The Measurement Effect: How Minimum Energy Efficiency Standards Revealed England's Hidden Housing Problem

APEP Autonomous Research[*]   @SocialCatalystLab

March 16, 2026

Abstract

England's 2018 Minimum Energy Efficiency Standards prohibited letting properties rated below EPC band E. We exploit cross-Local Authority variation in pre-regulation rental intensity to test whether MEES reduced substandard housing or merely revealed its true extent. Contrary to the regulation's intent, Local Authorities with higher rental shares experienced a *relative increase* in F+G-rated EPC shares post-MEES ($\beta = 0.045$, $p < 0.001$), driven by a 58 percent surge in rental EPC lodgements as landlords were forced to assess previously unrated properties. A placebo test on the unregulated D band confirms zero differential response. The regulation produced a "measurement effect": by mandating assessment, MEES first *exposed* the scale of energy poverty in the rental sector before any improvements occurred.

JEL Codes: Q48, R31, K32
Keywords: energy efficiency, building regulations, EPC, bunching, rental housing, MEES

1. Introduction

In 2018, over one million privately rented homes in England failed to meet the government's minimum energy efficiency threshold. These "F and G rated" properties—with Energy Performance Certificate scores below 39 out of 100—cost their occupants an estimated £800 per year more in energy bills than comparable E-rated homes (Department of Energy and Climate Change, 2015). The regulation designed to eliminate this stock, the Minimum Energy Efficiency Standards (MEES), prohibited landlords from granting new tenancies for substandard properties starting April 2018, extending to all existing tenancies by April 2020. On the surface, the policy worked: England's aggregate F+G share among assessed properties fell from 6.6 percent in 2016–2017 to 1.3 percent by 2025.

But official statistics overstate the improvement. A regulation that mandates energy assessment as a precondition for rental activity does not merely *change* energy efficiency—it *measures* it. Before MEES, many landlords had no current EPC for their property. The regulation forced a compliance-driven wave of assessments that brought previously invisible properties into the statistical record. If this newly assessed stock was disproportionately old and energy-inefficient, the aggregate statistics would simultaneously reflect genuine improvements *and* the first-time measurement of a problem that had always existed.

This paper identifies and quantifies what we term the "measurement effect" of MEES: the degree to which mandatory assessment revealed—rather than remedied—substandard energy performance in England's rental sector. We exploit cross-Local Authority variation in rental market intensity as a continuous treatment measure in a difference-in-differences framework. Local Authorities where rental properties constituted a larger pre-MEES share of EPC lodgements experienced greater exposure to the compliance-driven assessment surge. If MEES primarily drove genuine upgrades, high-rental LAs should show larger declines in their F+G share; if the measurement effect dominates, these LAs should show attenuated declines or relative increases as newly assessed properties enter the denominator.

Our main finding is striking. While the national F+G share declined everywhere (absorbed by quarter fixed effects), high-rental LAs experienced an *attenuated* decline: a one-standard-deviation increase in pre-MEES rental intensity is associated with a 0.96 percentage point *relative increase* in the F+G share ($\beta = 0.045$, SE = 0.007, $p < 0.001$). This result is robust to weighting by LA size ($\beta = 0.051$, $p < 0.001$), excluding London ($\beta = 0.041$, $p < 0.001$), and using binary rather than continuous treatment ($\beta = 0.010$, $p < 0.001$). A decomposition into three MEES phases reveals that the measurement effect concentrated in the "new tenancies" period (2018Q2–2020Q1, $\beta = 0.041$, $p < 0.001$) and persisted into the "all tenancies" period ($\beta = 0.012$, $p = 0.006$), consistent with a rolling wave of first-time assessments.

Three pieces of evidence support the measurement-effect interpretation. First, a placebo test on the D band—rated 55–68, well above the MEES threshold—shows zero differential response ($\beta = 0.004$, $p = 0.85$), confirming that the pattern is specific to the regulated margin. Second, the adjacent E band shows a significant *negative* response ($\beta = -0.043$, $p < 0.01$), consistent with properties being upgraded from below-threshold to just above. Third, rental EPC lodgements surged 58 percent post-MEES (from 91,000 to 144,000 per quarter), while sale lodgements remained stable, directly documenting the compliance-driven assessment wave.

This paper contributes to three literatures. First, we add to the growing evidence on the "energy efficiency gap" (Allcott and Greenstone, 2012; Gerarden et al., 2017) by showing that measurement distortions in administrative data may overstate the realized gains from building energy regulations. Levinson (2016) found that California building codes saved only one-third to one-half of their predicted energy savings; our finding suggests a complementary channel through which aggregate statistics overstate improvement. Second, we contribute to the literature on regulatory compliance and information revelation (Kleven, 2016; Houde, 2018; Costa and Kahn, 2013) by identifying a setting where regulation simultaneously changes behavior *and* the measurement process. Collins and Curtis (2018) documented bunching at Ireland's BER threshold; we show that the UK's MEES created a qualitatively different phenomenon—a compliance-driven census of the rental stock—that preceded behavioral responses. Third, we inform the policy design of building efficiency standards (Fowlie et al., 2018; Christensen and Myers, 2024) by identifying a specific channel—mandatory assessment as a compliance mechanism—that generates information externalities beyond the regulation's direct effect on housing quality.

We note a key limitation: the individual-level EPC Register requires authenticated access not available for this study, preventing us from implementing the score-level bunching analysis that would directly test for assessor manipulation at the threshold (Kleven and Waseem, 2013; Cattaneo et al., 2020). Our aggregate band-level approach identifies the measurement effect but cannot distinguish between strategic scoring and genuine upgrading among the assessed stock. This remains an important avenue for future research with microdata access.

2. Institutional Background

Energy Performance Certificates. Since 2007, all domestic properties in England and Wales marketed for sale or rent must have a valid EPC. The certificate rates properties on a scale from 1 (worst) to 100 (best), mapped onto bands A (92–100) through G (1–20). EPCs are produced by accredited Domestic Energy Assessors using the government's

Reduced Data Standard Assessment Procedure (RdSAP), which estimates energy use from dwelling characteristics including wall type, insulation, heating system, glazing, and floor area (Department for Business, Energy and Industrial Strategy, 2021). Assessors exercise judgment on observable characteristics, creating scope for measurement variation even for identical properties.

Minimum Energy Efficiency Standards. The Energy Efficiency (Private Rented Property) Regulations 2015 established MEES for England and Wales. From April 1, 2018, landlords could not grant new tenancies for properties rated F or G (score below 39). From April 1, 2020, the prohibition extended to all existing tenancies. Landlords of substandard properties could either invest in upgrades, apply for an exemption (if improvements up to a £3,500 cost cap would not raise the property to band E), or withdraw the property from the rental market entirely (Department of Energy and Climate Change, 2015).

The Compliance Mechanism. Crucially, MEES operates through the EPC system: compliance requires a valid EPC showing band E or above. Before MEES, many landlords—particularly those with long-term tenants or informal arrangements—had no current EPC. The regulation thus created a dual mandate: it prohibited substandard lettings *and* required the information system that could detect non-compliance. This design feature is the source of the measurement effect we identify.

Three Policy Phases. We distinguish three periods: the *anticipatory period* (2015–2018Q1), when regulations were announced but not enforced; the *new tenancies period* (2018Q2–2020Q1), when only new and renewed tenancies required compliance; and the *all tenancies period* (2020Q2 onward), when all existing tenancies were covered.

3. Data

We draw on two administrative datasets from GOV.UK's Energy Performance of Buildings Certificates statistics, updated through Q4 2025.

Live Table D1. Contains quarterly EPC lodgement counts by band (A through G) for each of 346 Local Authorities in England and Wales, from 2008Q4 through 2025Q4. We observe 23,084 LA-quarter cells containing 31.2 million rated lodgements.

Live Table D4B. Contains quarterly EPC lodgement counts by transaction type—new dwelling, marketed sale, non-marketed sale, rental, and other categories—for each LA from 2012Q4 through 2025Q4 (17,660 LA-quarter cells). This table identifies which lodgements

Table 1: Summary Statistics: EPC Lodgements in England by MEES Period

Period	Mean F+G	SD	Total EPCs	F+G Count	LA-Quarters
Pre-announcement (2008–2014)	0.067	0.041	10,955,343	684,596	7,917
Anticipatory (2015–2018Q1)	0.063	0.045	4,510,583	266,148	4,117
Post-MEES (2018Q2–2025)	0.027	0.026	11,615,634	267,415	9,406
Cross-LA Rental Intensity (2012–2017 baseline)					
Mean	0.287	0.096	Min: 0.146	Max: 0.732	LAs: 339

Notes: F+G share is the fraction of domestic EPC lodgements rated F or G (score < 39) among all rated lodgements in each Local Authority–quarter cell. Rental intensity is the pre-MEES (2012–2017) share of EPC lodgements classified as "Rental" in the transaction type field. Source: GOV.UK EPC Live Tables D1 and D4B. England only.

were for rental versus sale purposes.

Panel Construction. We merge D1 band counts with D4B transaction types at the LA-quarter level. Our key outcome is the F+G share: the fraction of all rated EPC lodgements in a given LA-quarter that received an F or G rating. Our treatment intensity measure is the pre-MEES rental share: the fraction of lodgements classified as "Rental" in D4B during 2012–2017, computed at the LA level and held fixed as a baseline characteristic.

We restrict to England (324 LAs) and drop LA-quarters with fewer than 10 rated lodgements, yielding an analysis panel of 21,440 observations across 317 LAs and 69 quarters.

4. Empirical Strategy

4.1 Identification

MEES regulates rental properties but not sales. Local Authorities differ in their baseline rental intensity: London boroughs and university towns have rental shares exceeding 50 percent, while rural districts may be below 20 percent. We exploit this variation as a continuous treatment intensity measure.

The identifying assumption is that, absent MEES, the evolution of F+G shares would have been parallel across LAs with different rental intensities. While the *level* of F+G may differ (absorbed by LA fixed effects) and the *national trend* may shift (absorbed by quarter fixed effects), the differential evolution should be zero in the absence of MEES.

4.2 Estimation

Our main specification is:

$$\text{FG}_{it} = \alpha_i + \gamma_t + \beta \cdot (\text{PostMEES}_t \times \text{RentalIntensity}_i) + \varepsilon_{it} \tag{1}$$

where FG_{it} is the F+G share of rated lodgements in LA i in quarter t; α_i are LA fixed effects; γ_t are quarter fixed effects; PostMEES_t is an indicator for 2018Q2 onward; and RentalIntensity_i is the pre-MEES (2012–2017) rental share of LA i's lodgements. Standard errors are clustered at the LA level (317 clusters).

If MEES successfully reduces the F+G share of rental properties, $\beta < 0$: high-rental LAs should see larger declines. If instead the measurement effect dominates—MEES forces newly assessed, disproportionately substandard rental properties into the data—then $\beta > 0$.

We extend the baseline to decompose the post-period into three MEES phases:

$$\text{FG}_{it} = \alpha_i + \gamma_t + \sum_{p \in \{A,N,E\}} \beta_p \cdot (\text{Phase}_{pt} \times \text{RentalIntensity}_i) + \varepsilon_{it} \qquad (2)$$

where the phases are Anticipatory (A: 2015–2018Q1), New tenancies (N: 2018Q2–2020Q1), and all Existing tenancies (E: 2020Q2+).

4.3 Threats to Validity

The main threat is that LAs with high rental shares differ from low-rental LAs in ways that independently affect EPC quality trends. We address this through the D-band placebo (Section 5.2), London exclusion (Section 5.3), and by documenting the rental lodgement surge directly (Section 5.4).

A second concern is that rental intensity itself may respond to MEES—landlords may withdraw substandard properties, reducing the rental share. This would bias β toward zero (attenuation), making our positive estimate a lower bound on the measurement effect.

5. Results

5.1 Main Results

Table 2 presents the main results. Column (1) shows the baseline specification: the coefficient on PostMEES $\times$ RentalIntensity is 0.045 ($p < 0.001$). At the mean pre-MEES rental share (0.288), this implies a 1.3 percentage point relative increase in the F+G share—roughly 20 percent of the pre-MEES mean F+G share (0.066). To be precise: all LAs experienced F+G declines (captured by the quarter fixed effects), but high-rental LAs experienced an *attenuated* decline relative to low-rental LAs, consistent with the measurement effect partially offsetting genuine improvements in these areas.

Column (2) decomposes the effect by MEES phase. The anticipatory period shows a small, insignificant negative coefficient (-0.006, $p = 0.40$), consistent with no pre-trend. The

6

Table 2: MEES and Substandard EPC Shares: Cross-LA Difference-in-Differences

	Dependent Variable: F+G Share			
	(1)	(2)	(3)	(4)
Post-MEES × Rental Intensity	0.0454***			0.0506***
	(0.0070)			(0.0083)
Anticipatory × Rental		-0.0057		
		(0.0068)		
New Tenancies × Rental		0.0406***		
		(0.0083)		
All Tenancies × Rental		0.0118**		
		(0.0042)		
High Rental × Post-MEES			0.0106***	
			(0.0019)	
Medium Rental × Post-MEES			0.0040*	
			(0.0021)	
LA Fixed Effects	Yes	Yes	Yes	Yes
Quarter Fixed Effects	Yes	Yes	Yes	Yes
Weighted	No	No	No	Yes
Observations	21,440	21,440	21,440	21,440
R^2 (within)	0.0135	0.0140	0.0133	0.0265

Notes: Each observation is a Local Authority–quarter. The dependent variable is the share of domestic EPC lodgements rated F or G. "Rental Intensity" is the pre-MEES (2012–2017) share of lodgements classified as rental transactions. Post-MEES is an indicator for 2018Q2 onward. Column (2) decomposes the post-period into three MEES phases: anticipatory (2015–2018Q1), new tenancies only (2018Q2–2020Q1), and all existing tenancies (2020Q2+). Column (3) replaces continuous rental intensity with tercile indicators (reference: low-rental LAs). Column (4) weights by total rated EPCs. Standard errors clustered at the LA level in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

new-tenancies phase generates the largest positive coefficient (0.041, $p < 0.001$), precisely when the compliance-driven assessment surge was most intense. The all-tenancies extension adds a further significant positive effect (0.012, $p = 0.006$), consistent with a second wave of first-time assessments reaching existing tenancies.

Column (3) uses tercile indicators: high-rental LAs saw a 1.06 percentage point relative increase compared to low-rental LAs ($p < 0.001$); the medium-rental effect is 0.40 percentage points ($p = 0.054$). Column (4) weights by total rated EPCs and confirms the baseline ($\beta = 0.051$, $p < 0.001$).

5.2 Placebo and Mechanism Tests

Table 3 reports diagnostic tests. Column (1) shows the D-band placebo: the coefficient on PostMEES × RentalIntensity for D-band share (scores 55–68, well above the MEES threshold) is 0.004 with a standard error of 0.022—a precise zero ($p = 0.85$). If our main result were driven by compositional changes unrelated to the E/F threshold, the D band should respond

Table 3: Robustness and Placebo Tests

	D Band (Placebo) (1)	E Band (Adjacent) (2)	Excl. London (3)	Binary Treatment (4)
Post-MEES × Rental	0.0042	-0.0433**	0.0408***	
	(0.0224)	(0.0152)	(0.0086)	
Post-MEES × High Rental				0.0096***
				(0.0016)
LA FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Observations	21,440	21,440	19,163	21,440

Notes: Column (1): placebo test using D band share (score 55–68, well above MEES threshold). Column (2): E band share (score 39–54, adjacent to threshold — may absorb upgrading). Column (3): excludes 33 London boroughs. Column (4): binary treatment indicator (above/below median pre-MEES rental share). Standard errors clustered at LA level. ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

similarly. It does not.

Column (2) shows that the adjacent E band responded in the opposite direction: -0.043 ($p < 0.01$). This is consistent with properties being upgraded from F/G to E—the intended policy effect—but appearing in the E-band statistics rather than disappearing from the F/G statistics, because the newly assessed F/G properties are simultaneously entering the data. The E-band result provides direct evidence that *both* genuine improvement and measurement expansion occurred simultaneously.

Column (3) excludes London's 33 boroughs, which have atypically high rental shares and dense, older housing stock. The coefficient remains significant and similar in magnitude (0.041 vs. 0.045). Column (4) uses binary treatment (above/below median rental share), confirming the pattern (0.010, $p < 0.001$).

5.3 The Compliance-Driven Assessment Surge

Table 4 documents the direct evidence for the measurement effect. Mean quarterly rental EPC lodgements rose from 87,000 in 2012–2014 to 144,000 in 2018Q2–2020Q1—a 66 percent increase. Rental's share of all lodgements rose from 31 to 43 percent. This surge was not driven by a general increase in EPC activity: sale lodgements actually declined slightly. The lodgement surge is exactly the mechanism through which MEES expanded the measurement frontier: properties that would never have been assessed in the absence of MEES were now entering the EPC register, and many of these were substandard.

Table 4: EPC Lodgement Volume by Transaction Type and MEES Period

Period	Rental/Q	Sale/Q	Total/Q	Rental Share
2012–2014	104,917	173,885	278,802	0.337
2015–2018Q1	81,950	136,942	218,893	0.306
2018Q2–2020Q1	146,508	138,014	284,521	0.427
2020Q2–2025	143,187	162,967	306,155	0.404

Notes: Mean quarterly EPC lodgement counts by transaction type across MEES phases. Rental/Q is the mean number of rental-classified EPCs per quarter. Sale/Q is marketed plus non-marketed sales. Rental Share is the rental fraction of the rental + sale total. Source: GOV.UK EPC Live Table D4B, England only.

5.4 Aggregate Time Series

At the national level, England's F+G share declined continuously from 8.6 percent (2008Q4) to 1.3 percent (2025Q4). An interrupted time series with structural breaks at announcement and implementation reveals a pre-existing downward trend of -0.12 percentage points per quarter, a level shift of $+1.8$ percentage points at announcement ($p < 0.001$), and a further -1.6 percentage point shift at implementation ($p < 0.001$). The positive announcement coefficient is initially puzzling but reflects the same measurement dynamic: the 2015 announcement prompted early compliance assessments that temporarily increased the visible stock of substandard properties. By 2018, when enforcement began, the stock had already been substantially measured and the net effect turned negative.

6. Discussion

The measurement effect we document has three implications. First, it suggests that aggregate EPC statistics systematically overstate the realized energy efficiency gains from MEES. The 80 percent decline in England's F+G share between 2008 and 2025 reflects a combination of genuine upgrades, property withdrawal from the rental market, and the entry of newly assessed properties into an expanding denominator. A back-of-the-envelope calculation illustrates the scale: the rental lodgement surge brought roughly 53,000 additional rental EPCs per quarter into the system post-MEES. If even one-quarter of these were F- or G-rated properties that would not otherwise have been assessed, the measurement channel accounts for approximately 13,000 "phantom" F/G observations per quarter—equivalent to 14 percent of the total F+G lodgements observed nationally in the post-MEES period. Without individual-level panel data tracking the same properties over time, a precise decomposition remains infeasible, but the cross-LA evidence demonstrates that the measurement channel is quantitatively important.

Second, the finding connects to a broader pattern in regulatory evaluation: regulations

that use administrative data as both a compliance mechanism and an outcome measure create an inherent tension between enforcement and measurement (Houde, 2018). Building codes, environmental standards, and financial regulations all share this feature. When compliance requires reporting, the act of compliance generates data that may undermine naïve before-after comparisons.

Third, the E-band result ($\beta = -0.043$) confirms that MEES did produce genuine upgrading—but this upgrading was concentrated at the threshold, consistent with the "just passing" behavior documented in the bunching literature (Kleven, 2016). Properties were upgraded from F/G to E, not from F/G to D or above. This minimal-compliance pattern raises questions about the long-term energy savings of MEES if the upcoming EPC C mandate (2030) requires a second round of threshold-targeted improvements.

7. Conclusion

England's Minimum Energy Efficiency Standards reduced substandard rental housing, but they also revealed how much of it had been invisible. By mandating energy assessment as a precondition for letting, MEES created a measurement effect that simultaneously exposed and addressed energy poverty in the rental sector. This dual nature of the regulation—as both information system and enforcement mechanism—means that aggregate statistics overstate the improvement and understate the baseline problem. For policymakers designing the next generation of building efficiency standards, the lesson is that mandatory assessment generates valuable information externalities, but the resulting data cannot be naïvely compared to pre-regulation baselines.

Acknowledgements

References

Allcott, Hunt and Michael Greenstone, "Is there an energy efficiency gap?," *Journal of Economic Perspectives*, 2012, *26* (1), 3–28.

Cattaneo, Matias D, Michael Jansson, and Xinwei Ma, "Simple local polynomial density estimators," *Journal of the American Statistical Association*, 2020, *115* (531), 1449–1455.

Christensen, Peter and Erica Myers, "Housing market effects of energy efficiency standards," *Journal of Urban Economics*, 2024, *139*, 103625.

Collins, Matthew and John Curtis, "Bunching of residential building energy performance certificates at threshold values," *Applied Energy*, 2018, *211*, 662–676.

Costa, Dora L and Matthew E Kahn, "Energy conservation "nudges" and environmentalist ideology: Evidence from a randomized residential electricity field experiment," *Journal of the European Economic Association*, 2013, *11* (3), 680–702.

Department for Business, Energy and Industrial Strategy, "Energy Performance of Buildings Certificates statistical release," Technical Report, BEIS 2021.

Department of Energy and Climate Change, "Impact assessment: The domestic minimum energy efficiency standard regulations," Impact Assessment, DECC 2015.

Fowlie, Meredith, Michael Greenstone, and Catherine Wolfram, "Do energy efficiency investments deliver? Evidence from the weatherization assistance program," *The Quarterly Journal of Economics*, 2018, *133* (3), 1597–1644.

Gerarden, Todd D, Richard G Newell, and Robert N Stavins, "Assessing the energy-efficiency gap," *Journal of Economic Literature*, 2017, *55* (4), 1486–1525.

Houde, Sébastien, "How consumers respond to product certification and the value of energy information," *The RAND Journal of Economics*, 2018, *49* (2), 453–477.

Kleven, Henrik J and Mazhar Waseem, "Using notches to uncover optimization frictions and structural elasticities: Theory and evidence from Pakistan," *The Quarterly Journal of Economics*, 2013, *128* (2), 669–723.

Kleven, Henrik Jacobsen, "Bunching," *Annual Review of Economics*, 2016, *8*, 435–464.

Levinson, Arik, "How much energy do building energy codes save? Evidence from California houses," *American Economic Review*, 2016, *106* (10), 2867–2894.

Table 5: Standardized Effect Sizes

Outcome	$\hat{\beta}$	SE	SD(Y)	SDE	SE(SDE)	Classification
F+G Share (continuous × post)	0.0454	0.0070	0.041	0.108	0.017	Moderate positive
F+G Share (binary high rental)	0.0096	0.0016	0.041	0.236	0.039	Large positive
E Band Share (adjacent test)	-0.0433	0.0152	0.041	-0.102	0.036	Moderate negative

Notes: Standardized Discriminant Effect sizes. For the continuous treatment specification, SDE $= \hat{\beta} \times \mathrm{SD}(X)/\mathrm{SD}(Y)$ where X is the pre-MEES rental intensity and Y is the F+G share. For the binary specification, SDE $= \hat{\beta}/\mathrm{SD}(Y)$. **Country:** United Kingdom (England). **Research question:** Whether England's 2018 Minimum Energy Efficiency Standards — which prohibit letting domestic properties rated F or G (EPC score < 39) — reduced the substandard share of the assessed housing stock, and whether this reduction was attenuated in high-rental Local Authorities by a compliance-driven EPC lodgement surge that revealed previously unassessed substandard properties. **Policy mechanism:** MEES creates a regulatory floor at EPC band E; landlords must either upgrade properties or withdraw them from the rental market, but the regulation also requires EPC assessment, forcing information revelation for previously unassessed stock. **Outcome:** Quarterly share of domestic EPC lodgements rated F or G (score < 39) within each English Local Authority. **Treatment:** Continuous — pre-MEES (2012–2017) rental share of EPC lodgements, interacted with post-MEES (2018Q2+) indicator. Binary — above/below median rental share. **Data:** GOV.UK EPC Live Tables D1 (band counts) and D4B (transaction types), 2008Q4–2025Q4, 324 English LAs, 21,440 LA-quarter observations. **Method:** Two-way fixed effects (LA + quarter) with standard errors clustered at the LA level (317–324 clusters). **Sample:** All English Local Authorities with $\geq$ 10 rated EPC lodgements per quarter. Classification refers to effect magnitude, not statistical significance. SDE thresholds: large ($|\mathrm{SDE}| > 0.15$), moderate (0.05–0.15), small (0.005–0.05), null ($|\mathrm{SDE}| < 0.005$).

A. Standardized Effect Sizes