

Understanding the Financial Resource Curse: The Impact of Net Capital Inflows on Sectoral R&D Spending

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Abstract

The “financial resource curse” describes a paradox in which surges of foreign capital inflows reallocate economic activity toward the non-tradable sector and away from the tradable sector, the sector most closely tied to innovation. Using a panel of 16 OECD countries, 20 harmonized sectors, and the period 1995–2023, this paper directly tests that channel by estimating how a sector’s R&D intensity responds to capital inflows. A three-way fixed effects model shows that the interaction between net capital inflows and a sector’s tradability share has a negative and highly significant effect on R&D intensity, an effect that is robust to controlling for GDP per capita, resource rents, the tax environment, and value-added share. Decomposing inflows by instrument type reveals this effect is driven specifically by net foreign direct investment; the portfolio-investment interaction is small and never statistically distinguishable from zero. This pattern points to a real capital-reallocation channel, inflows redirected toward non-tradable investment and crowding out R&D in tradable sectors, rather than a purely financial-market channel.

1 Introduction

The “resource curse” describes the well-documented paradox in which countries richly endowed with natural resources tend to grow more slowly, and more volatile, than resource-poor countries. Sachs and Warner (2001) provide the foundational empirical treatment, showing that resource-abundant economies systematically underperform over long horizons even after controlling for institutional quality, initial investment, and trade openness, and attribute the pattern to some combination of crowding-out of manufacturing, wealth-shock-driven wage and price pressure, and underinvestment in education and innovation.

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A parallel literature has since identified a financial analog of this curse. Cardarelli, Elekdag, and Kose (2009) study 109 large capital-inflow episodes across 52 countries between 1987 and 2007 and document a consistent pattern: inflows initially coincide with a consumption- and non-tradable-sector-led growth boom, which subsequently gives way to eroding tradable-sector competitiveness and, in a sizable minority of episodes, a sudden stop or currency crisis.

Benigno, Fornaro, and Wolf (2025) extend this logic to the United States and connect it to one of the more puzzling macroeconomic facts of the last three decades. Since the late 1990s the United States has run large, persistent current account deficits, financed by a corresponding surplus of saving in developing economies – the “global saving glut” (Bernanke, 2005) – even as U.S. productivity growth has simultaneously slowed since the early 2000s. This is, on its face, a puzzle: conventional wisdom holds that cheap foreign capital should finance investment and raise productivity, not coincide with its decline. Benigno et al. (2025) resolve the puzzle with a model built on two premises – that the United States sits at the global technological frontier, and that the tradable sector is the economy’s primary engine of innovation while the non-tradable sector is comparatively stagnant. In their framework, capital inflows raise domestic consumption and non-tradable demand, which appreciates the real exchange rate and erodes the tradable sector’s market share and profitability; with the tradable sector shrinking, firms curtail R&D, and because the United States sits at the technological frontier, the slowdown in U.S. innovation drags down global productivity growth. They term this the “global financial resource curse,” explicitly drawing the parallel to the natural-resource literature, but with a financial rather than a natural-resource windfall as the trigger.

Benigno et al. (2025) motivate this R&D-investment channel with aggregate evidence – the U.S. manufacturing employment share and U.S. productivity growth – but do not observe firm- or sector-level R&D spending directly. Separately, Azenui, Hlatshwayo, and Spence (2025) document that this tradable/non-tradable divide is not merely a modeling assumption: by 2023 the non-tradable sector accounted for 77% of U.S. employment and 68% of real value added, even though the tradable sector’s labor productivity grew roughly 3.0% per year between 1998 and 2023, versus roughly 0.7% per year in the non-tradable sector – leaving tradable-sector productivity around 1.5 times that of the non-tradable sector by 2023. Because the tradable sector is the economy’s innovation engine but employs a shrinking share of the workforce, the mechanism Benigno et al. propose has real stakes for aggregate growth, which makes a direct empirical test of the R&D channel itself worth pursuing.

This paper provides that test. We ask a narrow, sector-level version of the question Benigno et al. pose at the aggregate level: do surges in net capital inflows disproportionately reduce R&D spending in tradable sectors relative to non-tradable sectors?

Our contribution is twofold. First, we construct a direct, sector-level test of the R&D-investment channel using actual R&D expenditure data across a broad panel of OECD economies, rather than relying on the aggregate proxies (manufacturing employment share, aggregate productivity growth) used to motivate the theory. Second, we decompose capital inflows by instrument type – foreign direct investment versus portfolio investment – to test whether the tradable-sector effect, if present, is driven by real capital reallocation or by portfolio flows whose link to sectoral investment decisions is considerably weaker.

Using a panel of 16 OECD countries, 20 harmonized sectors, and the period 1995–2023, we find strong support for the R&D-investment channel: the interaction between lagged net capital inflows and a sector’s tradability share is negative and highly significant across every specification we estimate, and remains so once we decompose the effect by instrument type – where it is net FDI, not net portfolio investment, that drives the result. The remainder of the paper proceeds as follows. Section 2 reviews the related literature. Section 3 lays out our conceptual framework and testable hypothesis. Section 4 describes the data. Section 5 presents suggestive cross-sectional evidence motivating the panel analysis. Section 6 details the econometric model, and Section 7 presents the results. Section 8 discusses policy implications, and Section 9 concludes.

2 Literature Review

2.1 From Natural to Financial Resource Curses

Sachs and Warner (2001) remain the standard reference for the natural resource curse: across a broad cross-section of countries, resource abundance is robustly associated with slower long-run growth, a pattern that survives controls for institutions, investment, and openness. The mechanisms they identify – crowding out of manufacturing, wage and price pressure from resource windfalls, and neglect of education and innovation – provide the conceptual template that the financial resource curse literature later adapts to capital flows rather than commodity endowments.

Cardarelli, Elekdag, and Kose (2009) provide the empirical bridge, documenting that large capital-inflow episodes follow a similar boom-then-bust trajectory: an initial consumption- and non-tradable-led expansion, followed by eroding tradable-sector competitiveness and, in a substantial share of episodes, a disorderly reversal. Benigno, Fornaro, and Wolf (2025), discussed above, formalize this logic in a model where the mechanism runs specifically through the tradable sector’s role as the innovation engine, and apply it to the U.S. experience of persistent current account deficits and slowing productivity growth. Their framework is the direct theoretical anchor for this paper: we

take their R&D-investment channel as the object to be tested, rather than proposing a new theoretical mechanism ourselves.

2.2 The Tradable Sector, Deindustrialization, and Innovation

A related literature emphasizes the consequences of losing the tradable sector, particularly for economies further from the technological frontier. Rodrik (2016) documents that developing countries today are experiencing “premature deindustrialization” – losing manufacturing employment share at far lower levels of income than earlier industrializers did – and argues that a shrinking tradable sector forecloses the productivity catch-up historically associated with manufacturing-led growth. Botta, Porcile, and Yajima (2021) find a direct empirical link between capital-inflow “bonanza” episodes and this kind of premature deindustrialization, with the structural damage more severe for emerging than for advanced economies. Because our sample consists entirely of OECD economies, this premature-deindustrialization channel is not the primary lens of our analysis; we cite this literature mainly to establish why the tradable sector’s health is worth caring about, rather than to test the developing-country mechanism directly.

Hausmann and Rigobon (2003) add an important nuance to the resource-curse mechanism: it is the volatility of capital inflows, not merely their level, that undermines long-horizon, capital-intensive investments such as R&D, since firms facing the prospect of a sudden reversal and a spike in financing costs are reluctant to commit to multi-year research programs. At the micro level, Magalhães (2020) provides firm-level evidence from Portugal that the elasticity of R&D investment with respect to firm revenue is substantially larger in tradable industries than in non-tradable ones, supporting the premise that tradable-sector investment is disproportionately important for long-run growth. Finally, Azenui, Hlatshwayo, and Spence (2025) supply both the motivating U.S. structural facts described above and the continuous sector-level tradability-share methodology we adopt in our own sector classification.

3 Conceptual Framework

Following Benigno, Fornaro, and Wolf (2025), we organize the empirical analysis around a simple causal chain. A surge in net capital inflows raises domestic consumption and non-tradable demand, which appreciates the real exchange rate. This appreciation can affect the tradable sector through two channels that are observationally similar in our data even though they operate somewhat differently: an indirect, market-share channel, in which the appreciation erodes the tradable sector’s competitiveness and market share over time, and a more direct, margin-squeeze channel, in which the appreciation compresses tradable-sector profit margins without necessarily

requiring an outright loss of market share. In either case, tradable firms are left with lower profits and less investable capital, and R&D spending – a long-horizon, discretionary expenditure that is typically the first budget line to be cut when internal funds tighten – declines.

Because this mechanism operates specifically through the tradable sector, it generates a sharp testable hypothesis: the negative effect of net capital inflows on R&D spending should be increasing in a sector’s tradability. Equivalently, we should observe a negative interaction between capital inflows and a sector’s tradable share, regardless of whether the underlying channel is the indirect market-share mechanism or the direct margin-squeeze mechanism. This is the hypothesis our empirical model is designed to test.

4 Data

The empirical analysis uses a sector-country-year panel spanning 16 OECD countries, 20 harmonized ISIC Rev.4 sectors, and the period 1995–2023. The sample window is chosen to be long enough to span the pre-2008 capital-inflow boom through the post-COVID period. The 16 countries – Austria, Belgium, Canada, Czechia, Finland, Germany, Hungary, Italy, Japan, South Korea, Norway, Portugal, Slovenia, Spain, Türkiye, and the United States – are those that pass an 80% data-completeness screen on sectoral R&D coverage over the full sample window, out of a broader initial universe of OECD countries.

The panel draws on four sources. Sectoral R&D expenditure comes from the OECD’s Analytical Business Enterprise Research and Development database (ANBERD). Sector-level value added, output, and taxes come from the OECD’s Structural Analysis database (STAN). Capital-flow data come from two complementary sources: Milesi-Ferretti and Lane’s External Wealth of Nations database supplies the current account and GDP series used to construct total net capital inflows, while the IMF’s Balance of Payments statistics supply the transaction-level flow data used to separately construct net FDI and net portfolio investment. Country-level GDP per capita and natural resource rents come from the World Bank’s World Development Indicators.

Sectors are classified by a continuous tradability share on $[0, 1]$, following the methodology of Azenui et al. (2025), rather than a binary tradable/non-tradable indicator. Table 1 illustrates this classification for a representative subset of the 20 sectors in the panel: manufacturing industries are uniformly assigned a tradability share of 1.00, services such as finance and information/communication fall in an intermediate range, and sectors such as construction, real estate, transportation, and accommodation are assigned a share of 0.00. The full sector list also includes a “Wholesale and Retail Trade” category,

whose tradability share is constructed as the average of its two constituent activities (wholesale and retail trade) from the underlying source data, since the two activities have markedly different tradability but are not separately reported in our R&D and value-added sources.

Table 1: Sector Classification and Tradability Shares (Illustrative)

Sector	Tradability Share
Agriculture, Forestry & Fishing	1.00
Manufacturing (all subsectors)	1.00
Finance & Insurance Activities	0.68
Information & Communication	0.66
Utilities	0.19
Human Health & Social Work	0.02
Construction, Real Estate, Transportation & Accommodation	0.00

4.1 Variables

The dependent variable throughout is sector-level **R&D intensity**: R&D spending divided by real value added, expressed as a percentage. The primary explanatory variable is net capital inflows, measured as a percentage of GDP and lagged one year to allow for a delayed adjustment of R&D budgets to macroeconomic shocks. We construct three separate measures. *Total net capital inflows* is the broadest measure, equal to minus the current account balance as a share of GDP, and includes every category of the financial account. *Net FDI* isolates the direct investment (equity) component of the financial account using IMF Balance of Payments data. *Net portfolio investment* isolates the portfolio debt and equity components. Estimating the model separately with each of these three measures lets us test whether the tradable-sector effect, if present, reflects real capital reallocation (which FDI proxies more directly) or a broader financial-market channel that would also show up in portfolio flows.

At the country level, we control for the natural log of real GDP per capita, natural resource rents as a share of GDP, and the net tax rate (net taxes less subsidies on production, divided by nominal value added). At the sector level, we control for a sector's value-added share of the country's total value added in that year. We do not include a labor-productivity or employment-share control, since the underlying STAN employment series has unreliable coverage across the country-sector-year cells in our sample.

Table 2 presents summary statistics for the estimation sample ($N = 5,714$, uniform across variables because the estimation sample is restricted to the complete-case intersection of all variables used across our four model specifications). R&D intensity has a median of 1.28% and a mean of 3.09%, reflecting the right-skewed distribution one

would expect of an intensity ratio; lagged capital inflows average -0.49% of GDP with substantial dispersion (from -16.12% to 11.86%); and the tradable share averages 0.75, reflecting that a majority of the panel's sector-year cells fall in manufacturing.

Table 2: Key Variables and Summary Statistics

	N	Mean	Median	Min	Max
R&D Intensity (%)	5714	3.09	1.28	0.0004	74.97
Capital Inflows (t-1, % GDP)	5714	-0.49	-0.53	-16.12	11.86
Tradable Share	5714	0.75	1.00	0.00	1.00
log(GDP per capita)	5714	10.31	10.43	8.95	11.31
Net Tax Rate	5714	-0.004	0.002	-0.931	0.306
Resource Rents (% of GDP)	5714	0.89	0.22	0.01	12.62
Value Added Share	5714	0.056	0.043	0.001	0.385

5 Suggestive Cross-Sectional Evidence

Before turning to the panel regression, we present descriptive, country-level evidence motivating the analysis. Figure 1 plots median R&D intensity by sector across the 16-country panel. R&D activity is heavily concentrated in a specific set of tradable, high-technology sectors – computers and electronics, other transport equipment, chemicals, and machinery – with non-tradable sectors clustered at the low end of the distribution. This concentration does not by itself threaten our identification strategy: sector fixed effects in the panel regression absorb this cross-sector level gap, and the interaction term we estimate instead asks whether a given sector's R&D moves differently with capital inflows depending on its tradability, not simply whether tradable sectors have more R&D on average.

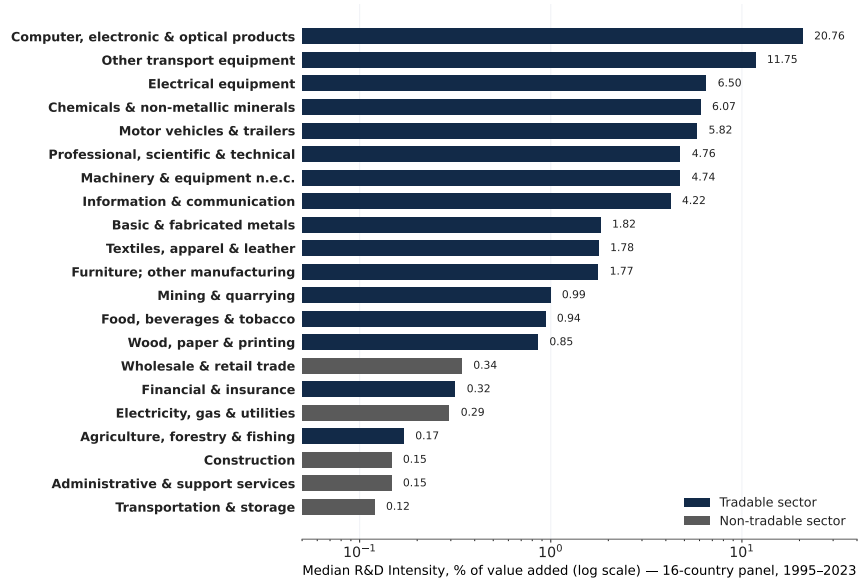


Figure 1: R&D Intensity by Sector, 16-Country Panel, 1995–2023

To motivate the panel analysis, we also construct simple country-level scatter plots of average R&D intensity against each of our three capital-inflow measures, splitting sectors into a Tradable group (tradability share ≥ 0.5) and a Non-Tradable group for this purely descriptive exercise. Figures 2–4 present these relationships. For total net capital inflows (Figure 2), the tradable-sector correlation is negative and significant at the 5% level, while the non-tradable-sector correlation is small and insignificant. Norway is excluded from this panel (and from the net portfolio panel below) because it is a formal high-leverage outlier – a persistent, large-magnitude net capital *exporter* due to its sovereign wealth fund – that is not representative of the rest of the sample on this particular measure.

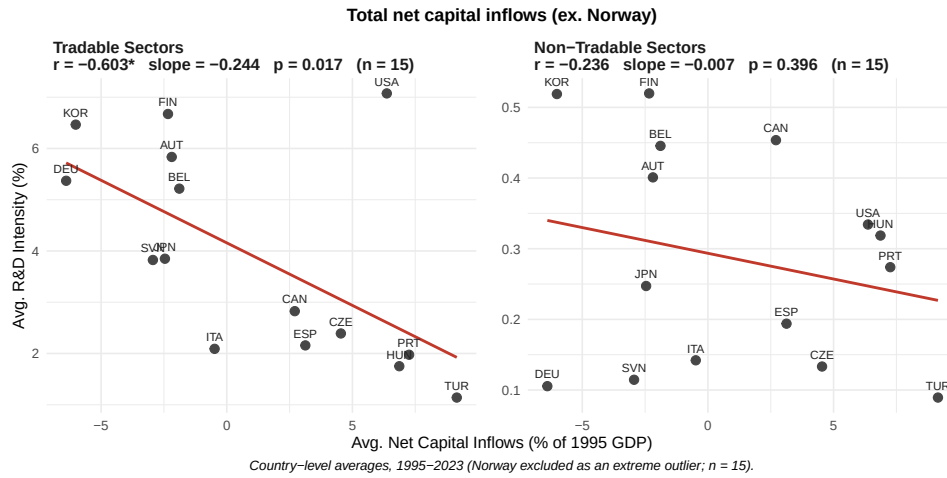


Figure 2: Suggestive Evidence: Total Net Capital Inflows and R&D Intensity

Decomposing total inflows by instrument type sharpens this pattern. For net FDI (Figure 3, full 16-country sample, since Norway is not a high-leverage point on this measure), the tradable-sector correlation is negative and marginally significant; for net portfolio investment (Figure 4, Norway excluded), the tradable-sector correlation is small, negative, and far from significant.

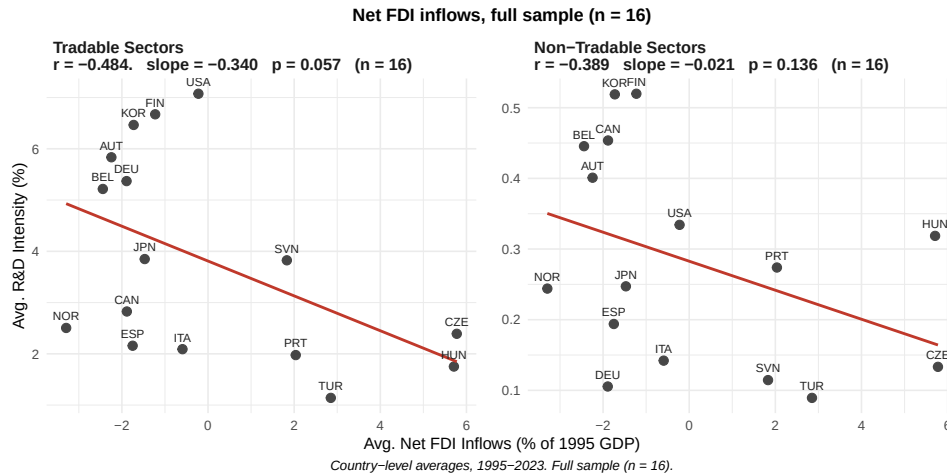


Figure 3: Suggestive Evidence: Net FDI Inflows and R&D Intensity

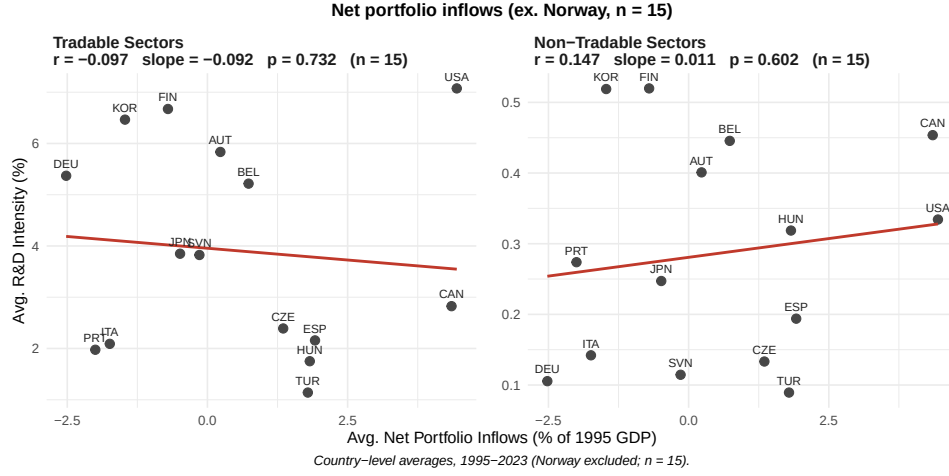


Figure 4: Suggestive Evidence: Net Portfolio Inflows and R&D Intensity

We emphasize that these are raw, small-sample ($n = 15$ – 16) country-level correlations with no controls, and are not a substitute for the panel regression that follows; we present them only as motivating evidence that the qualitative pattern the panel model is designed to test is visible even in the simplest possible cut of the data.

6 Econometric Model

To formally test whether surges in capital inflows disproportionately depress R&D intensity in tradable sectors, we estimate the following three-way fixed effects model:

$$\begin{aligned} \text{R\&D Intensity}_{ict} = & \beta_0 + \beta_1 \text{Capital_Inflows}_{ct-1} + \beta_2 (\text{Capital_Inflows}_{ct-1} \times \text{Tradable}_i) \\ & + \beta_3 X_{ct} + \beta_4 Z_{ict} + \tau_i + \alpha_c + \theta_t + \varepsilon_{ict} \end{aligned}$$

where i indexes sector, c indexes country, and t indexes year. We estimate this model separately for each of our three capital-inflow measures (total net capital inflows, net FDI, and net portfolio investment), each lagged one year. τ_i , α_c , and θ_t are sector, country, and year fixed effects, respectively; X_{ct} is the vector of country-level controls (log GDP per capita, net tax rate, resource rents); and Z_{ict} is the sector-level control (value-added share). Robust standard errors are used throughout. The coefficient of interest is β_2 , the differential effect of capital inflows on R&D intensity as a function of a sector's tradability.

For each capital-inflow measure we report four progressively saturated specifications: a pooled OLS regression with no fixed effects; a three-way fixed effects specification with no additional controls; the three-way fixed effects specification with the

full set of country-level controls; and that specification augmented with the sector-level value-added share control.

7 Results

Table 3 presents results using total net capital inflows. Unlike a naive specification might suggest, the interaction term is already negative and highly significant in the pooled OLS column (-0.0932 , $p < 0.001$), and remains remarkably stable in magnitude as we move to the three-way fixed effects specification (-0.1129), and then as we successively add country-level controls (-0.1113) and the sector value-added share (-0.1073) – all significant at the 0.1% level. The point estimate implies that a one-percentage-point increase in lagged net capital inflows is associated with roughly a 0.09 to 0.11 percentage-point larger decline in R&D intensity in a fully tradable sector relative to a fully non-tradable one.

Table 3: R&D Intensity and Total Net Capital Inflows

	Pooled OLS	Three-Way FE	+ Controls	+ VA Share
Capital Inflows (lag)	0.0118** (0.0037)	0.0942*** (0.0160)	0.0976*** (0.0172)	0.0946*** (0.0176)
Tradable Share	4.2655*** (0.0995)	–	–	–
Cap. Inflows $\times$ Tradable Share	-0.0932^{***} (0.0163)	-0.1129^{***} (0.0147)	-0.1113^{***} (0.0146)	-0.1073^{***} (0.0146)
log GDP per Capita	–	–	$-1.1447^{\dagger}$ (0.6632)	-1.1640 (0.6634)
Net Tax Rate	–	–	$0.9253^{\dagger}$ (0.4860)	0.8365 (0.4878)
Resource Rents	–	–	$0.1112^{\dagger}$ (0.0626)	0.1107 (0.0629)
Value Added Share	–	–	–	2.0419 (1.2632)
Num. obs.	5714	5714	5714	5714
Adj. R^2	0.1212	0.5617	0.5621	0.5621
Country / Year / Sector FE	–	16 / 26 / 20	16 / 26 / 20	16 / 26 / 20

Note: $^{\dagger} p < 0.10$; $* p < 0.05$; $** p < 0.01$; $*** p < 0.001$. Robust SEs in parentheses.

Table 4 decomposes this effect using net FDI. The interaction term is negative and significant at the 0.1% level in every specification, ranging narrowly from -0.0793 to -0.0834 , and is, if anything, even more stable across specifications than the total-inflows result.

Table 4: R&D Intensity and Net FDI Inflows

	Pooled OLS	Three-Way FE	+ Controls	+ VA Share
Net FDI (lag)	0.0016 (0.0041)	0.0616*** (0.0105)	0.0614*** (0.0105)	0.0613*** (0.0105)
Tradable Share	4.1981*** (0.0948)	—	—	—
Net FDI $\times$ Tradable Share	−0.0793*** (0.0170)	−0.0833*** (0.0155)	−0.0834*** (0.0155)	−0.0828*** (0.0156)
log GDP per Capita	—	—	−1.4437** (0.5957)	−1.4816* (0.5939)
Net Tax Rate	—	—	0.8030 (0.5535)	0.6408 (0.5535)
Resource Rents	—	—	0.0893 (0.0543)	0.0881 (0.0549)
Value Added Share	—	—	—	3.2422* (1.3131)
Num. obs.	5516	5516	5516	5516
Adj. R^2	0.1292	0.5807	0.5811	0.5815
Country / Year / Sector FE	—	16 / 26 / 20	16 / 26 / 20	16 / 26 / 20

Note: $^{\dagger} p < 0.10$; $* p < 0.05$; $** p < 0.01$; $*** p < 0.001$. Robust SEs in parentheses.

Table 5 repeats the exercise for net portfolio investment. Here the interaction term is small, positive, and not statistically distinguishable from zero in any specification.

Taken together, these three tables tell a consistent story: the interaction term is negative and highly significant for total capital inflows and net FDI in every specification, but indistinguishable from zero for net portfolio investment. This suggests the tradable-sector effect is driven by FDI, not portfolio flows – consistent with a real capital-reallocation channel, in which inflows are physically redirected into non-tradable investment and crowd out tradable-sector R&D, rather than a purely financial-market channel with a weaker link to sectoral investment decisions. In economic terms, for a fully tradable sector relative to a fully non-tradable one, a one-percentage-point rise in lagged net FDI is associated with an additional 0.08 percentage-point decline in R&D intensity – a non-trivial magnitude against a sample median R&D intensity of approximately 1.2% and a mean of approximately 3.0%.

8 Policy Implications and Conclusion

Our results suggest that surges in capital inflows carry a cost to innovation, not only to industrial employment, and that this cost is concentrated in the tradable sector and in inflows that plausibly reflect real capital reallocation rather than portfolio rebalancing.

Table 5: R&D Intensity and Net Portfolio Investment

	Pooled OLS	Three-Way FE	+ Controls	+ VA Share
Net Portfolio (lag)	0.0012 (0.0038)	−0.0046 (0.0084)	−0.0023 (0.0084)	−0.0034 (0.0084)
Tradable Share	4.2148*** (0.0966)	—	—	—
Net Portfolio × Tradable Share	0.0146 (0.0168)	0.0094 (0.0130)	0.0103 (0.0130)	0.0125 (0.0130)
log GDP per Capita	—	—	−1.7703** (0.6181)	−1.8245** (0.6154)
Net Tax Rate	—	—	1.1057* (0.5338)	0.9473 (0.5333)
Resource Rents	—	—	0.1003 [†] (0.0548)	0.0993 (0.0554)
Value Added Share	—	—	—	3.3719* (1.3355)
Num. obs.	5433	5433	5433	5433
Adj. R^2	0.1273	0.5860	0.5866	0.5870
Country / Year / Sector FE	—	16 / 26 / 20	16 / 26 / 20	16 / 26 / 20

Note: [†] $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Robust SEs in parentheses.

For OECD policymakers, this points toward monitoring the composition of capital inflows – not simply their aggregate size – when assessing risks to long-run innovation capacity, and suggests that policies aimed at stabilizing the real exchange rate or otherwise insulating the tradable sector during large FDI-driven inflow episodes may have a role to play in protecting R&D investment specifically.

This paper provides a direct, sector-level test of the R&D-investment channel proposed by Benigno, Fornaro, and Wolf (2025), using a panel of 16 OECD countries, 20 harmonized sectors, and the period 1995–2023. We find that the interaction between lagged net capital inflows and a sector’s tradability share is negative and highly significant across specifications, and that this effect is driven specifically by net FDI rather than net portfolio investment. These results are consistent with the theorized mechanism operating through a real reallocation of capital away from the tradable sector, rather than through a broader financial-market channel.

There are two extensions that are natural next steps for the next draft of this paper. First, because R&D intensity is a ratio, its comovement with capital inflows could in principle reflect movements in the denominator (sectoral value added) as much as the numerator (actual R&D spending). This concern is closely related to points raised in the innovation-and-trade literature: Arkolakis, Ramondo, Rodríguez-Clare, and Yeaple (2018) show that a sector’s or firm’s capacity to serve foreign markets through multina-

tional production, rather than through trade or innovation, materially shapes how it responds to changes in market access. Since our tradability measure does not distinguish sectors by their capacity for multinational production, part of the estimated interaction could in principle reflect differences in multinational-production capacity that happen to be correlated with tradability, rather than the R&D-investment channel specifically. We plan to address this with two complementary checks: decomposing the R&D-intensity result into separate numerator (R&D spending) and denominator (value-added) effects, to confirm the result is not mechanically driven by value-added movements; and extending the specification to allow the capital-inflow effect to vary with a measure of a sector’s multinational-production capacity, to test whether the tradability interaction survives once this heterogeneity is accounted for.

Second, our current specification estimates a single average partial effect of a capital-inflow shock on R&D intensity. Tracing the full dynamic path of the tradable- versus non-tradable-sector response at horizons $h = 1, \dots, H$ – in the spirit of Müller and Verner’s (2024) event-study treatment of sectoral credit-allocation shocks – would clarify whether the effect we document here builds gradually as firms adjust R&D budgets with a lag, or is closer to an immediate reallocation. An event-study design built around discrete capital-flow “bonanza” episodes is a natural way to implement this and is planned as a follow-up to the present analysis.

References

- [1] Arkolakis, C., Ramondo, N., Rodríguez-Clare, A., & Yeaple, S. 2018. Innovation and production in the global economy. *American Economic Review*, 108(8), 2128–2173.
- [2] Azenui, B., Hlatshwayo, S., & Spence, M. 2025. Economic Tectonics: A Closer Look at Structural Changes and Productivity Trends in the US Economy. IMF Working Paper.
- [3] Benigno, G., Fornaro, L., & Wolf, M. 2025. The global financial resource curse. *American Economic Review*, 115(1), 220–262.
- [4] Botta, A., Porcile, G., & Yajima, G. 2021. Structural change, productive development, and capital flows: Does financial “bonanza” cause premature de-industrialization? *Structural Change and Economic Dynamics*, 62, 271–288.
- [5] Cardarelli, R., Elekdag, S., & Kose, M. A. 2009. Capital inflows: Macroeconomic implications and policy responses. IMF Working Paper No. 09/40.

- [6] Hausmann, R., & Rigobon, R. 2003. An alternative interpretation of the “resource curse”: Theory and policy implications. NBER Working Paper No. 9424.
- [7] Magalhães, M. 2020. The impact of financial constraints on tradable and non-tradable R&D investments in Portugal. Banco de Portugal Working Papers, No. 2020/06.
- [8] Müller, K., & Verner, E. 2024. Credit allocation and macroeconomic fluctuations. *Review of Economic Studies*, 91(6).
- [9] Rodrik, D. 2016. Premature deindustrialization. *Journal of Economic Growth*, 21(1), 1–33.
- [10] Sachs, J. D., & Warner, A. M. 2001. The curse of natural resources. *European Economic Review*, 45(4–6), 827–838.