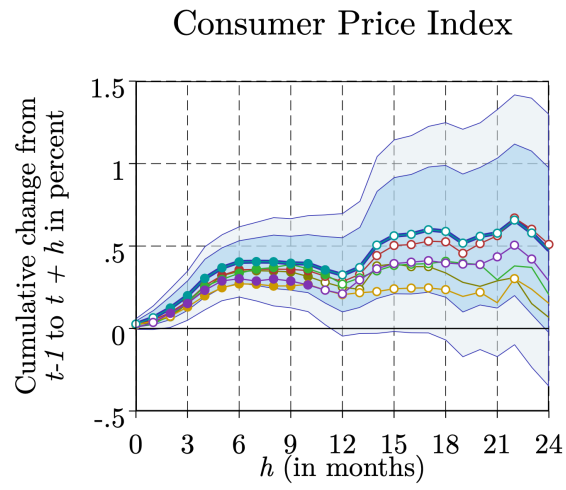












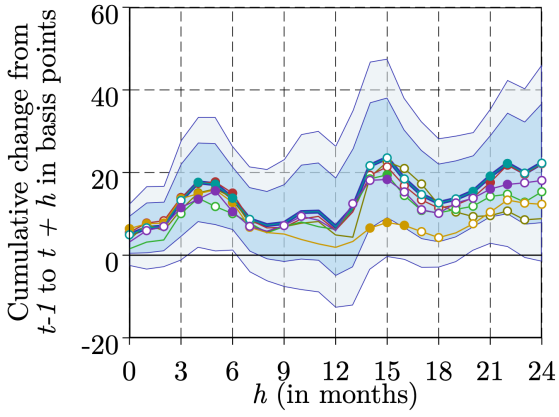
Legend: ***average*** *expectations,* ***orthogonalized*** *median,* ***top 1*** *news as fiscal event day, 1-day window, more weight to earlier events in the window, aggregation of surprises à la Gertler and Karadi (2015).*

Sensitivity Analysis

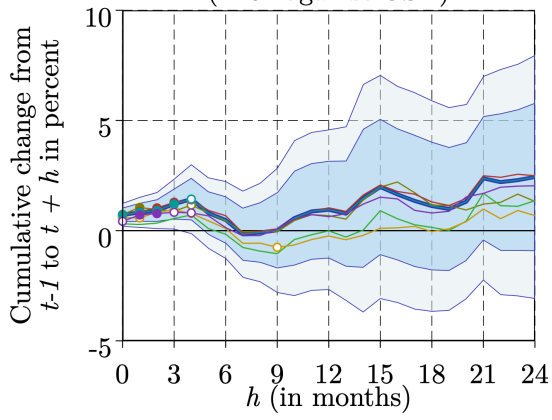
Robustness w.r.t. shock construction (cont'd)

back

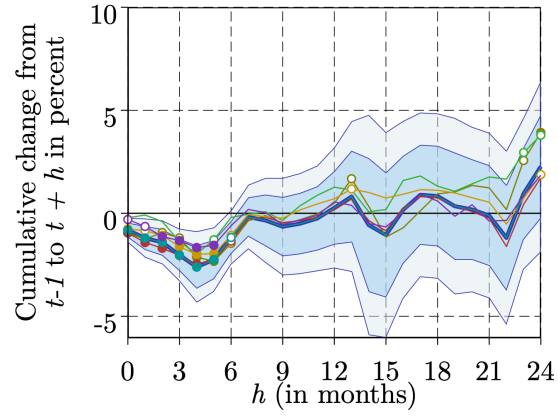
5y Credit Default Swaps



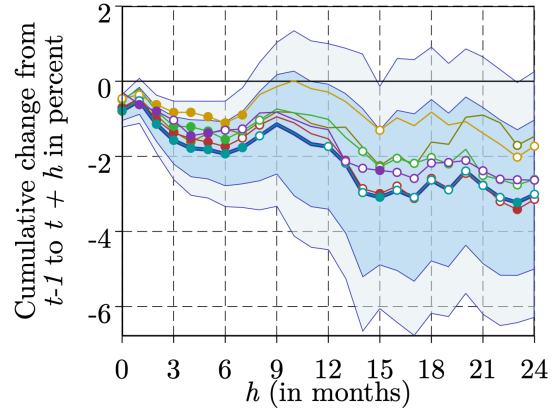
Exchange Rate
(BRL against USD)



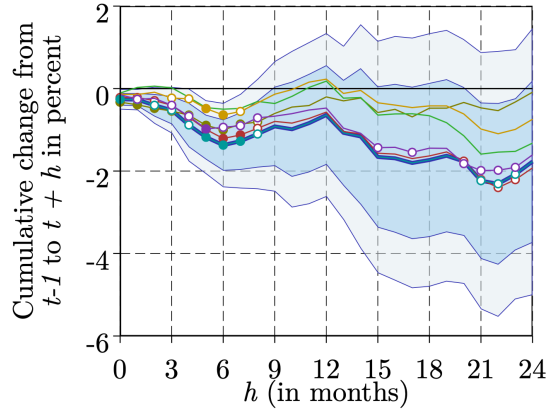
Ibovespa Stock Index



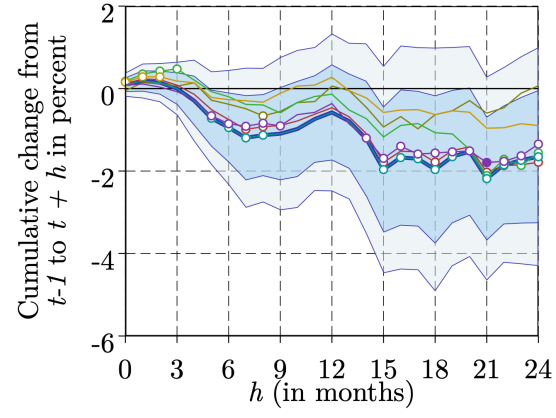
Consumer Confidence



Firms Confidence



Industry Confidence

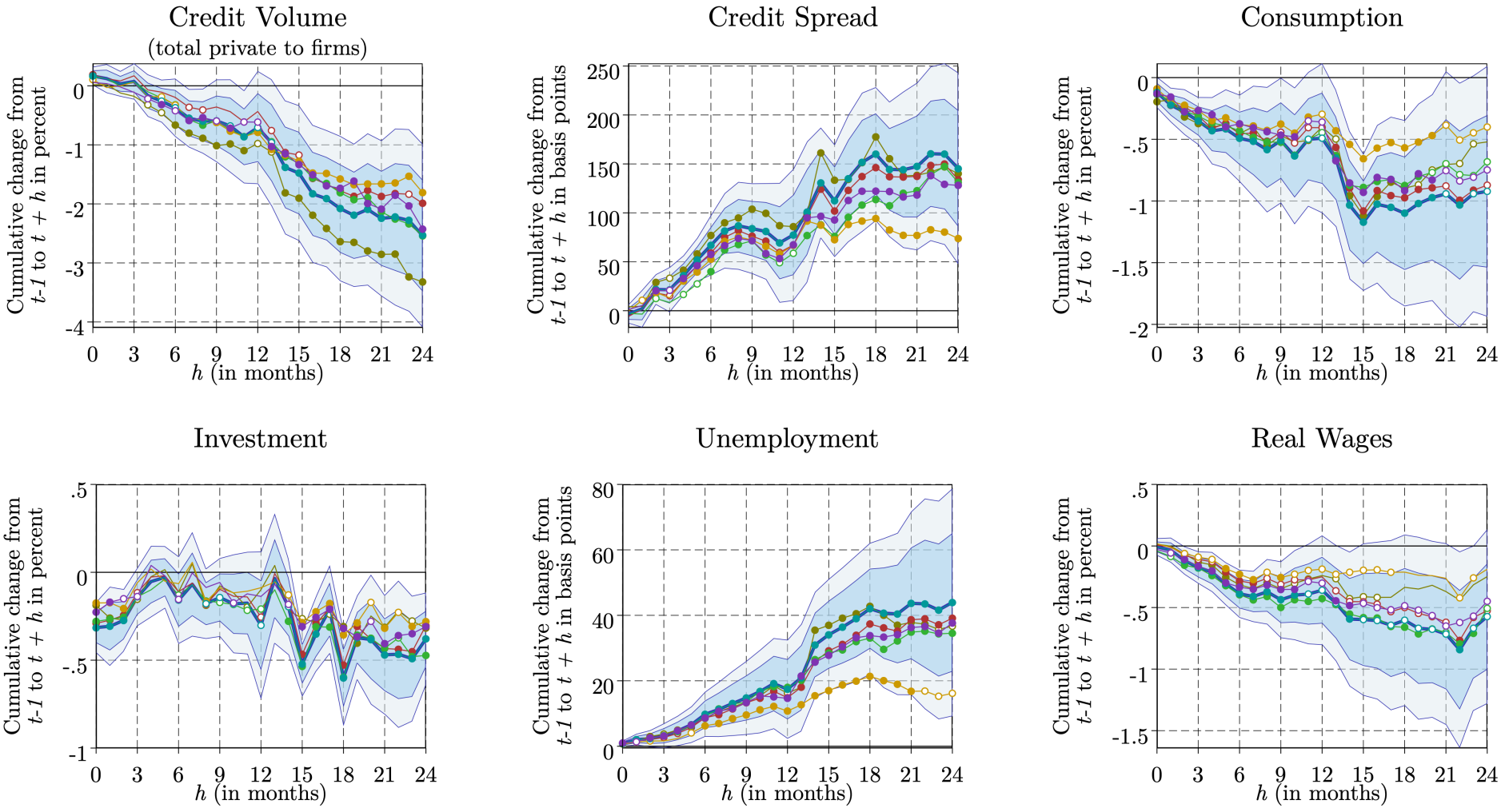


Legend: ***average*** *expectations,* ***orthogonalized*** *median,* ***top 1*** *news as fiscal event day, 1-day window, more weight to earlier events in the window, aggregation of surprises à la Gertler and Karadi (2015).*

Sensitivity Analysis

Robustness w.r.t. shock construction (cont'd)

back

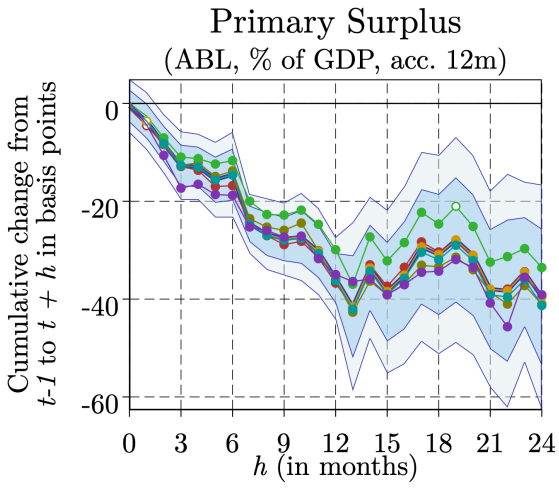


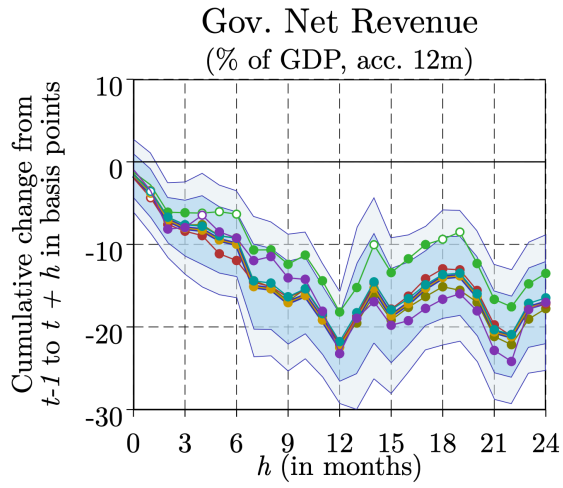
Legend: ***average*** *expectations,* ***orthogonalized*** *median,* ***top 1*** *news as fiscal event day, 1-day window, more weight to earlier events in the window, aggregation of surprises à la Gertler and Karadi (2015).*

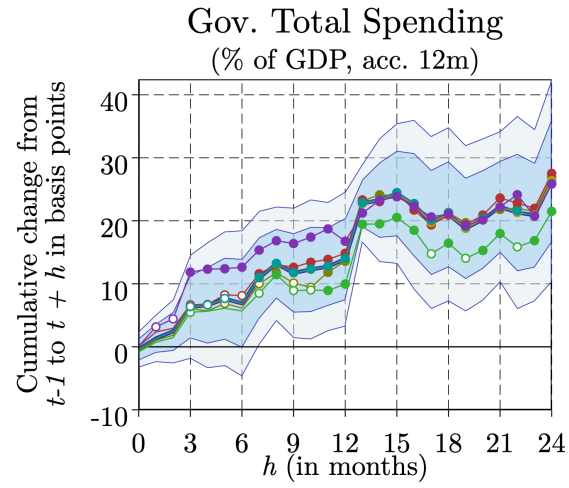
Sensitivity Analysis

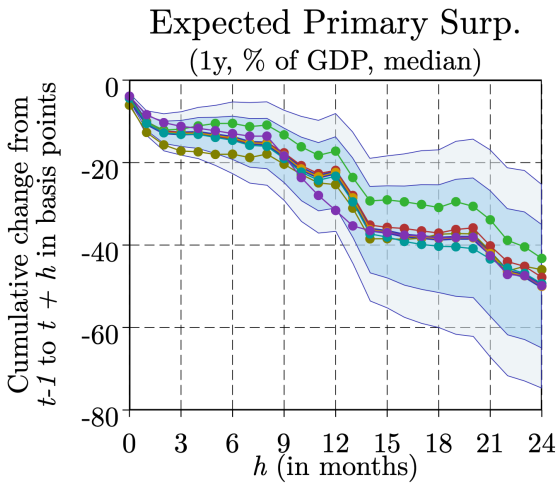
Robustness w.r.t. empirical specification

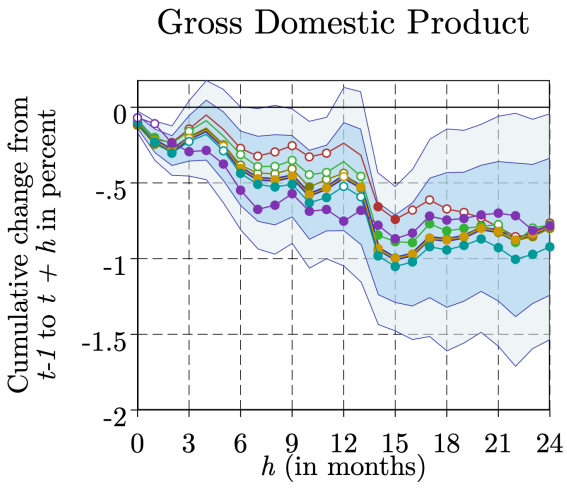
back

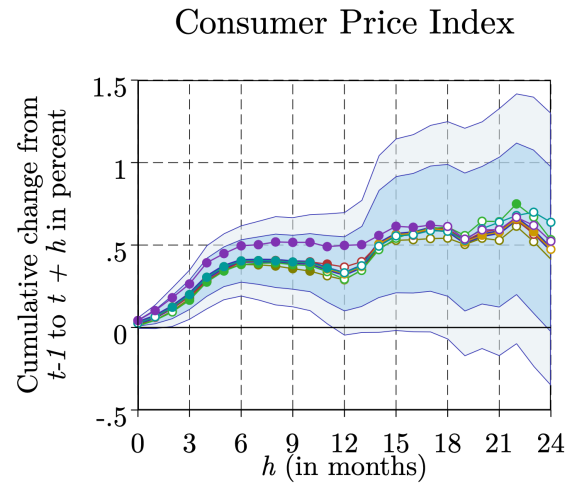












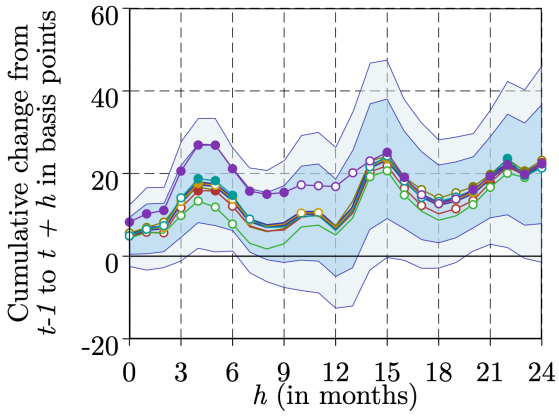
Legend: ***1 lag*** *as controls,* ***6 lags*** *as controls, controls for* ***1st PC of Brazilian macro factors****,* ***HAC*** *standard errors, use* ***longest possible sample*** *for each dependent variable, use* ***pre-pandemic sample*** *only.*

Sensitivity Analysis

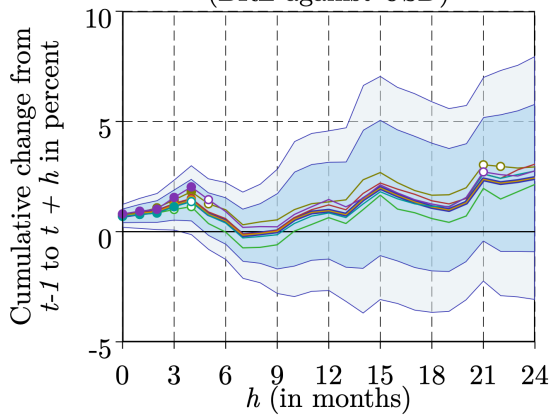
Robustness w.r.t. empirical specification(cont'd)

back

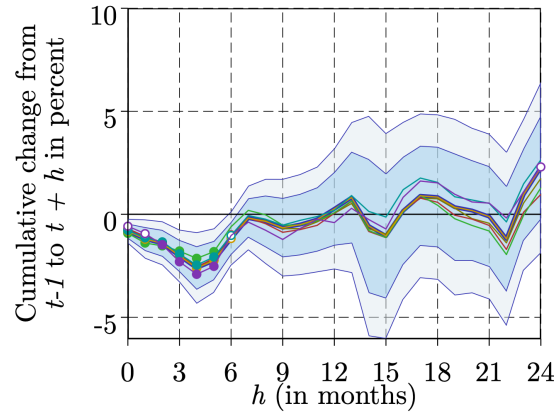
5y Credit Default Swaps



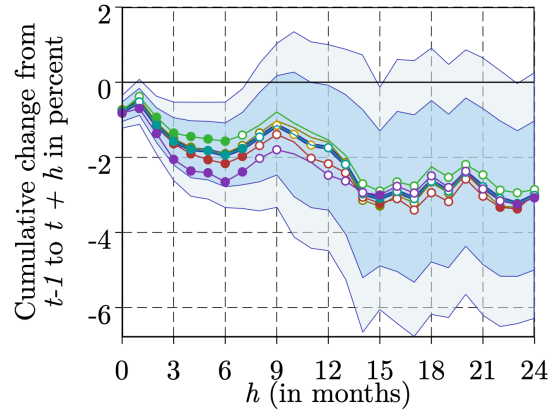
Exchange Rate
(BRL against USD)



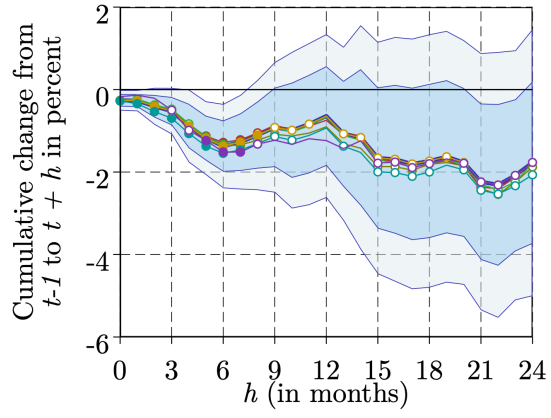
Ibovespa Stock Index



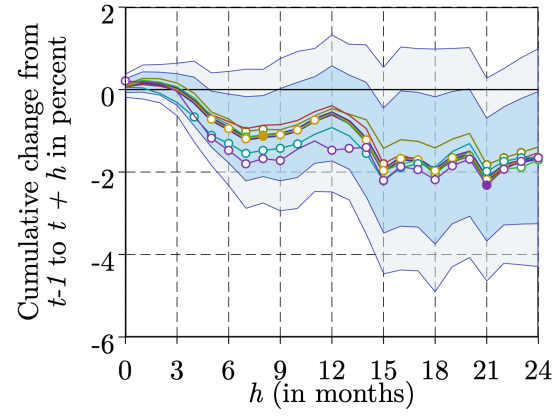
Consumer Confidence



Firms Confidence



Industry Confidence

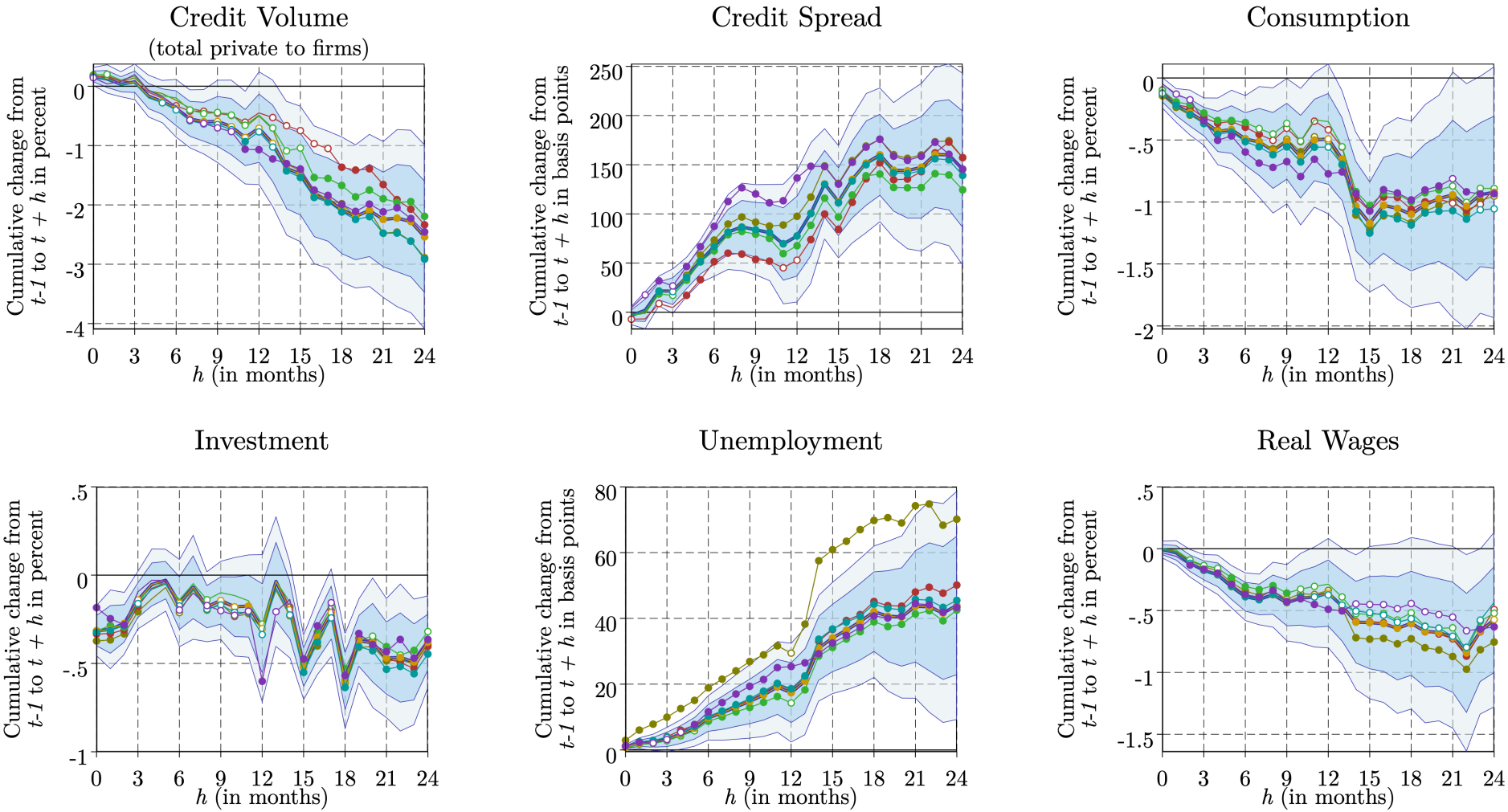


Legend: ***1 lag*** *as controls,* ***6 lags*** *as controls, controls for* ***1st PC of Brazilian macro factors****,* ***HAC*** *standard errors, use* ***longest possible sample*** *for each dependent variable, use* ***pre-pandemic sample*** *only.*

Sensitivity Analysis

Robustness w.r.t. empirical specification(cont'd)

back

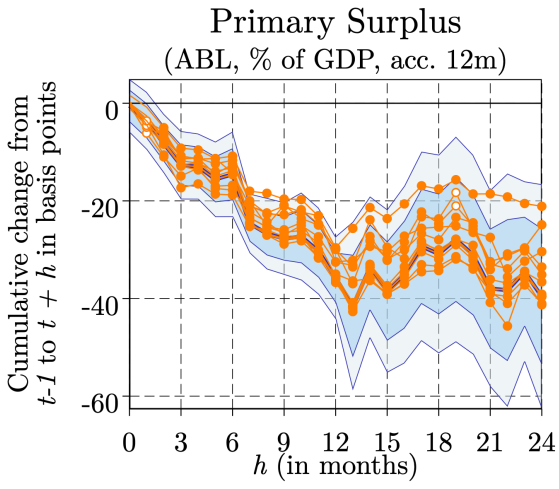


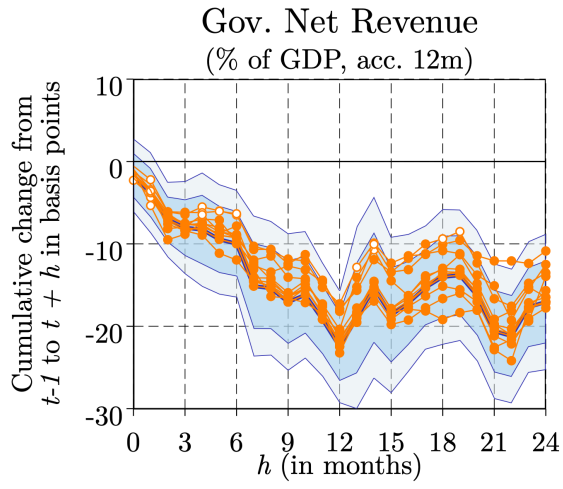
Legend: ***1 lag*** *as controls,* ***6 lags*** *as controls, controls for* ***1st PC of Brazilian macro factors****,* ***HAC*** *standard errors, use* ***longest possible sample*** *for each dependent variable, use* ***pre-pandemic sample*** *only.*

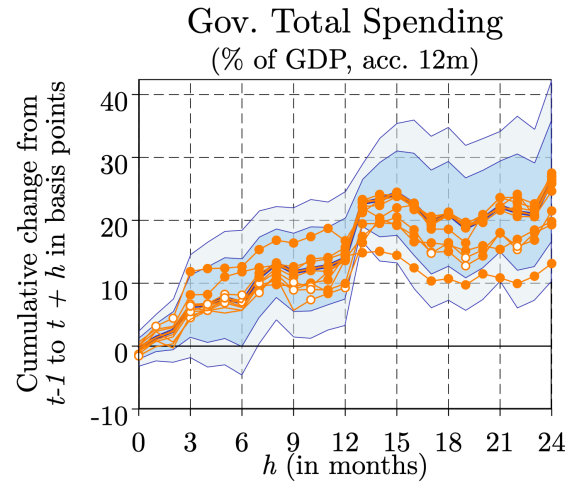
Sensitivity Analysis

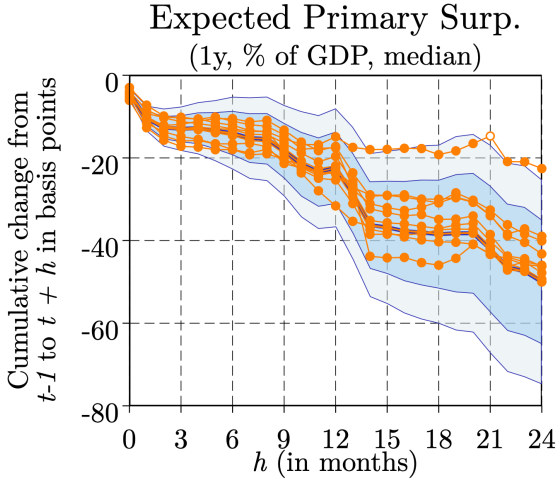
Robustness w.r.t. shock construction and empirical specification

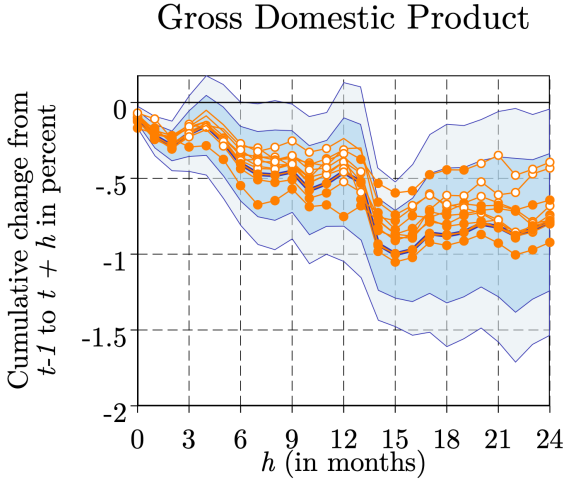
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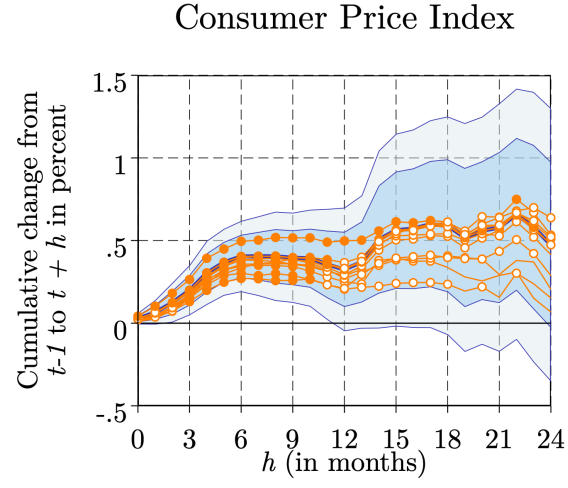










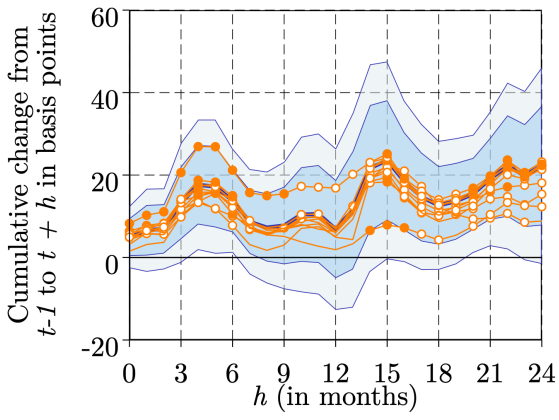


Sensitivity Analysis

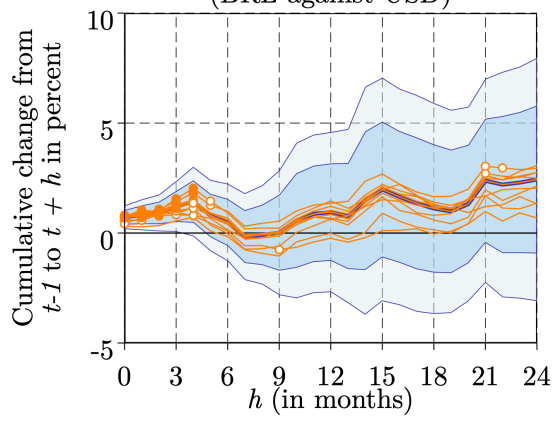
Robustness w.r.t. shock construction and empirical specification (cont'd)

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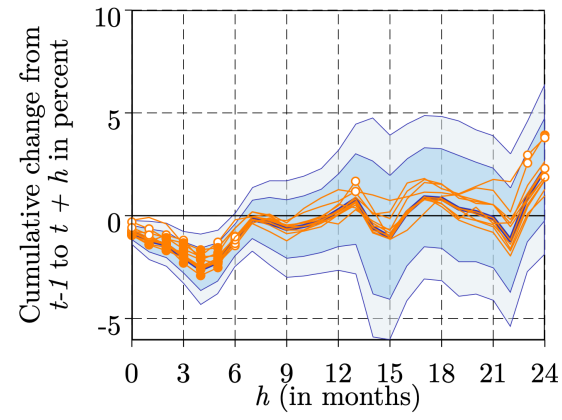
5y Credit Default Swaps



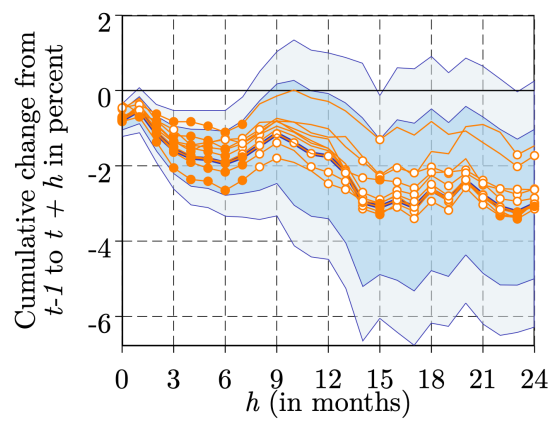
Exchange Rate
(BRL against USD)



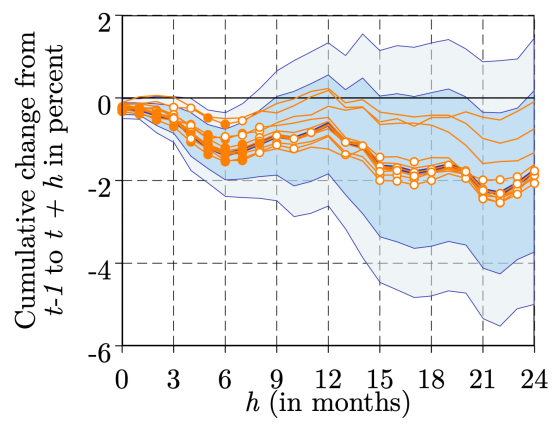
Ibovespa Stock Index



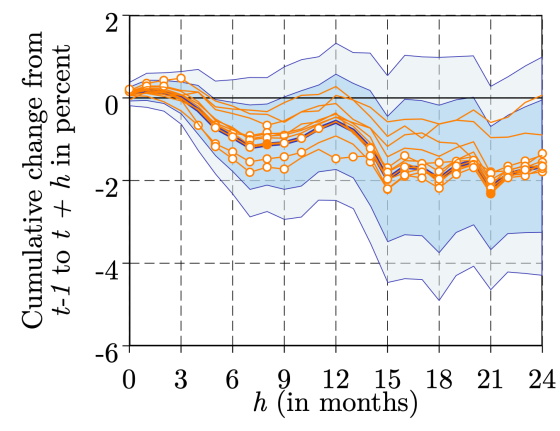
Consumer Confidence



Firms Confidence



Industry Confidence

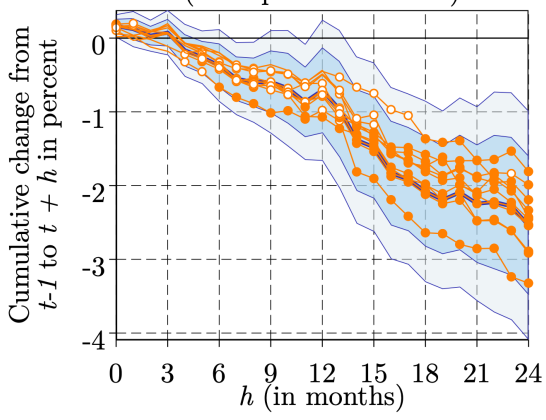


Sensitivity Analysis

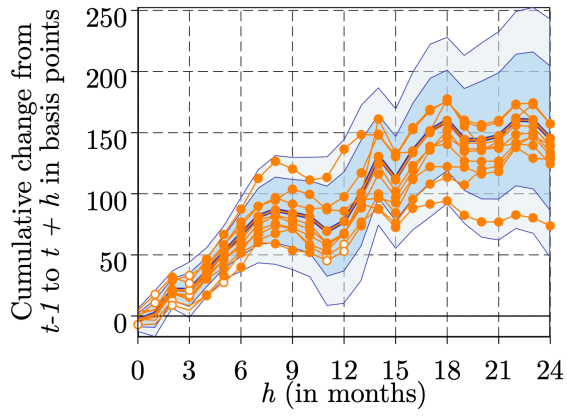
Robustness w.r.t. shock construction and empirical specification (cont'd)

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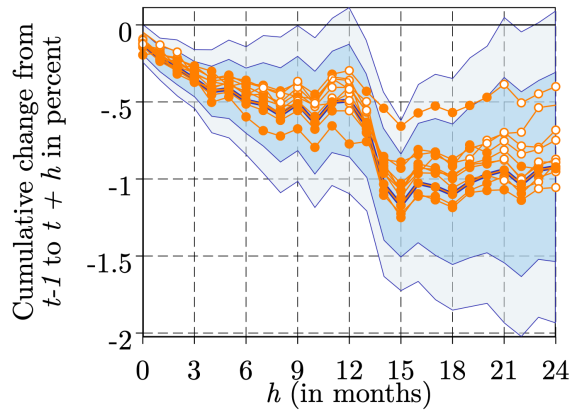
Credit Volume
(total private to firms)



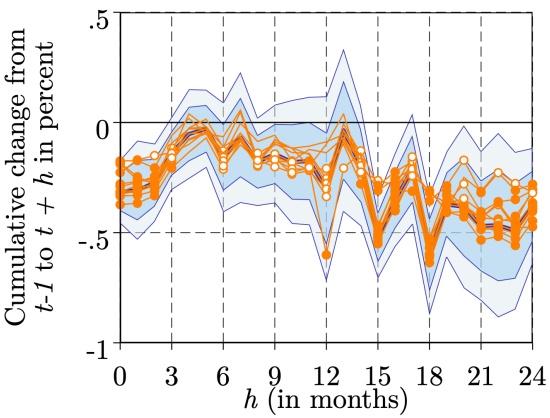
Credit Spread



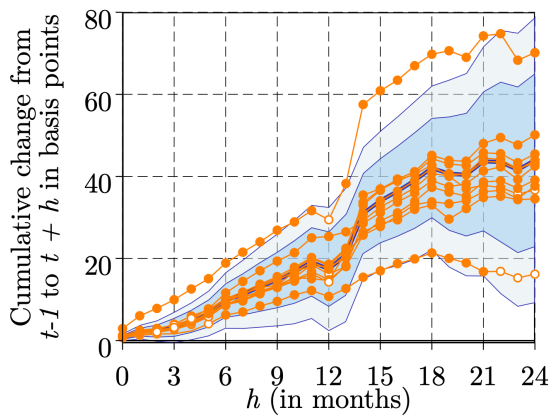
Consumption



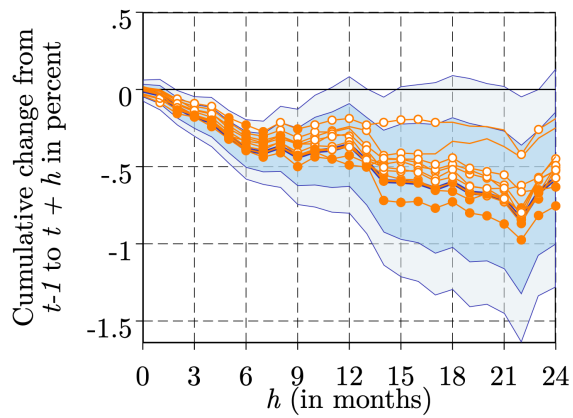
Investment



Unemployment



Real Wages



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