

## Macroeconomic Determinants of Economic Integration in the European Union - case of FDI in Real Estate

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**Abstract**—This paper investigates determinants of foreign direct investment (FDI) in the real estate sector across 26 European Union member states. Using two-way fixed effects panel regression models, we test whether: (H1) rising construction producer prices negatively affect real estate FDI, with a weaker effect in eurozone countries; and (H2) higher property tax burdens negatively affect real estate FDI, with a weaker effect in post-transition member states. Both hypotheses are confirmed at conventional significance levels. Construction price inflation deters foreign real estate investment, but the eurozone's macroeconomic stability, shared currency, and harmonized business rules substantially attenuate this deterrent. Property taxes also reduce FDI inflows, though this effect is largely neutralized in post-transition economies, where lower baseline asset prices, stronger capital appreciation expectations, and targeted tax incentive policies compensate for the tax burden. These findings have direct implications for investment climate policy in both eurozone and post-transition EU economies.

**Keywords**— construction producer prices, European Union, eurozone, panel data, post-transition economies, property taxes, real estate FDI

### I. INTRODUCTION

Real estate constitutes one of the largest asset classes in the global economy and a significant channel through which foreign direct investment (FDI) flows across borders. Despite this, sector-specific determinants of real estate FDI remain underexplored relative to manufacturing and services FDI. This paper focuses on two macroeconomic channels that receive particular attention given the structural characteristics of real estate as an investment class.

The first concerns the cost side of real estate supply: construction producer prices. Rising building costs increase the capital outlay required for new development, reduce profitability margins, and introduce uncertainty about project completion costs, all of which should, in theory, deter foreign capital. The second concerns the fiscal environment: property taxes. Unlike corporate income taxes, property taxes are recurrent, difficult to avoid, and apply regardless of investment profitability, imposing a fixed ownership cost that raises the return threshold required to justify investment [1].

A key analytical contribution of this paper is the examination of how these two macroeconomic

deterrents are moderated by EU structural characteristics. For construction prices, we test whether eurozone membership, which brings currency stability, lower transaction costs, and harmonized monetary policy [2] - buffers foreign investors against cost-side shocks. For property taxes, we test whether post-transition member states - which exhibit lower baseline asset valuations, stronger appreciation expectations, and more flexible tax incentive regimes - show reduced investor sensitivity to tax burdens.

The paper tests two formal hypotheses: **H1**: Rising construction producer prices negatively affect real estate FDI in EU member states, but the effect is weaker in eurozone countries; **H2**: Higher property tax burdens negatively affect real estate FDI, but the effect is weaker in post-transition member states.

### II. LITERATURE REVIEW

#### A. Construction Costs and Real Estate Investment

The transmission of rising construction costs to real estate investment outcomes operates through several well-documented channels. [3] describe a four-stage mechanism: higher input costs reduce new housing starts, tighten the rental market, raise rents, and ultimately inflate capitalized property values. Their

empirical estimates suggest that a 1% increase in construction costs raises property prices by approximately 0.6 percentage points. [4] corroborates this cost-price nexus in a sample of 21 developing economies.

For FDI specifically, cost inflation introduces two additional deterrence mechanisms. First, downward price rigidity means that construction cost increases are asymmetrically passed on to property prices, compressing investor margins when costs rise while failing to improve them when costs moderate [5]. Second, supply rigidities - lengthy permit procedures, labor market frictions, supply chain constraints - mean that foreign developers cannot offset cost increases by scaling up production, amplifying uncertainty about project returns [6]. [7] show that construction activity significantly predicts real estate FDI inflows in China, while [8] confirm that real estate market conditions are among the primary global determinants of commercial real estate investment.

The moderating role of eurozone membership follows from [2], who demonstrate that euro adoption significantly increases bilateral investment flows by eliminating exchange rate risk and reducing transaction costs. For long-duration assets like real estate, currency stability directly improves the predictability of multi-year return profiles, dampening the deterrent effect of cost-side shocks within the monetary union.

### B. Property Taxation and Real Estate FDI

The tax-FDI literature consistently documents a negative relationship between corporate income taxes and investment inflows [9] [10] [11]. Property taxes share this general deterrent logic but differ in important respects: they are levied periodically regardless of profitability, are virtually impossible to avoid given the immobility and visibility of real property, and depend on cadastral valuations that may be unreliable in less developed administrative systems [1].

[8] provide the most direct evidence for commercial real estate, finding that higher tax levels are negatively

correlated with FDI inflows. Their 'within estimator' further shows that tax reductions within countries stimulate subsequent investment. [12] notes that institutional factors including taxation carry more weight in developing than in advanced economies, which motivates the hypothesis that post-transition EU members show differential tax sensitivity. The theoretical rationale for attenuation in post-transition countries is threefold. First, lower baseline asset prices mean that even after accounting for tax obligations, expected net returns may remain attractive relative to high-priced western markets. Second, stronger capital appreciation prospects in converging economies provide a return premium that can absorb tax costs [13]. Third, post-transition governments have been documented to strategically deploy tax incentives - exemptions, deferred liabilities, investment allowances - to offset structural attractiveness shortcomings [8] [10].

### III. DATA AND METHODOLOGY

The analysis draws on annual panel data for 26 EU member states over 2013–2022. Ireland is excluded due to missing sectoral FDI data. The start of the sample period is determined by Eurostat's adoption of the BPM6/BD4 reporting framework in 2013, which is incompatible with earlier BPM5/BD3 data. The dependent variable is inward FDI in the real estate sector (NACE Rev. 2, Section L), measured as Direct Investment in the Reporting Economy (DIRE) sourced from Eurostat. Post-transition member states in the sample include: Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovakia, Slovenia, Bulgaria, Romania, and Croatia. Eurozone member states include: Austria, Belgium, Cyprus, Estonia, Finland, France, Greece, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Germany, Portugal, Slovakia, Slovenia, and Spain. Two-way fixed effects models are estimated with country-clustered standard errors. Wald tests are used to formally validate the sign and significance of key coefficient pairs.

Table 1 defines the variables used in both models.

**Table 1. Variable Definitions and Sources**

Real estate FDI (dependent)	FDI	Inward FDI in real estate (NACE L), EUR mn	Eurostat
Government bond yield	r	Long-term government bond yield (%)	World Bank WDI
Mortgage interest rate	i	Interest rate on residential mortgages (%)	Eurostat
Real GDP growth	gy	Annual real GDP growth rate (%)	World Bank WDI

Housing price index growth	$\pi$ HPI	Annual growth of residential property prices	Eurostat
Construction price growth	$\pi$ CP	Annual growth of construction producer prices for new residential buildings (%)	Eurostat
Property tax burden	p	Recurrent taxes on immovable property, % of GDP	EC DG TAXUD
Business registration	br	New firm registrations per 1,000 population	World Bank
Starting a business	st	Procedures to start a business (count)	World Bank
Investor protection	inv	Minority investor protection index	World Bank
Tax payments burden	tx	Total tax rate, % of commercial profits	World Bank
Eurozone dummy	eurozone	= 1 if eurozone member	EC
Post-transition dummy	PT	= 1 if post-transition EU member	Authors

Note: Interaction terms  $\pi$  CP  $\times$  eurozone (Model 1) and  $p \times PT$  (Model 2) are constructed as the products of the respective key variable and dummy.

**The two models estimated are:**

Model 1:

$$FDI_{it} = \alpha_i + \beta_1 r_{it} + \beta_2 i_{it} + \beta_3 gy_{it} + \beta_4 \pi_{HPI_{it}} + \beta_5 \pi_{CP_{it}} + \beta_6 \pi_{CP_{it}} \cdot \text{eurozone} + \beta_7 br_{it} + \beta_8 st_{it} + \beta_9 inv_{it} + \beta_{10} tx_{it} + \gamma_t + u_{it}$$

Model 2:

$$FDI_{it} = \alpha_i + \beta_1 r_{it} + \beta_2 i_{it} + \beta_3 gy_{it} + \beta_4 \pi_{HPI_{it}} + \beta_5 p + \beta_6 p \cdot PT + \beta_7 br_{it} + \beta_8 st_{it} + \beta_9 inv_{it} + \beta_{10} tx_{it} + \gamma_t + u_{it}$$

H1 is accepted if  $\beta_5 < 0$  (significant) and  $\beta_6 > 0$  (significant). H2 is accepted if  $\beta_5 < 0$  (significant) and  $\beta_6 > 0$  (significant).

**IV. RESULTS**

*A. Construction Producer Prices and Real Estate FDI*

Table 2 reports Model 1 results. The coefficient on  $\pi$  CP is  $-0.166$  ( $p < 0.01$ ), confirming that construction price inflation is a significant deterrent to real estate FDI. The interaction term  $\pi$  CP  $\times$  eurozone is positive and significant ( $0.096$ ,  $p < 0.05$ ), confirming that this deterrent is substantially weaker in eurozone member states. The Wald test confirms  $\beta_5 < 0$  and  $\beta_6 > 0$  at conventional significance levels, supporting acceptance of Hypothesis H1.

**Table 2. Estimation Results: Model 1 - Construction Prices (H1)**

r	0.190	[0.037]	***
i	-8.690	[4.148]	**
gy	3.026	[1.128]	***
$\pi$ HPI	2.220	[0.782]	***
$\pi$ CP ← key variable	-0.166	[0.044]	***
$\pi$ CP $\times$ eurozone ← interaction	0.096	[0.050]	**
br	-0.038	[0.017]	**
st	1.606	[1.630]	n.s.
inv	-2.238	[0.540]	***
tx	-2.020	[0.695]	***
Constant	18.415	[5.898]	***
Observations / R <sup>2</sup>	87 / 0.766	-	-

Note: \*\*\*, \*\*, \* = significance at 1%, 5%, 10%. Country and time fixed effects included. Standard errors clustered by country.

The economic mechanism behind the base effect is well-grounded. Rising construction costs trigger two reinforcing deterrents: (i) downward price rigidity,

which causes property prices to rise asymmetrically when costs increase, compressing investor return margins; and (ii) supply quantity rigidity, which prevents the market from responding efficiently to cost

shocks given permit constraints and input market frictions [3] [6]. For development-oriented foreign investors, these combined forces increase the uncertainty surrounding project economics, raising required return thresholds and deterring entry.

The attenuation effect for eurozone countries reflects the stabilizing architecture of the monetary union. Elimination of exchange rate risk reduces the volatility of financing costs for cross-border investors. Harmonized monetary policy provides a more predictable macroeconomic backdrop, making multi-year cost projections more reliable. And lower transaction costs - stemming from shared currency, standardized business norms, and reduced legal compliance complexity - provide a structural offset to cost-side shocks. Notably, countries outside the eurozone face additional layers of uncertainty when construction cost inflation coincides with domestic monetary policy responses, making their real estate markets more sensitive to cost cycles.

Among controls, GDP growth (3.026\*\*\*) and housing price index growth (2.220\*\*\*) positively predict real estate FDI, consistent with demand-side explanations. Mortgage rate (-8.690\*\*) and tax burden (-2.020\*\*\*) are negative and significant. Investor protection carries an unexpected negative sign (-2.238\*\*\*), possibly capturing the idea that stricter minority protection rules constrain investor flexibility in less transparent markets.

### B. Property Tax Burden and Real Estate FDI

Table 3 presents Model 2 results. The coefficient on property tax ( $p$ ) is -1.169 ( $p < 0.01$ ), confirming a significant negative relationship between property taxes and real estate FDI. The interaction term  $p \times PT$  is positive and significant (1.147,  $p < 0.01$ ), indicating that this deterrent is substantially weaker in post-transition member states. The Wald test confirms  $\beta_5 < 0$  and  $\beta_6 > 0$ , supporting acceptance of Hypothesis H2.

**Table 3. Estimation Results: Model 2 - Property Tax Burden (H2)**

r	0.112	[0.017]	***
i	2.519	[6.458]	n.s.
gy	2.031	[1.158]	*
$\pi$ HPI	0.762	[0.817]	n.s.
$p \leftarrow$ key variable	-1.169	[0.309]	***
$p \times PT \leftarrow$ interaction	1.147	[0.532]	***
br	-0.043	[0.020]	**
st	0.002	[1.387]	n.s.
inv	-1.651	[0.620]	***
tx	-1.747	[0.620]	***
Constant	22.252	[8.193]	***
Observations / R <sup>2</sup>	101 / 0.700	-	-

*Note:* \*\*\*, \*\*, \* = significance at 1%, 5%, 10%. Country and time fixed effects included. Standard errors clustered by country.

The near-symmetry of the main coefficient (-1.169) and the interaction term (1.147) implies that in post-transition countries, the net effect of property taxes on real estate FDI is statistically indistinguishable from zero. For developed member states, by contrast, property taxes impose a material barrier. This differential can be understood through three complementary mechanisms. First, post-transition markets offer lower baseline asset prices, meaning that even net-of-tax returns can remain competitive relative to mature western markets where yield compression is

more advanced. Second, the convergence growth premium - driven by income-level catch-up, urbanization, and rising demand for commercial and residential space - provides expected capital gains that can absorb the recurring tax cost. Third, post-transition governments have demonstrated a documented propensity to deploy targeted tax relief instruments [13] [8], so that headline tax rates frequently overstate the effective burden faced by foreign investors. These findings are consistent with [10], who report a stronger negative FDI effect of corporate income taxes in new relative to old EU member states - a pattern that mirrors

the property tax story when the comparison direction is reversed. In mature markets, where institutional stability and market liquidity are already high, fiscal costs acquire greater relative weight in investor decisions because other comparative advantages have already been priced in.

## V. CONCLUSION

This paper provides empirical evidence that two macroeconomic factors - construction producer price inflation and property tax burden - are significant deterrents to real estate FDI in the EU. Critically, both deterrents are moderated by structural EU characteristics in theoretically consistent ways.

For construction prices, eurozone membership provides a meaningful buffer: the common currency, stable monetary policy, and harmonized business environment reduce the sensitivity of foreign real estate investors to domestic cost-side shocks. This finding suggests that euro adoption could materially reduce the vulnerability of non-eurozone EU members' real estate sectors to cost inflation cycles. For property taxes, post-transition membership significantly attenuates the deterrent: lower asset valuations, stronger appreciation expectations, and flexible tax incentive frameworks combine to offset recurring tax costs in a way that is not possible in more mature markets.

From a policy perspective, non-eurozone EU governments should recognize that macroeconomic stability - and the potential long-run benefit of euro adoption - extends beyond monetary efficiency to investment climate resilience in capital-intensive sectors like real estate. Post-transition governments should leverage their demonstrated flexibility on tax incentive design to maintain competitive investment environments while also pursuing the structural convergence that will, over time, allow market-quality attributes to substitute for fiscal inducements.

Future research should examine whether the results are stable across sub-periods (notably the COVID-19 shock and post-2021 inflation surge), whether city-level disaggregation reveals intra-country heterogeneity not captured at the national level, and whether different categories of real estate (residential, commercial, logistics) exhibit differential sensitivity to cost and tax determinants.

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