How Foreign Fiscal Policy Uncertainty Affects Productivity of European Countries *

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International Monetary Fund International Monetary Fund

Preliminary Draft - Do not cite or circulate without permission: July 20, 2026

Abstract

This paper examines how fiscal policy uncertainty in trading partner countries transmits to domestic firm productivity through export trade linkages. Using a news-based fiscal policy uncertainty index covering 189 countries combined with a shift-share instrumental variable approach, we first exploit French administrative firm-level microdata to establish the microeconomic foundations of this transmission. Heightened foreign fiscal policy uncertainty reduces firm-level labor productivity and investment, with effects concentrated among the least productive firms. The transmission mechanism varies by firm size: leverage amplifies the adverse effects for small and medium firms, whereas export exposure is the amplifier for large firms. We then extend the analysis to 14 European countries using industry-level microaggregated data, finding that a one standard deviation increase in foreign fiscal policy uncertainty reduces aggregate total factor productivity by approximately 1.1 percent. This decline is driven entirely by within-firm productivity deterioration rather than reallocation across firms, widening domestic productivity dispersion rather than generating a uniform downward shift.

JEL *classification*: E61, E62, E65

Keywords: Productivity, fiscal policy uncertainty, shift-share analysis, spillover

*The views expressed herein are those of the authors and do not necessarily represent the views of the Bank of England or its committees, the IMF, its Executive Board, or IMF management. We thank Kiyotaka Sato and conference and seminar participants at the Bank of England, 5th Finance and Productivity (FINPRO) Conference, King's College London, and UAB for useful comments and suggestions.

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1 Introduction

It is well-documented that firms hesitate to invest in the face of uncertainty. A substantial body of literature documents this tendency that firms delay investment decisions —or "wait-and-see." This behavior arises from the irreversibility of investment; in the face of uncertainty, the benefits of increased information gained by waiting outweighing the extra returns from early commitment in the face of uncertainty (see, for instance, Bernanke (1983), Pindyck (1988), Caballero (1991), Bar-Ilan and Strange (1996)). Empirical evidence strongly supports this behavior. For example, immediately following the announcement by the U.S. administration regarding sweeping tariff hikes to its trading partners, the U.S. trade policy uncertainty sharply rose by as much as [15] standard deviation (Caldara et al. (2020)) and business confidence declined sharply across the globe. In the academic literature, following the seminar work of Baker et al. (2016), various studies exploring different dimensions of uncertainty have demonstrated the negative impact of uncertainty on investment.[1]These studies show that an increase in uncertainty in the economy generates a long-lasting and persistent decline in economic activity and a rise of cost of capital, with the decline in industrial production of as much as [0.5] percent relative to the baseline in response to a one standard deviation uncertainty shock.

What has been overlooked in this literature, to our understanding, is to what extent such persistently depressed private investment induced by uncertainty would affect productivity. As Syverson (2011) mentions clearly in a comprehensive survey of findings of the literature, it is challenging to establish a clear causal link between specific factors and productivity, as "the causes are manifold, and differ depending on the particular setting." This reflects the important role of external factors such as business regulations and tax system that are outside of firms' control in determining productivity (see, for instance, Hsieh and Klenow (2009)). At the same time, numerous studies confirm the importance of investing in high-quality inputs, such as labor or capital– or factors that firms often have direct control over–in contributing to higher productivity. This link is particularly stronger in the age of information technology, with firms investing in intangible capital such as research and development and in human capital show higher productivity growth (see, for instance, Bresnahan et al. (2002), Corrado et al. (2009), Crouzet et al. (2022)). Studies show that

[1]See, for example, Caldara et al. (2020) for trade policy uncertainty index, Caldara and Iacoviello (2022) for geopolitical risk, Ahir et al. (2022) for country-specific economic policy uncertainty, or the world uncertainty index, Jurado et al. (2015) for the US-specific economic wide uncertainty using financial and real variables, and Hong et al. (2025) for fiscal policy uncertainty.

the significant productivity gains associated with IT-*producing* industries and IT-*using* industries through adoption are the key explanation behind the surge of the US aggregate productivity growth since the mid-1990s, unobserved in other advanced economies.

In this paper, we attempt to bridge this gap in the literature and examine the impact of uncertainty on productivity. In particular, we focus on the external fiscal policy uncertainty that propagates from foreign to domestic countries affecting the firm-level productivity of domestic firms. To do so, we compute a measure of *weighted* fiscal policy uncertainty (henceforth we will use interchangeably the wording "external fiscal policy uncertainty", "weighted fiscal policy uncertainty", and "WFPU") that is computed as the average fiscal policy uncertainties of all the countries that a domestic industry is exporting to, weighted by the share of each partner country in total export. We contributed to the existing literature in several ways: we study fiscal policy uncertainty connecting external uncertainty to internal outcomes, and, while the spillover of fiscal policy uncertainty has been already investigated in terms of sovereign debts crisis propagation, we are the firsts to study the spillover through real (trade) channels. In addition, we are also, to the best of our knowledge, the firsts studying this topic in a cross-country setting and using micro-data representative for the entire distribution of firms.

We do two things. We start with firm-level results for France, where rich administrative microdata allow us to establish the microeconomic foundations of the transmission mechanism. We find that foreign fiscal policy uncertainty depresses both labor productivity and investment intensity, with effects amplified by financial leverage for small and medium firms, and by export exposure for large firms. Across the productivity distribution, the adverse effects are concentrated among the least productive firms. These results point to an investment-driven transmission channel whereby foreign fiscal policy uncertainty induces firms to scale back capital accumulation, with direct consequences for productivity. We then zoom out and look at the broader picture using industry-level micro-aggregated data for 14 European countries, confirming that the French firm-level findings extend more widely: a one standard deviation increase in foreign fiscal policy uncertainty reduces aggregate total factor productivity by approximately 1.1 percent, with the decline driven entirely by within-firm productivity deterioration rather than reallocation across firms, and concentrated among the least productive firms, widening domestic productivity dispersion rather than generating a uniform downward shift.

Establishing a causal link between productivity and uncertainty, however, poses significant challenges, as was the case for past research as mentioned above. In our particular set-up, the causal relationship may be difficult to achieve for the following reasons. First, there is a concern of reverse causality. For instance, as much as a rise in uncertainty would affect productivity through investment channel, a sharp decline in productivity in a country could also be a source of increased uncertainty. In addition, omitted variable bias is a concern if not properly controlling for factors that may influence both uncertainty and productivity, such as global demand shocks, financial conditions, or institutional quality may influence uncertainty and productivity.

We address these potential endogeneity issues by focusing on the external fiscal policy uncertainty that propagates into domestic firm-level outcome through trade linkages. Insofar as the external policy uncertainty is unlikely to be driven by domestic policy, this alleviates the reverse causality concern. Specifically, to construct this variable, a dataset of policy uncertainty with a comprehensive country coverage is required. To do so, we turn to the news-based fiscal policy uncertainty dataset from the recent work of Hong et al. (2025), who constructed country-specific fiscal policy uncertainty available for 189 countries. We focus on *fiscal* policy uncertainty for several reasons. First, unlike other forms of uncertainty, fiscal policy uncertainty is closely tied to structural challenges such as high public debt, population aging, and the green transition—issues that are likely to persist in the long run. Consequently, we argue that these trends are more relevant than other short-run trend for shaping the structural slowdown in productivity. Second, external fiscal policy uncertainty that spills over into domestic economies is more plausibly exogenous to firm-level outcomes than other types of uncertainty. For instance, country A's *trade* policy uncertainty may well depend on country B's firm-level productivity. By contrast, it is less convincing to assume that country A's *fiscal* policy uncertainty is influenced by country B's firm-level performance; rather, it is more likely driven by country A's internal factors, such as taxation, public debt, and government expenditure. As country-specific fiscal policy uncertainty reflects, to some extent, reactions to global events, such as the European debt crisis, even though domestically-induced fiscal policy uncertainty may be subdued, we separate the global component using the principal component analysis and focus on the idiosyncratic component of country-specific fiscal policy uncertainty index. Then, for each country, we calculate the weighted fiscal policy uncertainty that propagates to domestic countries, using the bilateral export share calculated from the UN Comtrade Database at country-industry level. We use a shift-share instrumental variable approach, capturing the level

of fiscal policy uncertainty from a specific partner country (shift) and their relative importance in terms of export share (share).[2] The idea behind this propagation mechanism is that, an increase in the fiscal policy uncertainty of country A reduces the import of country A, and therefore, firms and industries exporting to country A will face a negative demand shock which will turn in lower sales, investment, and, ultimately, productivity[3]. To further discipline the transmission mechanism and uncover the role of firm-level heterogeneity, we complement the cross-country analysis with French administrative microdata, which allow us to examine how the shock propagates differentially across firms within industry. In particular, we exploit variation in firms' financial leverage and export exposure to show that leverage is the key amplifier of the uncertainty shock for small and medium firms, while export share drives the investment response for large firms.

Literature Review

By exploring the impact of uncertainty on productivity, our paper contributes to the following three strands of literature. First, the paper contributes to the literature on trade linkages as a transmission channel of economic shocks. Early studies emphasized the role of trade openness in propagating shocks across borders, highlighting how increased integration could increase a country's vulnerability by magnifying the spillovers from external volatility. As cross-border production linkages through global value chains (GVCs) have become increasingly intertwined and sophisticated, discussions on whether trade linkages amplify or dampen economic volatility have been central to the trade literature (Di Giovanni and Levchenko (2012), Caselli et al. (2020)). More recent work has focused on the complexity of GVCs, showing that production fragmentation and input-output linkages create both channels for shock transmission and potential buffers through diversification (Johnson (2014), Carvalho and Tahbaz-Salehi (2019)). Our findings are supportive of the view that trade linkages serve as an important conduit for importing foreign shocks with real economic consequences.

The second strand of literature relates to the role of uncertainty on firm investment. Theoretical models, dating back to Bernanke (1983), highlight the "option value of waiting," whereby firms

[2]For a detailed discussion of the design and key considerations underlying shift-share instrumental variables, see Borusyak et al. (2022).

[3]While we do not explicitly study the effect of fiscal shock (GDP) on import, it is a standard result which goes back to results from Mundell-Fleming seminal model. See also Frenkel and Razin (1987) and Auerbach and Gorodnichenko (2016) among the others.

postpone irreversible investments when future conditions are uncertain. This behavior has been widely documented in empirical studies, showing that heightened uncertainty leads to significant reductions in capital expenditures and hiring (Julio and Yook (2012), Baker et al. (2016)). Recent work further distinguishes between different sources of uncertainty (see Cascaldi-Garcia et al. (2023) for an extensive literature review). More recently, the literature has explored to what extent financial channels further amplify the negative impact of uncertainty on investment, or the so-called "financial uncertainty multiplier" by Alfaro et al. (2024), whereby uncertainty shocks are amplified through financial frictions, disproportionately affecting firms with limited access to credit or higher leverage. Finally, several studies have focused on the international spillover channels of uncertainty such as Bhattarai et al. (2020), which is closely related to our work.

Finally, our paper contributes to the rich literature that establishes the relationship between investment and productivity, a topic that has been central to growth and firm dynamics research. A large body of work, both theoretical and empirical, documents strong complementarities between investment and productivity growth. Our work is most closely related to empirical studies that highlight the importance of capital deepening and technology adoption as key drivers of productivity growth (Syverson (2011), Bloom et al. (2012)). While we do not directly test in our paper, recent studies that focus on investment in intangible assets, such as R&D and organizational capital, is also relevant for our work in understanding potential transmission channels (Corrado et al. (2009)).

Our paper is constructed as follows. Section 2 explains the datasets used for our paper. Section 3 shows our empirical strategy, followed by Section 4 presenting the firm-level results for France, and by Section 5 presenting the cross-country industry-level results. Section 6 concludes.

2 Data

We combine data from three main sources: (i) the cross-country database of news-based fiscal policy uncertainty indicators introduced by Hong et al.(2024 and 2025), (ii) French firm-level administrative microdata from FARE, FICUS, and DOU/ENQ, which we use to study the firm-level transmission mechanisms in France, as well as (iii) the United Nations Comtrade Database that includes trade flows at country-commodity-partner level for most of the countries in the world. In section 5 we extend the analysis using cross-country data for 15 European countries using the

CompNet dataset that collects distributional moments of several indicators on productivity and competitiveness from European National statistical institutes.

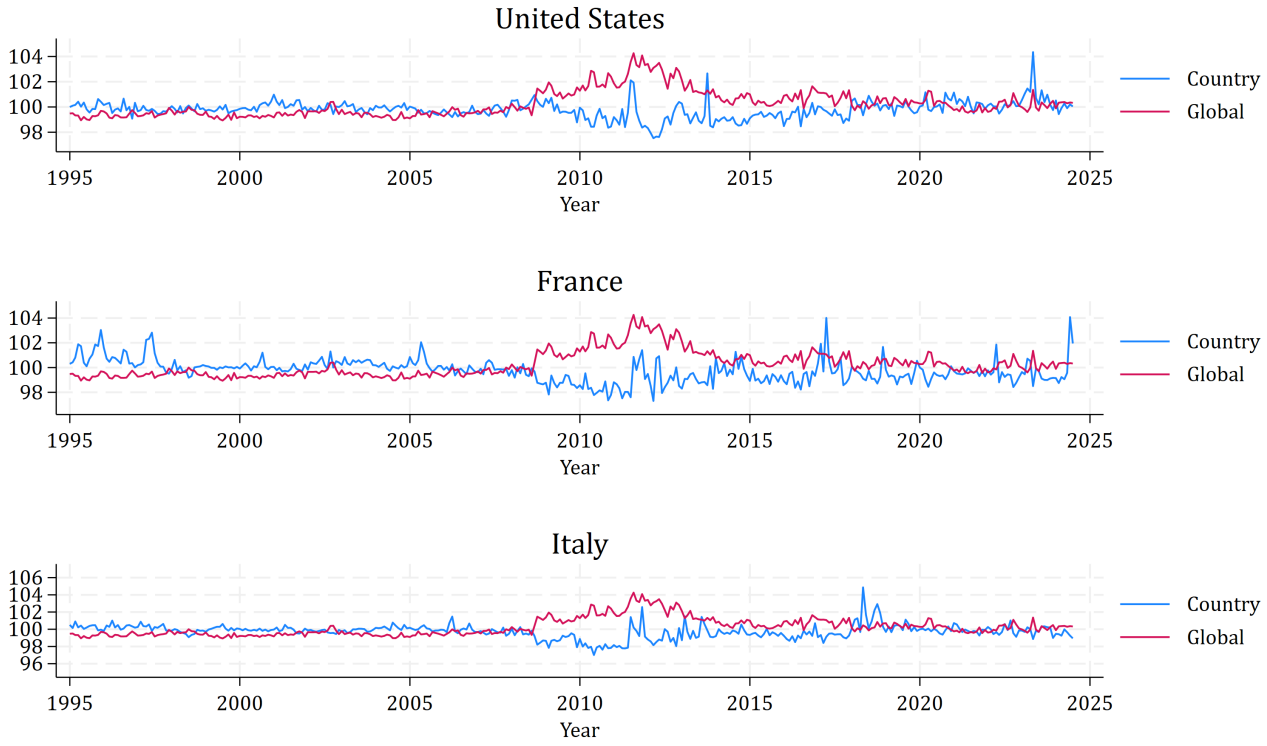
The News-Based Index on Fiscal Policy Uncertainty News-based fiscal policy uncertainty indicator is borrowed from the work of Hong et al. (2024). Drawing from over 47 million news articles archived in the Dow Jones Factiva, a comprehensive news aggregator, country-specific fiscal policy uncertainty indicator follows the news-based approach by Baker et al. (2016). By building search keywords related to fiscal policy uncertainty, the database contains monthly fiscal policy uncertainty (FPU) indexes for 189 countries, with the data extending back to January 1995 mainly due to a large number of countries not having good coverage before that.[4] For some large economies, the data can trace back to January 1977. Since the goal of the database is to cover a broad range of countries, the nem thfws-based approach is better-suited to achieve this goal, compared to other widely used methodologies to measure the uncertainty such as latent stochastic volatility (Ludvigson et al. (2021), Fernández-Villaverde et al. (2015)).[5]

However, the original country-specific fiscal policy uncertainty indicator is likely to share "common" global components across countries. For instance, the Euro debt crisis is likely to have increased the degree of fiscal policy uncertainty of European economies, although it is possible that the share of fiscal policy uncertainty attributable to domestic factors may not be as significant for some countries. As our paper aims to understand the transmission of trading partner's idiosyncratic fiscal policy uncertainty through bilateral trade channels, the original country-specific fiscal policy uncertainty indicator may overstate the "true", domestically-induced fiscal policy uncertainty at the country-level. To address this issue, we compute the "idiosyncratic" fiscal policy uncertainty index by regressing, for each country, the original FPU index on the first principal component common across all the countries to allow for different factor loadings. We then add the normalized country-specific residual of this regression to the country FPU. [6] We then calculate the idiosyncratic component of the original country-specific fiscal policy uncertainty indicator by removing the

[4] An article should contain keywords related to "fiscal" such as tax, government expenditure, public debt, "policy" such as parliament, congress, and "uncertainty" such as unpredictable, risk. For more detail, see Hong et al. (2024).

[5] Cascaldi-Garcia et al. 2023 provides an in-depth literature survey of existing methodologies that are used to quantify the uncertainty.

[6] In Hong et al. (2024), other approaches are also introduced to construct the "global" fiscal policy uncertainty indicator. This includes (i) search articles that contain keywords related to "fiscal", "policy", "uncertainty" without restricting to specific country; (2) GDP-weighted average of country-specific fiscal policy uncertainty index. In appendix B we replicate the main results using alternative definitions of idiosyncratic country's fiscal policy uncertainty.



Note: Figure 1 shows the global component and the country idiosyncratic component of fiscal policy uncertainty for three selected countries. The global component is the first principal component, and the country serie is obtained by subtracting the global component from the country fiscal policy uncertainty index.

global component. Figure 1 shows the global component and the idiosyncratic component for three selected countries.

French Firm-Level Microdata For the firm-level analysis, we draw on three French administrative datasets maintained by INSEE. The primary source of firm-level financial information is FARE (*Fichier Approché des Résultats d'Ésane*), available from 2008 onwards, and its predecessor FICUS (*Fichier Complet Unifié de SUSE*), which is availble for all years between 1994 and 2007. Both datasets are constructed primarily from firms' annual tax declarations (*liasses fiscales*) and cover the near-universe of French non-agricultural firms, providing balance-sheet and income-statement variables at the firm level. Using these source we construct firm age, size and industry indicators, and construct our main firm-level outcomes, including labor productivity, capital intensity, investment, leverage, and revenue. We restrict the sample to manufacturing firms with more than 20 employees over the period 2003–2022.

To identify exporters and measure export revenues at the firm level, we rely on French customs records collected by the *Direction Générale des Douanes et Droits Indirects* (DGDDI). These records cover the universe of French firms engaged in extra-EU trade and, for intra-EU flows, firms above the Intrastat reporting threshold, providing information on the value and destination of exports disaggregated by product and partner country. We match the customs records to FARE/FICUS using firm identifiers (*SIREN*). Together, these sources allow us to link firms' domestic financial conditions to their international trade exposure.

The UN Comtrade Database includes detailed export flows reported by over 200 countries and territories. Trade flows are disaggregated by commodity (classified according to HS system), partner, country, and time period. To merge with the CompNet dataset, we begin by converting commodity codes from the Harmonized System (HS) to the Prodcom classification, utilizing concordance tables provided by Eurostat[7]. Given that the first two digits of the Prodcom classification correspond to the 2-digits NACE industry codes, we have a direct mapping to accurately assign industry identifiers.

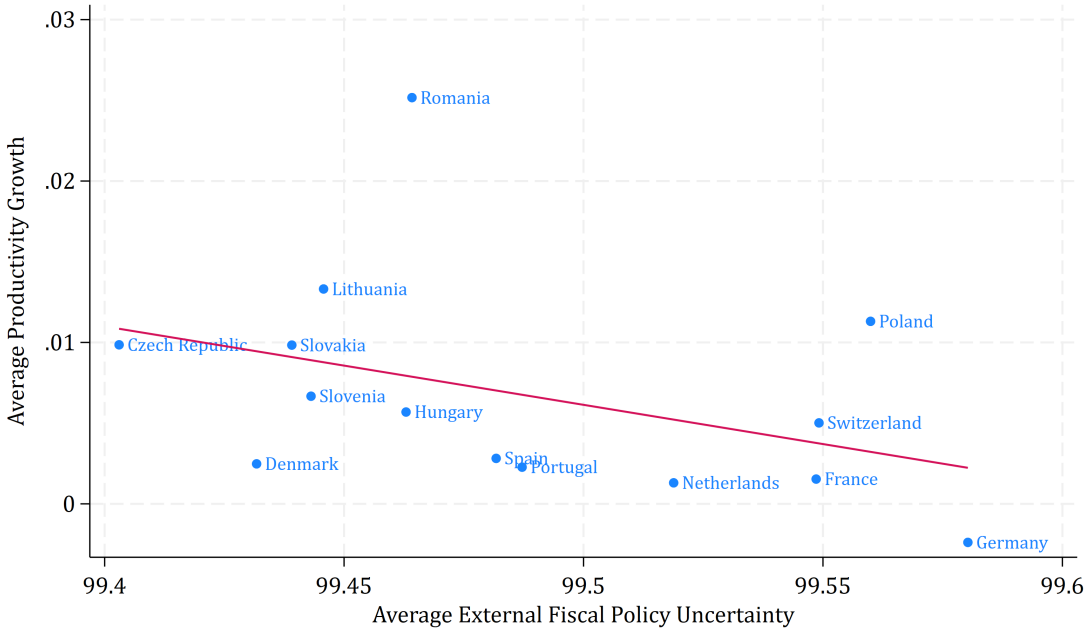
The final sample consists in a dataset where, for every firms, we observe a set of balance sheet variables (investment, labor productivity, export, number of employees, capital intensity), and the weighted fiscal policy uncertainty obtained averaging the idiosyncratic component of each partner country fiscal policy uncertainty weighted by the industry export share of that partner country.

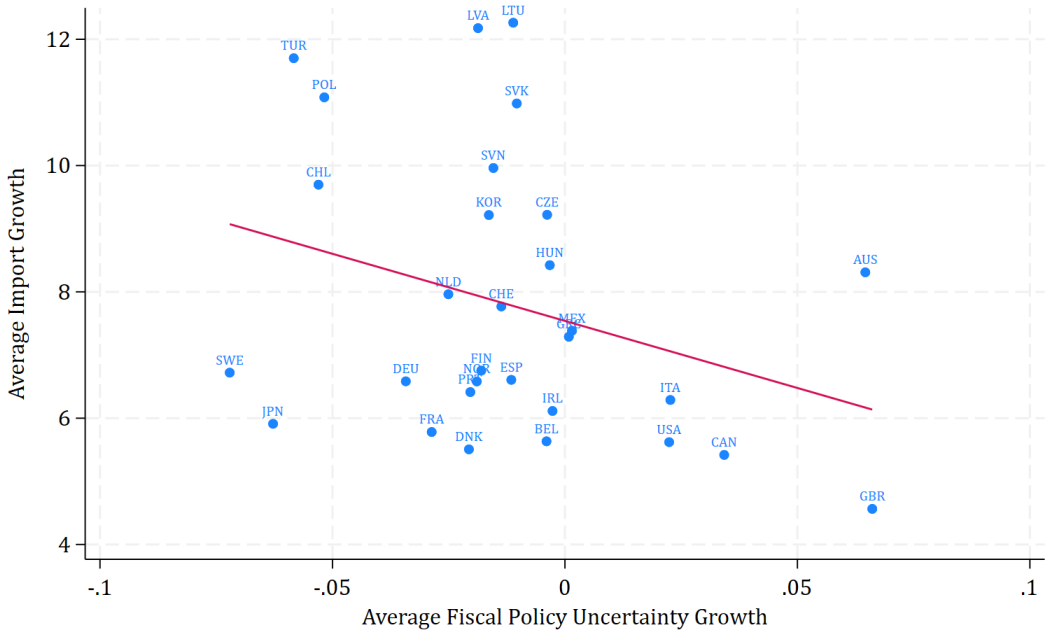
3 Empirical Methodology

We estimate the effect of the external weighted fiscal policy uncertainty (WFPU) on domestic productivity using a reduced-form Shift Share Instrumental Variable regression as in equation (1). We are interested in studying the effect on the outcome variable y at firm i, industry s, time t of a change in the fiscal policy uncertainty.

$$y_{i,t} = \alpha + \beta WFPU_{s,t-1} + \psi_{s,t} + \epsilon_t \tag{1}$$

[7]See Appendix 1 for a detailed description on how we deal with cases with ambiguous correspondence.





Note: The top panel of Figure 2 plots the average foreign Fiscal Policy Uncertainty faced by countries in the period 2008–2022 and the average productivity growth in the same period. The second panel shows the relationship between Average growth of country import and the country' fiscal policy uncertainty.

$$WFPU_{i,t} = \Sigma_p^P \underbrace{FPU_{p,t}}_{\text{Shift}} \cdot \underbrace{\frac{x_{s,p,0}}{X_{s,0}}}_{\text{Share}} \tag{2}$$

Our shock variable, WFPU, is the weighted average of fiscal policy uncertainty indices across all destination countries for each industry, with export shares to each partner as weights. Equation (2) shows in details how we construct our *weighted* measure of external fiscal policy uncertainty (FPU): we combine the FPU of each partner country p that is trading with the industry s, and, as weights, we use the total export of the industry s to partner p divided by the total export of industry s. To avoid the potential endogeneity introduced by contemporaneous adjustments between fiscal policy uncertainty and export, we used pre-sample fixed export share by averaging the industry export shares for the periods 1999-2001. In addition, we include a full set of fixed-effects: year level to account for global shocks and common trends across all industries, and a country-industry level to absorb persistent heterogeneity and identify within-country-industry variation over time. Figure 2 provides a first visual inspection on how high average external fiscal policy uncertainty correlates with lower productivity growth.

Equation (2) shows how the weighted fiscal policy uncertainty can be interpreted as a shift-share instrumental variable (Bartik instrument), as it represents a combination of shifts (the partner-country FPUs) and exposure shares (the export share to partner country). Bartik instruments have recently increased their popularity in empirical studies due to their ability in isolating exogenous variation and addressing endogeneity in studies involving heterogeneous variation across the treatment group[8]. Our estimator is a *reduced-form* instrument because in this specification the endogenous variable x coincides with the instrument z (i.e., x=z), so the instrument directly captures the variation in the treatment without a separate first-stage[9].

The econometric literature suggests two distinct paths for identification. Whereas Goldsmith-Pinkham et al. (2020) propose an approach based on strict exogeneity of the *shares*, Borusyak et al. (2022) focus on a setting where many *shocks* are as good as randomly assigned while making no assumption on the exogeneity of the shares. Our identifying assumption is that fiscal policy uncertainty in a foreign country is exogenous to productivity changes in a particular industry in the domestic country. More formally, identification does not hinge on the fiscal policy uncertainty

[8]See for example Autor et al. (2013),

[9]Other examples of such reduced-form instruments are Cai et al. (2015), Miguel and Kremer (2004), and Xu (2022)

indices of partner countries being purely random. Instead, it requires that these indices be conditionally random with respect to domestic industry characteristics. There are a number of reasons that can make it plausible. First, the Fiscal Policy Uncertainty index is constructed in a way such that it reflects only the idiosyncratic country component, excluding the global component (which would likely be correlated with the domestic productivity of other countries). Furthermore, the granularity in our data makes it unlikely that any single industry within a country has predictive power over the fiscal policy uncertainty of an entire partner country.

4 Firm-level results

Table 1 reports the firm-level estimates of the effect of Foreign fiscal policy uncertainty (WFPU) on labor productivity (Panel A) and investment (Panel B) of French firms, with specifications progressively incorporating interactions with leverage and firm-level export exposure. In Panel A, the dependent variable is log labor productivity (value-added per worker). The baseline specification (column 1) yields a negative and significant coefficient on WFPU, indicating that an increase in foreign fiscal policy uncertainty is associated with a decline in productivity. Column 2 introduces an interaction between WFPU and leverage, which is negative and significant, suggesting that high leverage amplifies the productivity decline following the uncertainty shock. This finding is consistent with the financial uncertainty multiplier mechanisms documented by Alfaro et al.(2004), whereby financial frictions amplify the adverse effect of uncertainty on firms with constrained balance sheets. Column 3 further incorporates export share and its interactions: the direct WFPU coefficient remains negative and significant as well as the WFPU-Leverage interaction, and a negative interaction between WFPU and export share emerges, while export share alone enters positively and significantly. The positive direct effect of export shares is consistent with the well-documented exporter productivity premium: firms engaged in international trade tend to be more productive than domestic firms, reflecting both selection (see Melitz (2003) and Melitz and Ottaviano (2008)) and learning (see De Loecker (2007)) effects associated with exposure to foreign markets and competition. The negative interaction with WFPU, however indicates that this premium is partially eroded when foreign fiscal policy uncertainty rises: the very channel that confers an advantage in normal times—exposure to foreign demand—becomes a source of vulnerability when that demand is clouded by uncertainty in trading-partner economies. Intuitively, exporters are

Table 1. *Regression Results*

Panel A: Labor Productivity — log(VA/L)			
Variable	(1)	(2)	(3)
$WFPU$	-0.242**	-0.237**	-0.183*
	(0.103)	(0.097)	(0.096)
$WFPU \times ExportShare$			-0.184*
			(0.109)
$WFPU \times Leverage$		-0.278***	-0.223***
		(0.082)	(0.084)
$WFPU \times Leverage \times ExportShare$			-0.114
			(0.265)
$ExportShare$			18.664*
			(10.894)
$Leverage$		27.465***	21.956***
		(8.166)	(8.392)
$Leverage \times ExportShare$			11.329
			(26.570)
$Employees$	0.987***	0.951***	0.944***
	(0.006)	(0.008)	(0.008)
$CapitalIntensity$	0.089***	0.116***	0.108***
	(0.004)	(0.005)	(0.005)
Industry × Year FE	✓	✓	✓
Observations	319,775	309,243	301,322
Within R^2	0.6465	0.6895	0.7080
Panel B: Investment Rate — log(Investment/Turnover)			
Variable	(1)	(2)	(3)
$WFPU$	-0.334	-0.374*	-0.377*
	(0.243)	(0.217)	(0.213)
$WFPU \times ExportShare$			0.284
			(0.201)
$WFPU \times Leverage$		0.496**	0.754**
		(0.247)	(0.296)
$WFPU \times Leverage \times ExportShare$			-1.906**
			(0.752)
$ExportShare$			-28.325
			(20.084)
$Leverage$		-49.932**	-75.715**
		(24.712)	(29.626)
$Leverage \times ExportShare$			190.777**
			(75.239)
$Employees$	0.519***	0.227***	0.202***
	(0.042)	(0.030)	(0.029)
$CapitalIntensity$	0.666***	0.908***	0.924***
	(0.031)	(0.022)	(0.022)
Industry × Year FE	✓	✓	✓
Observations	301,467	291,138	283,474
Within R^2	0.3160	0.3601	0.3689

Note: Table 1 shows the β coefficients resulting from estimating equation (1) on Labor Productivity (Panel A) and Investment Rate (Panel B). WFPU is the main outcome variable and is computed following equation (2), Export share is the ratio between total export and turnover in exporting firms, Leverage is the ratio between total debt and total assets. Capital intensity is the ratio between capital and number of employees. Labor Productivity, Investment rate, employees, and capital intensity are expressed in logs. Standard errors are clustered at industry-year level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

more directly exposed to fluctuations in foreign demand transmitted through the trade linkages that the paper's identification strategy exploits, so a rise in uncertainty among trading partners translates more readily into a demand shock for these firms, dampening the productivity benefits typically associated with exporting. The triple interaction term (WFPU × Leverage × ExportShare) is negative but statistically insignificant, providing limited evidence that the leverage channel is differentially mediated by export exposure once the other terms are accounted for, suggesting these two channels operate largely independently.

Panel B examines investment intensity, measured as log(Investment/Turnover). The direct WFPU coefficient is negative negative and significant in columns 2 and 3, indicating that firms exposed to higher foreign fiscal policy uncertainty reduce the share of turnover dedicated to investment. This result supports the investment channel as the link between WFPU and productivity. The WFPU x Leverage interaction is positive and significant in columns 2 and 3, while the triple interaction WFPU x Leverage x ExportShare is negative large and significant, and Leverage x ExportShare is positive and significant. Taken together, these results suggest that highly leveraged exporting firms appear to reduce most sharply in response to foreign fiscal policy uncertainty, even though the unconditional interaction leverage-WFPU points in the opposite direction. In short: leverage alone does not predict lower investment in response to foreign uncertainty - that depends on whether the firm is also exposed to the foreign demand channel through trade. It is the combination of high leverage *and* high export exposure what makes a firm's investment most sensitive to foreign fiscal policy uncertainty, even though leverage by itself appears to cushion the effect.

Considered jointly, the results in Table 1, point to a significant negative link between foreign fiscal policy uncertainty and firm performance through an investment-driven channel. The negative effect of WFPU on labor productivity is mirrored by a corresponding negative effect on investiment intensity, consistent with the idea that firms respond to heightened uncertainty among trading partners by scaling back capital accumulation, with direct consequences for productivity. The leverage interactions reinforce this interpretation: firms with weaker financial positions appear less able to absorb the demand shocks transmitted through trade linkages, leaving them more exposed to productivity losses and (through export share) investment cuts. Read together, Panels A and B thus suggest that foreign fiscal policy uncertainty operates by depressing investment, particularly among financially constrained and export-exposed firms, which in turn translates into lower firm-level productivity.

Heterogeneity by employment-size class

Table 2 shows results of equation (1) estimated separately by firm size class (20-49, 50-249, and more than 250 employees). We apply the same specification as column (2) in Table 1. For small firms (20–49 employees), FPU depresses productivity directly, and this effect is further amplified by leverage. On the investment side, FPU alone has no significant effect, but leverage itself reduces investment — consistent with high debt servicing costs crowding out capital expenditure — and the interaction suggests leverage partly dampens the marginal impact of FPU on investment, though this latter result is harder to interpret cleanly. Taken together, small firms appear vulnerable on two fronts simultaneously: a direct productivity penalty from uncertainty, compounded by a financial fragility channel that leverage introduces. Mid-sized firms (50–249 employees) present a qualitatively different picture: FPU has no significant effect on either productivity or investment at low leverage, and no significant effects on investment at all. However, the leverage interaction in the productivity equation is negative and significant, meaning that for these firms, FPU only matters if they are highly leveraged. In other words, financial structure is not merely an amplifier here — it is the gateway through which the uncertainty shock affects this group at all. A mid-sized firm with a healthy balance sheet appears essentially shielded from foreign fiscal policy uncertainty, while a highly leveraged one is not. Large firms (¿250 employees) show the opposite pattern. FPU has a direct, significant negative effect on both productivity and investment. This indicates that for large firms, the transmission operates through a ”real” channel — most plausibly the investment-cutting response documented directly in Panel B — rather than through financial constraints. Large firms are not protected by their typically stronger balance sheets; rather, their balance sheets are simply not the relevant margin. Their scale and direct exposure to foreign demand (e.g., as more likely exporters) appears to be what drives the productivity response, operating through reduced capital accumulation regardless of how the firm is financed. The overarching implication is that financial leverage plays fundamentally different roles depending on firm size: it is an amplifier of an existing direct effect for small firms, the sole transmission channel for mid-sized firms, and largely irrelevant for large firms, where the direct investment channel dominates instead.

Table 2. *Regression Results*

Panel A: Labor Productivity — log(VA/L)			
Variable	**20-49 Employees** (1)	**50-249 Employees** (2)	**>250 Employees** (3)
$WFPU$	-0.285***	-0.131	-0.268**
	(0.105)	(0.109)	(0.113)
$WFPU \times Leverage$	-0.321***	-0.390***	0.028
	(0.104)	(0.136)	(0.223)
$Leverage$	31.708***	38.676***	-3.093
	(10.391)	(13.614)	(22.271)
$Employees$	0.806***	0.875***	1.013***
	(0.013)	(0.011)	(0.010)
$CapitalIntensity$	0.157***	0.090***	0.071***
	(0.005)	(0.006)	(0.004)
Industry × Year FE	✓	✓	✓
Observations	175,140	106,506	27,597
Within R^2	0.2080	0.3393	0.6080
Panel B: Investment Rate — log(Investment/Turnover)			
Variable	**20-49 Employees** (1)	**50-249 Employees** (2)	**>250 Employees** (3)
$WFPU$	-0.284	-0.284	-0.791***
	(0.274)	(0.215)	(0.275)
$WFPU \times Leverage$	0.628**	-0.168	1.726***
	(0.319)	(0.349)	(0.527)
$Leverage$	-63.163**	16.662	-172.724***
	(31.899)	(34.954)	(52.761)
$Employees$	0.189***	-0.068**	-0.149***
	(0.034)	(0.034)	(0.036)
$CapitalIntensity$	0.783***	0.959***	1.046***
	(0.015)	(0.025)	(0.023)
Industry × Year FE	✓	✓	✓
Observations	164,945	100,196	25,997
Within R^2	0.1277	0.3376	0.5674

Note: Table 2 shows the β coefficients resulting from estimating equation (1) on Labor Productivity (Panel A) and Investment Rate (Panel B) separately for each employment class window, WFPU is the main outcome variable and is computed following equation (2) Leverage is the ratio between total debt and total assets. Capital intensity is the ratio between capital and number of employees. Labor Productivity, Investment rate, employees, and capital intensity are expressed in logs. Standard errors are clustered at industry-year level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3. *Regression Results*

Variable	Labor Productivity Quintiles				
	1st Quintile	**2nd Quintile**	**3rd Quintile**	**4th Quintile**	**5th Quintile**
	(1)	(2)	(3)	(4)	(5)
WFPU	-0.319***	-0.207***	-0.172***	-0.103	-0.111
	(0.105)	(0.074)	(0.066)	(0.076)	(0.095)
WFPU × *Leverage*	-0.068	-0.178*	-0.040	0.003	0.092
	(0.140)	(0.107)	(0.092)	(0.137)	(0.162)
Leverage	6.628	17.819*	3.899	-0.434	-9.480
	(13.975)	(10.730)	(9.186)	(13.753)	(16.201)
Employees	0.456***	0.203***	0.192***	0.239***	0.721***
	(0.029)	(0.008)	(0.007)	(0.007)	(0.006)
CapitalIntensity	0.063***	0.024***	0.021***	0.026***	0.076***
	(0.007)	(0.003)	(0.003)	(0.004)	(0.004)
Industry × Year FE	✓	✓	✓	✓	✓
Observations	54,228	60,204	63,015	64,949	66,437
Within R^2	0.0498	0.0252	0.0320	0.0589	0.5317

Note: Table 3 shows the β coefficients resulting from estimating equation (1) on Labor Productivity separately for each quintile of the lagged productivity distribution, WFPU is the main outcome variable and is computed following equation (2) Leverage is the ratio between total debt and total assets. Capital intensity is the ratio between capital and number of employees. Labor Productivity, employees, and capital intensity are expressed in logs. Standard errors are clustered at industry-year level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Heterogeneity by productivity quintile

Table 3 reports estimates of equation (1) separately for each quintile of the lagged labor productivity distribution, allowing us to assess whether the effect of foreign fiscal policy uncertainty on productivity varies across the firm-productivity distribution. We find that the coefficient on WFPU is negative and significant at for the first, second, and third quintiles, while it is smaller in magnitude and not statistically significant for most productive firms. This monotonic pattern indicates that the adverse effect of foreign fiscal policy uncertainty on productivity is concentrated among less productive firms.

We interpret this result as supporting evidence that foreign fiscal policy uncertainty contributes to a widening of the productivity distribution rather than a uniform downward shift. We find that the WFPU × Leverage interaction is generally insignificant across quintiles (with the exception of the second quintile), suggesting that the leverage channel identified in our firm-level results in Table 1 does not operate uniformly once firms are sorted by their position in the productivity distribution. Taken together, these estimates provide evidence that the productivity consequences

of foreign fiscal policy uncertainty are asymmetric across the firm productivity distribution, with low-productivity firms bearing a disproportionate share of the adjustment.

5 Cross-country Evidence from Industry-level micro-data

We conclude our paper by extending the analysis to 14 European countries using micro-aggregated data available through the CompNet dataset.

5.1 The CompNet Dataset

CompNet is a micro-aggregated firm-level based dataset, widely used for both research and policy purposes [10] and collected by the Competitiveness Research Network. It include several indicators on productivity, firm' financial conditions, trade and employment. The CompNet team collects the indicators from European National statistical institutes using a common data collection protocol run on administrative *firm-level* data. The indicators are available in several aggregations: country, sectors (1 digit according to Nace Rev.2 classification), sectors-size, 2-digits industry (according to Nace Rev.2 classification), and regions. For each level of aggregations, the dataset contains various moments of the firm-level distribution (means, percentiles, and standard deviations). While the dataset does not directly include micro-data, it brings several benefits over other firm-level databases. First, the data source covers almost the entire population of firms making the indicators reliable and representative of the firm-level distribution; second, the representativeness is constant over time and across countries, so it eschew the selection biases and cross-country comparability issues associated with many commercial databases and documented by Bajgar et al. (2020). Finally, to further increase the representativeness of the sample, the dataset is available in two versions: unweighted, and population-weighted.

The dataset spans approximately twenty years, though the specific periods available vary by country, and it is available in two versions: the first includes all the firms no matter their size, the second includes only firms with more than 20 employees. We focus our analysis on

[10] See Bighelli et al. (2023) and (2023), Biondi et al. (2025), Mertens (2023) among others.

Table 4: Coverage of the CompNet Data

Country	Years	Share of Export with FPU Coverage
Czech Republic	2005-2022	91%
Denmark	2001-2022	94%
France	2002-2022	90%
Germany	2001-2022	94%
Hungary	2003-2022	89%
Lithuania	2001-2022	88%
Netherlands	2007-2022	91%
Poland	2002-2022	93%
Portugal	2004-2022	94%
Romania	2005-2022	91%
Slovakia	2001-2022	87%
Slovenia	2002-2022	95%
Spain	2009-2021	93%
Switzerland	2009-2022	96%

Note: Table 4 shows the Country, Time coverage and the share of export in country for which we have Fiscal Policy Uncertainty Indicators of the dataset used in the analysis.

the second as it is available for a larger number of countries. For a comprehensive description of the database construction and methodology, we refer to the CompNet User Guide (CompNet (2025) and CompNet (2022)). Table A.1. in the appendix lists the available countries and the sample coverage of few selected variables. We use the weighted version of the 2-digits industry aggregation, and we restrict our analysis to the manufacturing sector.

5.2 Industry-level Results

We next examine the industry-level analog to our firm-level analysis, providing an aggregate perspective and assessing the extent to which the firm-level results for France extend to other countries. Because the data are at the industry level, within-industry dynamics cannot be examined, so the results remain suggestive.

We show that fiscal policy uncertainty has a negative impact on aggregate productivity and amplifies productivity dispersion. This effect arises primarily because uncertainty disproportionately reduces the productivity of less productive firms, while leaving the most productive firms largely unaffected. These patterns are consistent across the majority of countries in our sample. Importantly, the decline in productivity is driven mainly by reductions in within-firm productivity rather than by changes in resource allocation across firms.

We start by studying the effect of external fiscal policy uncertainty on the industry weighted average total factor productivity (TFP), (column 1 of table 5), on the within-firm TFP (column 2), and on the between-firm TFP (column 3), where TFP is computed using the two-step control function approach introduced by Ackerberg et al. (2015). We compute the within-firm TFP and the between-firm TFP by decomposing the weighted average TFP as in equation (XXX) and following Olley and Pakes (1996) that show how the weighted average productivity within an industry can be decomposed into the unweighted-mean of industry productivity, and the covariance between firm' productivity and firm' number of employees. We follow Decker et al. (2017) in interpreting the first component of the right-hand side of equation (3) as a measure of within-firm productivity growth, indicating productivity growth induced by enhance efficiency and technology adoption within firm, while we interpret the second component as a measure of the between-firm productivity growth, indicating the productivity growth coming from the reallocation of input from the less productive firms to the more productive ones.

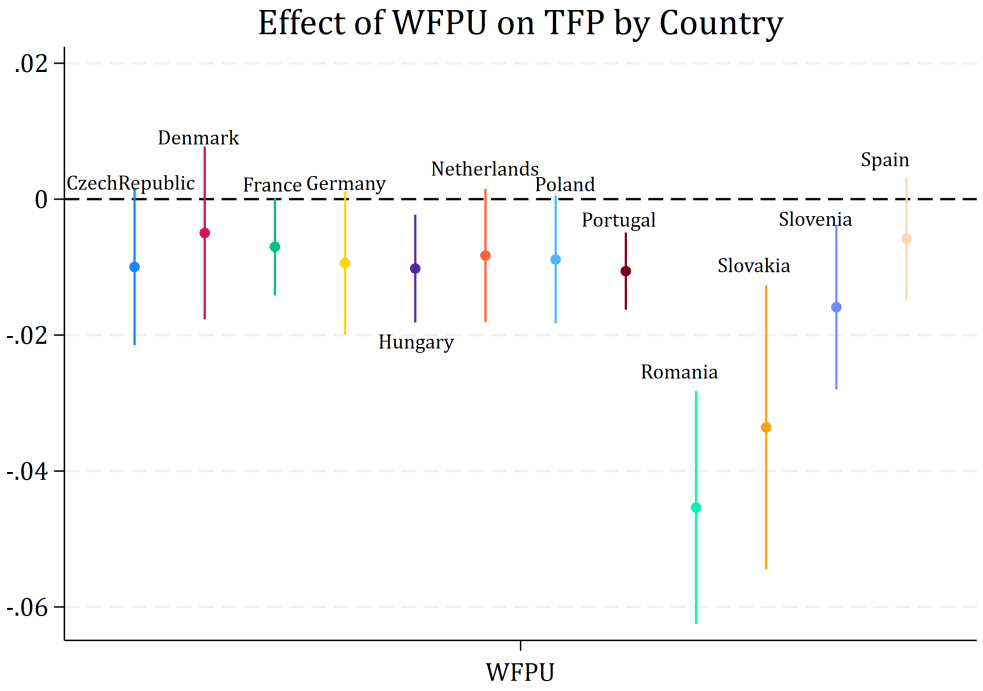
$$logTFP_{c,i,t} = log\overline{TFP}_{c,i,t} + cov(logtfp, l) \tag{3}$$

Table 5. Effect of Foreign WFPU on Productivity

Dep. Variable:	$TFP_{c,i,t}$ (1)	$\overline{TFP}_{c,i,t}$ (2)	$cov(tfp, l)$ (3)
$WFPU_{c,i,t-1}$	-0.011^{***}	-0.026^{***}	-0.002
	(0.004)	(0.013)	(0.005)
Year FE	Yes	Yes	Yes
Country-sector FE	Yes	Yes	Yes
R-squared	0.9965	0.9957	0.5308
Observations	4,236	4,236	4,236

Table 5 shows the results of regressing equation (XXXC) on the industry weighted average total-factor-productivity (column 1), the industry unweighted-mean total-factor-productivity (column 2), and the within industry covariance between firm' TFP and firm' number of employees (column 3). TFP variables are expressed in logarithms. Pooled sample of all the countries available. Standard errors clustered at country-industry level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

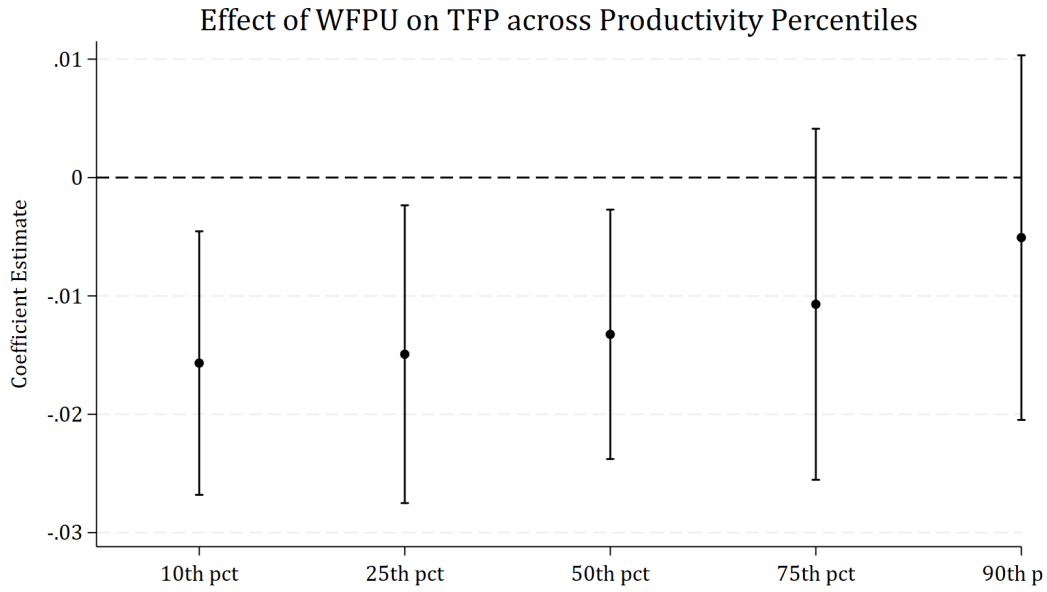
Column (1) of Table 5 shows that a 1 standard deviation point increase in the index of external fiscal policy uncertainty decreases the aggregate TFP by 1.1%, and columns (2) and (3) show that the negative effect on productivity is entirely driven by the within-firm productivity component. We interpret this as a signal that external fiscal policy uncertainty reduces the efficiency gains firms achieve internally — by hindering investment in innovation, technology adoption, and organizational improvements — rather than reshaping the competitive dynamics across firms in the market.



Note: Figure 3 shows the β coefficients resulting from estimating equation (1) on the weighted-average industry productivity. The equation is estimated for each country separately and includes further controls of the logarithm of the average firm' number of employees within an industry, the logarithm of the aggregate export share on value-added, year and industry fixed-effects. Standard errors are clustered at industry level, vertical lines indicate the 95% confidence interval.

Having established that external fiscal policy uncertainty has a negative effect on domestic aggregate productivity, we now estimate equation (XXX) for each country in the sample. Figure XXX confirms that the findings are robust across all the countries in the sample.

To understand how external fiscal policy uncertainty affects the productivity distribution, we estimate equation (1) separately on five different moments of the distribution, with Figure 4 reporting the five coefficients β. An increase in foreign fiscal policy uncertainty increases productivity dispersion by reducing the productivity of firms less productive firms and it does not affect the productivity of the most productive ones. These results are striking given the extensive literature documenting that only a small number of highly productive firms participate in international trade (Melitz (2003), Melitz and Ottaviano (2008)). Based on this evidence, one would expect the opposite outcome, with only firms in the right tail of the productivity distribution being affected. However, the findings do not contradict the insights of Melitz (2003) and Melitz and Ottaviano (2008); rather, they suggest the presence of a different mechanism. While more productive firms are indeed the ones engaged in exporting and thus appear more exposed to external fiscal uncertainty shocks,



Note: Figure 4 shows the β coefficients resulting from estimating equation (1) on the 10th, 25th, 50th, 75th, 90th percentile of the TFP distribution. TFP variables are expressed in logarithm. The equation includes further controls of the logarithm of the average firm' number of employees within an industry, the logarithm of the aggregate export share on value-added, year and country-industry fixed-effects. Pooled sample of all the countries available. Standard errors are clustered at industry level, vertical lines indicate the 95% confidence interval.

their higher productivity renders them highly resilient, preventing adverse reactions to such shocks. By contrast, less productive firms—though not directly exposed to international markets—remain more vulnerable to external disturbances, for instance through indirect channels such as supply chains.

6 Conclusion

This paper provides novel evidence on how foreign fiscal policy uncertainty propagates to domestic economies through trade linkages, with significant consequences for firm-level productivity and investment. Using a news-based fiscal policy uncertainty index for 189 countries and a shift-share instrumental variable approach, we document a clear and robust transmission mechanism operating through export channels. Our firm-level analysis for France reveals that the adverse effects of foreign fiscal policy uncertainty are heterogeneous across firms. The transmission mechanism varies systematically by firm size: financial leverage amplifies the shock for small and medium firms, consistent with a financial uncertainty multiplier whereby weaker balance

sheets limit firms' ability to absorb external demand shocks, while export exposure is the dominant amplifier for large firms. These firm-level findings are corroborated and extended by our cross-country analysis of 14 European economies, where a one standard deviation increase in foreign fiscal policy uncertainty reduces aggregate total factor productivity by approximately 1.1 percent. This result is robust across all the 14 European countries considered. Crucially, this aggregate decline is driven entirely by within-firm productivity deterioration rather than reallocation across firms, suggesting that foreign fiscal policy uncertainty hinders firms' internal efficiency gains rather than reshaping competitive dynamics across firms in the market. Across the productivity distribution, less productive firms bear a disproportionate share of the adjustment, reducing both their investment and productivity in response to heightened uncertainty, while firms at or above the 75th percentile prove largely resilient. The overall consequence is a widening of productivity dispersion rather than a uniform downward shift, as more productive firms weather the shock while less productive ones fall further behind.

Looking ahead, several promising extensions remain. Deeper investigation of the micro-mechanisms underlying our results — including firm entry and exit dynamics and the role of financial frictions in shock propagation — represents another natural avenue, as does examining how factors such as foreign direct investment, public debt levels, and private market development interact with fiscal policy uncertainty. A particularly promising direction is to explore heterogeneity in firms' position along the value chain: upstream firms, which supply intermediates to exporters, may face a fundamentally different exposure to foreign fiscal uncertainty shocks than downstream firms that sell directly to foreign markets, and understanding this distinction could shed further light on the indirect transmission channels through which even non-exporting firms are affected by external uncertainty. Finally, developing a stylized theoretical model to formalize and quantify the empirical mechanisms would enable counterfactual and policy simulations, helping to assess the welfare implications of fiscal policy uncertainty spillovers. We leave these extensions to future versions of this paper.

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Appendix A: The CompNet Dataset, Coverage and Variable Definition

Table A.1: CompNet coverage against Eurostat Structural Business Statistics

	Employment	**Revenues**
Country		
Czech Republic	0.83	0.89
Denmark	0.86	0.90
France	0.87	0.92
Germany	0.96	1.02
Hungary	0.79	0.85
Lithuania	0.86	0.88
Netherlands	0.90	0.99
Poland	0.83	0.91
Portugal	0.78	0.85
Romania	0.88	0.84
Slovakia	0.88	0.76
Slovenia	0.85	0.81
Spain	0.61	0.63
Switzerland	0.74	0.75
Industry		
Manufacture of food products	0.84	0.91
Manufacture of beverages	0.85	0.90
Manufacture of tobacco products	0.80	0.87
Manufacture of textiles	0.90	0.99
Manufacture of wearing apparel	0.90	1.06
Manufacture of leather and related products	0.86	0.99
Manufacture of wood and of products of wood	0.72	0.78
Manufacture of paper and paper products	0.83	0.93
Printing and reproduction of recorded media	0.84	0.91
Manufacture of chemicals and chemical products	1.02	1.01

Manufacture of basic pharmaceutical products	1.02	1.05
Manufacture of plastics products	0.85	0.92
Manufacture of other non-metallic mineral products	0.87	0.90
Manufacture of basic metals	0.97	0.99
Manufacture of fabricated metal products	0.78	0.85
Manufacture of computer, electronic and optical products	0.96	0.82
Manufacture of electrical equipment	0.99	1.03
Manufacture of machinery and equipment n.e.c.	0.99	1.00
Manufacture of motor vehicles, trailers and semi-trailers	0.95	0.89
Manufacture of other transport equipment	0.96	0.91
Manufacture of furniture	0.81	0.82
Other manufacturing	0.93	0.81
Repair and installation of machinery and equipment	0.86	0.89

Note: Table A.1. shows the ratios of Employment and Revenues in CompNet over Eurostat Structural Business Statistics for the matched country-industry combination