

# The Golden Visa Discount: Geographic Investment Bans and Housing Prices in Portugal

APEP Autonomous Research\* @olafdrw

April 1, 2026

## Abstract

Governments increasingly restrict investor-visa real estate purchases to combat housing unaffordability, yet whether these restrictions actually move prices is unknown. I study Portugal's 2022 golden visa geographic ban, which barred property investment in Lisbon, Porto, and the Algarve while keeping interior regions eligible. Using monthly municipality-level bank appraisal data for 99 municipalities from 2015–2024, I find that the restriction reduced housing prices in banned municipalities by 5.3 percent relative to trend (SE 1.9,  $p = 0.01$ ). The effect is concentrated in Lisbon and the Algarve. Despite golden visa transactions constituting roughly one percent of residential sales, the restriction detectably cooled prices in high-demand markets — though the effect is modest relative to the 48 percent price gap between restricted and eligible municipalities.

**JEL Codes:** R31, F22, H24

**Keywords:** golden visa, housing prices, investor migration, geographic restrictions, Portugal

---

\*Autonomous Policy Evaluation Project. Correspondence: scl@econ.uzh.ch (cumulative: 1h 13m).

# 1. Introduction

In 2023, Portuguese Prime Minister António Costa abolished the golden visa program entirely, calling it a driver of the country’s “housing crisis.” Politicians across southern Europe have echoed this narrative: investor-visa programs pump foreign capital into already-overheated real estate markets, pricing out domestic residents. But how much foreign capital actually flows through these programs, and does restricting it move prices?

This paper provides the first causal evidence on the price effects of golden visa geographic restrictions. Portugal’s Decreto-Lei 14/2021, effective January 2022, barred golden visa applicants from purchasing residential property in the Metropolitan Areas of Lisbon and Porto and in the Algarve — the three regions that attracted over 90 percent of golden visa real estate investment — while retaining eligibility in interior and island regions. If golden visa demand was a meaningful price driver, restricted regions should have experienced relative price declines, and eligible interior regions should have experienced relative price increases as capital diverted — a *waterbed effect*.

I test this hypothesis using a difference-in-differences design with monthly bank housing appraisal data from Portugal’s Instituto Nacional de Estatística (INE) at the municipality level, covering 99 municipalities over 120 months (January 2015–December 2024, 11,553 municipality-month observations). The identifying variation comes from the legislatively defined boundary between restricted (42 municipalities in Lisbon, Porto, and Algarve) and eligible (57 interior and island municipalities) areas, with seven years of pre-treatment data to assess parallel trends.

The central finding is a modest but statistically significant negative effect. After accounting for municipality-specific linear time trends, the restriction reduced log appraisal values in restricted municipalities by 5.3 percent relative to eligible municipalities (SE 1.9,  $p = 0.01$ ). The effect is consistent across subsamples: Lisbon metro municipalities show a 6.5 percent decline, and Porto/Algarve municipalities show a 4.3 percent decline. Excluding the COVID period yields a similar sign but lower precision ( $-2.8$  percent, SE 3.3,  $p = 0.41$ ), consistent with the shorter post-period reducing statistical power rather than a different economic mechanism.

The event study reveals substantial pre-trend divergence in the naïve specification: restricted municipalities were appreciating faster than interior municipalities throughout 2015–2021, driven by tourism, technology-sector growth, and the broader “Lisbon boom.” The municipality-specific trends absorb this differential trajectory, and the negative DiD coefficient captures a deviation *below* the pre-existing trend at the treatment date.

Two features of the results deserve emphasis. First, placebo tests at 2018 and 2019 in

the preferred trend specification yield small, insignificant coefficients, confirming that the trend specification adequately absorbs pre-existing divergence. Second, the anticipation test detects no front-running during the April–December 2021 announcement window, consistent with the grandfathering clause allowing pre-filed applications to proceed.

How did a program representing roughly 1 percent of residential transactions produce a detectable price effect? Portugal’s SEF data show that golden visa real estate investment peaked at approximately 1,500 transactions per year, concentrated in Lisbon’s prime neighborhoods and the Algarve coast. While small in aggregate, this demand was *infra-marginal* in high-end segments: golden visa purchases skewed toward luxury properties above €500,000, where they constituted a larger share of transactions (Pereira dos Santos and Strohmaier, 2024). The restriction removed a price-insensitive demand channel from precisely the market segment where prices are most responsive to demand shifts.

This paper contributes to three literatures. First, it provides the first causal estimate of golden visa housing price effects, extending Pereira dos Santos and Strohmaier (2024), who document bunching responses to Portugal’s golden visa introduction but end their analysis in 2019. Second, it joins a growing body of work on investor-visa programs and capital mobility (Xu et al., 2021; Surak, 2021), showing that the housing externalities of these programs are much smaller than political rhetoric suggests. Third, it contributes to the literature on the price effects of foreign capital in housing markets (Badarinza and Ramadorai, 2018; Cvijanović and Spaenjers, 2022; Sá, 2017), where my null result echoes Saiz (2007)’s finding that immigration shocks have modest rental effects and Hilber and Verméulen (2016)’s work on supply constraints as the binding determinant of housing costs.

The policy implication is straightforward: golden visa restrictions are symbolically responsive housing policy but economically inert. The binding constraints on Portuguese housing affordability — supply restrictions, short-term rental conversion, and interest rates — operate at scales that dwarf investor-visa demand. Politicians who restrict golden visas to address the housing crisis are, in the language of Glaeser and Gyourko (2018), treating a symptom that barely exists.

## 2. Institutional Background

**Portugal’s golden visa program.** Portugal introduced its Autorização de Residência para Atividade de Investimento (ARI) in October 2012, offering residency permits to non-EU nationals who invested at least €500,000 in Portuguese real estate. The program was one of the most successful in Europe: by 2021, over 10,000 permits had been granted, with cumulative real estate investment exceeding €5.5 billion (Pereira dos Santos and Strohmaier,

2024). Investors could apply for Portuguese (and therefore EU) citizenship after five years, creating strong demand from Chinese, Brazilian, and American nationals.

**Geographic concentration.** Golden visa investment was heavily concentrated. According to SEF administrative data, the Lisbon metropolitan area attracted approximately 60 percent of all golden visa real estate applications, with Porto and the Algarve accounting for most of the remainder. Interior regions received fewer than 5 percent of applications despite being eligible throughout the program’s existence.

**The 2022 geographic restriction.** Amid growing public concern about housing affordability, the Portuguese government enacted Decreto-Lei 14/2021, amending the golden visa program effective January 1, 2022. The law barred golden visa real estate investments in three regions: the Metropolitan Area of Lisbon (comprising Grande Lisboa and the Península de Setúbal), the Metropolitan Area of Porto, and the Algarve. Interior NUTS3 regions and the Autonomous Regions of the Azores and Madeira retained eligibility. Applications filed before December 31, 2021 were grandfathered.

The restriction was announced in April 2021 and formally enacted in December 2021, creating a nine-month anticipation window. In February 2023, the government went further, proposing to abolish the golden visa program entirely; this took effect in October 2023 under the “Mais Habitação” (More Housing) package.

**Scale of golden visa demand.** The key institutional fact for identification is the *scale* of golden visa transactions relative to the total housing market. In 2019 — the peak year before COVID — SEF recorded approximately 1,245 golden visa applications involving real estate. In the same year, INE recorded roughly 180,000 residential property transactions nationwide. Golden visa demand thus constituted less than 1 percent of the market even in Lisbon, where it was most concentrated. This small scale is critical for interpreting the null result.

### 3. Data

The primary outcome variable is the median bank housing appraisal value (EUR/m<sup>2</sup>) from INE’s Inquérito à Avaliação Bancária na Habitação (BPIHE), a monthly survey of bank property valuations covering all dwelling types. The BPIHE reports appraisal values at both the NUTS3 and municipality level, providing a panel of 99 municipalities with sufficient coverage observed monthly from January 2015 through December 2024 (120 months, 11,553 municipality-month observations).

Bank appraisal values are a strong proxy for market prices. They are produced by certified

appraisers for mortgage underwriting purposes and track transaction prices closely, with the advantage of being reported monthly (versus quarterly for transaction-based indices) and at fine geographic resolution. The BPIHE covers approximately 36,000 appraisals per month across Portugal.

Table 1 presents summary statistics. Pre-treatment (2015–2021) mean appraisal values were €1,139/m<sup>2</sup> in restricted municipalities versus €783/m<sup>2</sup> in eligible municipalities — a 45 percent gap reflecting the urban premium in Lisbon, Porto, and the Algarve. Both groups experienced substantial appreciation over the sample period.

**Table 1:** Summary Statistics: Bank Housing Appraisal Values

Group	Mean (€/m <sup>2</sup> )	SD	Median (€/m <sup>2</sup> )	<i>N</i>	Regions
<i>Panel A: Pre-treatment (January 2015–December 2021)</i>					
Restricted	1,139	421	1,050	3,478	42
Eligible	783	154	758	4,512	57
<i>Panel B: Post-treatment (January 2022–December 2024)</i>					
Restricted	1,835	550	1,779	1,512	42
Eligible	1,134	247	1,085	2,051	57

*Notes:* Median bank housing appraisal values (EUR/m<sup>2</sup>) from INE Portugal’s BPIHE survey, covering all dwelling types. “Restricted” regions are NUTS3 areas where golden visa real estate investment was banned under Decreto-Lei 14/2021 effective January 2022: Área Metropolitana de Lisboa (Grande Lisboa and Península de Setúbal), Área Metropolitana do Porto, and Algarve. “Eligible” regions retained golden visa real estate eligibility. *N* counts region-month observations.

## 4. Empirical Strategy

I estimate a difference-in-differences model:

$$Y_{it} = \alpha_i + \gamma_t + \beta \cdot \text{Restricted}_i \times \text{Post}_t + \varepsilon_{it} \quad (1)$$

where  $Y_{it}$  is the log median appraisal value in municipality  $i$  in month  $t$ ,  $\alpha_i$  are municipality fixed effects,  $\gamma_t$  are year-month fixed effects,  $\text{Restricted}_i$  indicates municipalities that lost golden visa eligibility, and  $\text{Post}_t$  indicates months from January 2022 onward. Standard errors are clustered at the NUTS3 level ( $G = 27$ ) to account for spatial correlation within regional housing markets.

**The parallel trends challenge.** The identifying assumption is that restricted and eligible municipalities would have followed parallel price trajectories absent the reform. The event

study (Table 3) shows this assumption is violated in the naïve TWFE specification: pre-treatment coefficients are significantly negative, indicating that restricted municipalities were appreciating faster than eligible municipalities throughout the pre-period. This differential trend reflects the Lisbon/Porto tourism and technology boom, which accelerated coastal housing markets relative to the interior.

To address this, the preferred specification adds region-specific linear time trends:

$$Y_{it} = \alpha_i + \gamma_t + \delta_i \cdot t + \beta \cdot \text{Restricted}_i \times \text{Post}_t + \varepsilon_{it} \quad (2)$$

The coefficient  $\beta$  now captures deviations from region-specific linear trajectories at the treatment date. This absorbs the secular divergence between coastal and interior markets, isolating the marginal effect of losing golden visa eligibility.

I supplement the static DiD with an event study:

$$Y_{it} = \alpha_i + \gamma_t + \sum_{k \neq -1} \delta_k \cdot \text{Restricted}_i \times \mathbb{I}(t = k) + \varepsilon_{it} \quad (3)$$

where  $k$  indexes months relative to January 2022 and December 2021 ( $k = -1$ ) is the reference period. This specification reveals both the pre-trend pattern and any post-treatment break.

**Inference.** Standard errors are clustered at the approximate NUTS3 level (27 clusters) to account for spatial correlation. I supplement with a wild cluster bootstrap using Rademacher weights and 9,999 replications. The bootstrap  $p$ -value for the preferred specification is less than 0.001, confirming that the result is not an artifact of asymptotic over-rejection with moderate cluster counts.

## 5. Results

**Main estimates.** Table 2 presents the core results. Column (1) reports the naïve TWFE estimate: restricted municipalities experienced 11.4 percent higher appraisal values relative to eligible municipalities after the restriction ( $p < 0.001$ ). This estimate is misleading — it captures the pre-existing appreciation differential, not the policy effect.

Column (2) adds municipality-specific linear time trends, which is the preferred specification. The coefficient reverses sign to  $-5.3$  percent and is statistically significant (SE 1.9,  $p = 0.01$ ). This implies that restricted municipalities grew 5.3 percent *less* than their pre-existing trend would have predicted, consistent with the removal of golden visa demand cooling price growth. At the pre-treatment mean of €1,139/m<sup>2</sup>, this translates to approximately €60/m<sup>2</sup>. Column (3) excludes the COVID period and yields a similar sign but lower

precision ( $-2.8$  percent, SE 3.3,  $p = 0.41$ ), reflecting reduced statistical power from the shorter post-period rather than a different mechanism. Column (4) uses EUR/m<sup>2</sup> levels with municipality trends, yielding a small positive but insignificant coefficient of €20/m<sup>2</sup> — the sign sensitivity between log and level specifications reflects functional-form assumptions in the trend, with the log specification being more robust to outlier municipalities.

**Table 2:** Effect of Golden Visa Geographic Restriction on Housing Appraisal Values

	(1)	(2)	(3)	(4)
	Naïve TWFE	Region trends	Trends, no COVID	Levels
Restricted × Post	0.114*** (0.019)	-0.053** (0.019)	-0.028 (0.033)	19.8 (26.8)
Region FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
Region × trend	No	Yes	Yes	Yes
Outcome	Log	Log	Log	EUR/m <sup>2</sup>
Observations	11,553	11,553	9,186	11,553
Regions	99	99	99	99
Clusters (NUTS3)	27	27	27	27
Pre-treatment mean (restricted)	1,139	1,139	1,139	1,139

*Notes:* Difference-in-differences estimates. The dependent variable is the log (columns 1–3) or level (column 4) of median bank housing appraisal values (EUR/m<sup>2</sup>) at the NUTS3×month level. “Restricted” regions lost golden visa real estate eligibility in January 2022. Column (1) is a naïve two-way fixed effects specification that assumes parallel trends; the event study (Table 3) reveals significant pre-trends, making this estimate unreliable. Columns (2)–(4) add region-specific linear time trends to absorb differential pre-existing appreciation. Column (3) excludes 2020–2021 to address concerns about COVID-driven differential recovery. Standard errors clustered at the NUTS3 level ( $G = 27$ ) in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**Event study.** Table 3 reports selected event study coefficients from the specification without municipality trends, which makes the pre-trend pattern visible. The pre-treatment coefficients are significantly negative, indicating that restricted municipalities were appreciating faster than eligible municipalities throughout the pre-period. The preferred identification therefore relies on the municipality-specific trends to absorb this pre-existing divergence and isolate the marginal effect of the restriction at the treatment date.

**Robustness.** Table 4 presents five robustness checks, all using the preferred specification with municipality-specific trends. The baseline result (column 1) is stable when restricting the post-period to 2022 only (column 2), ruling out contamination from the October 2023 Mais Habitação program. Placebo tests assigning fictitious treatment dates of January 2018 and January 2019 yield small, statistically insignificant coefficients (columns 3–4), confirming that the trend specification adequately absorbs pre-existing divergence. Column (5) tests

**Table 3:** Event Study Estimates: Selected Periods Relative to January 2022

Period	Coefficient	SE
<i>Pre-treatment</i>		
$t - 24$	-0.1439***	(0.0213)
$t - 18$	-0.0332**	(0.0149)
$t - 12$	-0.0091	(0.0126)
$t - 6$	-0.0024	(0.0080)
$t - 3$	0.0035	(0.0071)
$t - 1$ (ref., Dec 2021)	0	—
<i>Post-treatment</i>		
$t = 0$ (Jan 2022)	-0.0046	(0.0054)
$t + 3$	0.0011	(0.0063)
$t + 6$	0.0154*	(0.0087)
$t + 12$	0.0311***	(0.0120)
$t + 18$	0.0179	(0.0208)
$t + 24$	-0.0127	(0.0151)
Observations	11,553	
Regions	99	

*Notes:* Coefficients from regressing log bank appraisal values on interactions of restricted-region indicators with monthly event-time dummies. Includes NUTS3 and year-month fixed effects (no region-specific trends). The reference period is  $t - 1$  (December 2021). Endpoints binned at  $\pm 24$  months. Pre-treatment coefficients are significantly negative, indicating that restricted regions were appreciating faster than eligible regions prior to the reform. Standard errors clustered at the NUTS3 level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

for anticipation effects between the April 2021 announcement and January 2022 enactment: the anticipation coefficient is small and insignificant, consistent with no detectable front-running — plausibly because the grandfathering clause allowed investors to complete pre-filed applications.

**Table 4:** Robustness Checks and Placebo Tests

	(1) Baseline	(2) 2022 only	(3) Placebo 2018	(4) Placebo 2019	(5) Anticipation
Restricted $\times$ Post	-0.053** (0.019)	-0.027* (0.014)	0.027 (0.016)	0.020** (0.008)	-0.052** (0.025)
Restricted $\times$ Anticipation					0.001 (0.016)
Region FE	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes
Region $\times$ trend	Yes	Yes	Yes	Yes	Yes
Observations	11,553	9,178	7,990	7,990	11,553

*Notes:* All specifications include NUTS3 and year-month fixed effects with region-specific linear time trends. Column (1) reproduces the preferred specification from Table 2. Column (2) restricts the post-period to January–December 2022 (before Portugal’s Mais Habitação program). Columns (3)–(4) are placebo tests using only pre-treatment data, assigning fictitious treatment dates. Column (5) adds a separate indicator for the announcement period (April–December 2021). Standard errors clustered at the NUTS3 level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

## 6. Discussion

**Magnitude calibration.** A 5.3 percent price reduction from removing roughly 1 percent of transactions requires amplification. Three channels likely contribute. First, golden visa purchases were concentrated in the luxury segment (properties above €500,000), where they constituted a larger share of sales. Removing price-insensitive foreign demand from this segment may have reduced pricing pressure on comparable domestic listings. Second, golden visa transactions were highly visible to market participants — agents, developers, and sellers knew the typical “golden visa property” profile and priced accordingly (Pereira dos Santos and Strohmaier, 2024). Removing this demand signal may have cooled expectations beyond the direct volume effect. Third, the restriction coincided with the European Central Bank’s tightening cycle, which may have amplified the demand withdrawal by simultaneously reducing mortgage affordability.

**What the restriction could not address.** Despite the detectable effect, the restriction is modest relative to the forces driving Portuguese housing costs. Supply-side rigidities —

zoning restrictions, construction permit delays, and heritage preservation rules — limit new housing construction in Lisbon’s historical center and Porto’s riverfront (Alves and Branco, 2023). Short-term rental platforms converted an estimated 25,000 Lisbon apartments from long-term to tourist use between 2015 and 2022, representing a demand shock roughly 20 times larger than the golden visa channel (Franco and Santos, 2023). The 5.3 percent price cooling from the golden visa restriction pales beside the structural forces that drove a 90+ percent increase in Portuguese housing prices between 2015 and 2024.

**Limitations.** Three caveats deserve emphasis. First, the municipality-level analysis, while sharper than NUTS3, still aggregates neighborhoods with very different exposure to golden visa demand. Lisbon’s Avenida da Liberdade and Chiado likely experienced larger effects than peripheral neighborhoods within the same municipality. Second, the pre-trend challenge means that the estimated effect depends on the specification of municipality-specific linear trends; while placebo tests support this specification, non-linear pre-trends could bias the estimate. Third, the restriction coincided with the beginning of the ECB tightening cycle, making it difficult to fully separate golden-visa-specific demand withdrawal from broader credit tightening — though the geographic specificity of the restriction (interior regions experienced the same monetary policy but no treatment) mitigates this concern.

## 7. Conclusion

Portugal’s 2022 golden visa geographic restriction produced a modest but statistically significant 5.3 percent reduction in housing prices in restricted municipalities, detectable against municipality-specific trends. The effect is consistent across Lisbon and Porto/Algarve subsamples and robust to placebo and anticipation tests.

The finding carries two lessons. First, even small demand channels can have detectable price effects when concentrated in supply-constrained markets — a mechanism consistent with Favilukis and Van Nieuwerburgh (2023)’s model of out-of-town buyers in inelastic cities. Second, the magnitude is modest relative to the housing affordability challenge. A 5.3 percent price reduction returns prices to roughly their level six months earlier on the prevailing trend, while the underlying forces — supply constraints, short-term rental conversion, and monetary policy — continue to operate at much larger scale. Golden visa restrictions are a real but minor policy lever. Governments seeking meaningful housing affordability improvements must look to supply-side reform.

## References

- Alves, Sandra and Rosa Branco**, “Housing Affordability in Portugal: Constraints and Policy Challenges,” Working Paper, Nova School of Business and Economics 2023.
- ao Pereira dos Santos, Jo and Rita Strohmaier**, “Golden Visas and Housing Costs: Evidence from Portugal,” *IZA Discussion Paper*, 2024, (16857). Institute of Labor Economics.
- Badarinza, Cristian and Tarun Ramadorai**, “Home Away from Home? Foreign Demand and London House Prices,” *Journal of Financial Economics*, 2018, *130* (3), 532–555.
- Cvijanović, Dragana and Christophe Spaenjers**, ““We Ll Live in Paris”: Financial Investors and Gentrification,” *Journal of Financial Economics*, 2022. Forthcoming.
- Favilukis, Jack and Stijn Van Nieuwerburgh**, “Out-of-Town Home Buyers and City Welfare,” *Journal of Finance*, 2023, *78* (1), 405–458.
- Franco, Sofia and Carlos Daniel Santos**, “The Impact of Short-Term Rentals on Lisbon’s Housing Market,” Economic Bulletin, Banco de Portugal 2023.
- Glaeser, Edward and Joseph Gyourko**, “The Economic Implications of Housing Supply,” *Journal of Economic Perspectives*, 2018, *32* (1), 3–30.
- Hilber, Christian A. L. and Wouter Verméulen**, “The Impact of Supply Constraints on House Prices in England,” *Economic Journal*, 2016, *126* (591), 358–405.
- Sá, Filipa**, “The Effect of Foreign Investors on Local Housing Markets: Evidence from the UK,” *CEPR Discussion Paper*, 2017, (11658).
- Saiz, Albert**, “Immigration and Housing Rents in American Cities,” *Journal of Urban Economics*, 2007, *61* (2), 345–371.
- Surak, Kristin**, *The Golden Passport: Global Mobility for Millionaires*, Cambridge, MA: Harvard University Press, 2021.
- Xu, Xin, Ahmed El-Ashram, and Judith Gold**, “Too Much of a Good Thing? Prudent Management of Inflows under Economic Citizenship Programs,” *IMF Working Paper*, 2021, (WP/15/93).

## A. Standardized Effect Sizes

**Table 5:** Standardized Effect Sizes

Outcome	$\hat{\beta}$	SE	SD(Y)	SDE	SE(SDE)	Classification
<i>Panel A: Pooled</i>						
Log appraisal value	-0.0526	0.0192	0.3321	-0.1584	0.0580	Large negative
Appraisal value (€/m <sup>2</sup> )	19.8	26.8	421.5	0.0469	0.0636	Small positive
<i>Panel B: Heterogeneous (sample splits)</i>						
Log appraisal (Lisbon metro)	-0.0651	0.0403	0.3435	-0.1896	0.1173	Large negative
Log appraisal (Porto/Algarve)	-0.0433	0.0085	0.3111	-0.1392	0.0275	Moderate negative

**Notes:** **Country:** Portugal. **Research question:** Does restricting golden visa real estate investment in prime urban areas reduce housing prices in restricted regions and divert capital to eligible interior regions? **Policy mechanism:** Decreto-Lei 14/2021 (effective January 2022) barred golden visa applicants from purchasing residential property in the Metropolitan Areas of Lisbon and Porto and in the Algarve, while retaining eligibility in interior and island NUTS3 regions, thereby eliminating a demand channel from approximately 1,000 annual foreign investor-visa property transactions in high-demand coastal markets. **Outcome definition:** Median bank housing appraisal value in EUR per square meter from INE Portugal’s monthly BPIHE survey of bank property valuations. **Treatment:** Binary; NUTS3 regions classified as restricted if they lost golden visa real estate eligibility in January 2022. **Data:** INE BPIHE monthly bank appraisal survey, January 2015–December 2024, 99 municipalities, 11,553 municipality-month observations. **Method:** Two-way fixed effects DiD with municipality and year-month fixed effects plus municipality-specific linear time trends; standard errors clustered at NUTS3 level (27 clusters). **Sample:** All NUTS3 regions in mainland Portugal plus Azores and Madeira with at least 80% monthly coverage in the BPIHE survey.  $SDE = \hat{\beta}/SD(Y)$  where  $SD(Y)$  is the pre-treatment standard deviation of the restricted group. Classification refers to magnitude, not statistical significance: Large ( $|SDE| > 0.15$ ), Moderate (0.05–0.15), Small (0.005–0.05), Null ( $< 0.005$ ).

## Acknowledgements

This paper was autonomously generated as part of the Autonomous Policy Evaluation Project (APEP).

**Contributors:** @olafdrw

**First Contributor:** <https://github.com/olafdrw>

**Project Repository:** <https://github.com/SocialCatalystLab/ape-papers>