Does the Economic News Sentiment Index Help Predict Housing Markets? The Case of Seoul Metropolitan Region

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This study investigates the predictive power of the Economic News Sentiment Index (ENSI), an experimental index recently developed by the Bank of Korea, in forecasting housing market dynamics in the Seoul Metropolitan Area (SMA). Unlike traditional sentiment indices relying on surveys and proxy variables, the ENSI is a real-time measure derived from news articles and expected to offer timely insights by quantifying public sentiment expressed in economic news. Using a series of VAR models and causality tests, we assess whether the ENSI provides genuine information beyond what is conveyed by macro-financial indicators or existing survey-based sentiment indices. Our findings reveal that the ENSI has standalone predictive value for future changes in real apartment price, but its information contents are redundant once commonly used macro-financial indicators are included. Compared to existing official indices, the ENSI outperforms consumer sentiment and complements business sentiment measures. These results suggest that, while the ENSI is a promising real-time indicator, its usefulness is not universal and therefore warrants further exploration across other asset markets and broader forecasting context.

Keywords: Sentiment Analysis, Economic News Sentiment Index (ENSI), Housing Market, Predictive Power

JEL classifications: R31, C32, D84, E32

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1. Introduction

Understanding the dynamics of asset prices is a central concern in economics and finance, particularly in markets where expectations and perceptions play a pivotal role. Traditional models rely on macroeconomic fundamentals to explain price movements, but growing evidence suggests that economic sentiment - how agents feel or perceive the future - can significantly influence asset valuations. In housing markets, for instance, shifts in public sentiment driven by news, policy signals, or economic outlooks may lead to price changes that are not immediately justified by fundamentals. A compelling illustration is Shiller's 'feedback model' (2003, 2017), which describes a self-reinforcing loop of price-to-price feedback: initial speculative price increases draw public attention, igniting enthusiasm and reinforcing expectations of further speculative gains. These heightened expectations, in turn, contribute to continued upward pressure on prices.

A substantial body of empirical studies has examined the influence of market participants' sentiment on asset price movements, employing a variety of sentiment indicators. Internationally, Goodman (1994) examines whether consumer, loan provider, and home builder sentiment surveys can effectively forecast US housing market activities and concludes that attitude-based surveys have little predictive value beyond what is provided by historical housing market data except for homebuilder sentiment over certain periods. In contrast, Psaradakis et al. (2025) find a significant causal relationship between consumer sentiment and both the S&P 500 price–dividend ratio and market volatility, with effects amplified during high-sentiment regimes. Lin et al. (2009) examine the role of investor sentiment in explaining REIT (Real Estate Investment Trust) returns in US and finds that investor sentiment significantly influences returns - optimism raises returns, while pessimism lowers them - whereas conventional predictors like interest rate spreads have become less informative. Using an investor sentiment index constructed from multiple proxies,(3) Baker and Wurgler

(3) The six proxies are the NYSE turnover rate, dividend premium, discount rate for closed-end funds, average return on the first trading day of an IPO, and the ratio of bonds to equity

(2006) find that stocks with limited arbitrage opportunities or speculative valuations - such as start-ups, small firms, or highly volatile stocks - tend to deliver lower future returns in the US stock market following periods of elevated optimism. Clayton et al. (2009) find that, even after the effects of fundamentals such as expected growth, equity risk premiums, and treasury yields are controlled for, investor sentiment significantly affects pricing in the US commercial real estate market. Jin et al. (2014) find that non-fundamental-based (irrational) consumer sentiment significantly affects the pricing pattern in the residential real estate markets of the major US metropolitan areas. Among the domestic studies, Park and Lee (2010) assess housing market sentiment indicators, finding that the Business Survey Index on purchase demand possesses predictive power for both housing prices and transaction volumes. Byun and Kim (2013) investigate various sentiment proxies—such as individual investors' long-short imbalances, stock market turnover, and consumer confidence—and their impact on future stock returns. Cho (2014) demonstrates that the Market Trend Index and Real Estate Outlook Index significantly affect house prices, whereas the Economic Sentiment Index (ESI) and Composite Consumer Sentiment Index (CCSI) do not. Choi and Lim (2009) examine the Housing Price Outlook Index, a survey-based measure of consumer expectations about future housing prices, and find that consumer expectations about future housing prices can help predict actual price movements and excess returns in Korea's nationwide housing market even after controlling for fundamentals. Lee and Jin (2013) examine the determinants and impacts of investor sentiment in housing market, and find that both the rational and irrational investor sentiment affects housing price dynamics. In particular, their results show that irrational sentiment such as overconfidence and her behavior has continuously exerted a dynamic influence on housing prices since the financial crisis. Building on Baker and Wurgler's framework, Kim et al. (2022) construct a sentiment index of real estate investors and find that the effects of location and policies on the returns for residential units are dependent upon the level of the sentiment index. In a recent

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issuance.

predecessor of the current study, Hahn and Kang (2023) investigate the short-term impacts of economic sentiment on real estate investment markets, and their findings indicate that economic sentiment has measurable short-term effects on both the direct investment (e.g., apartment transactions) and indirect investment (e.g., REITs real estate investment markets with more immediate and strong effects observed in the former.

In most previous studies to date, a common approach to constructing sentiment indices has been the use of proxy variables or the administration of survey-based questionnaires. While these methods are relatively easy to implement and access, they present notable limitations in terms of data frequency and informational coverage. In particular, survey-based sentiment indices derived from pre-designed questionnaires are criticized in several studies, such as Song and Shin (2017) and Kim et al. (2019), for failing to capture economic agents' perceptions on specific issues, as well as being time-consuming and costly to compile. To address the limitations of traditional sentiment indices, the Bank of Korea has recently introduced *Economic News Sentiment Index* (ENSI), which gauges public economic sentiment by analyzing the frequency of positive and negative sentences in daily news articles in the economics section.(4) Unlike survey-based indices, the ENSI offers real-time availability and promptly reflects shifts in economic sentiment. Additionally, it facilitates the identification of the underlying sources driving these changes.

The objective of this study is to evaluate the predictive value of the Economic News Sentiment Index (ENSI). Specifically, we aim to address the following research questions:

Q1. Does ENSI per se contain meaningful predictive information?

Q2. Does ENSI provide insights beyond publicly available macro-financial indicators?

Q3. As a real-time measure of economic sentiment, how does ENSI compare to

(4) The news database currently scans news articles from about 50 media organizations, including national newspapers, economic newspapers, broadcasters, internet news organizations, and regional newspapers.

existing survey-based sentiment indices?

To explore the three questions above, we focus on the housing market in the Seoul Metropolitan Area (SMA). We consider housing markets a valuable testbed for assessing the role of sentiment in asset pricing. Compared to other financial markets such as equities or bonds, housing markets are characterized by greater information asymmetry and lower liquidity. Due to the infrequent nature of transactions and the absence of continuous price posting, the influence of investor sentiment on housing prices and transaction volumes tends to manifest with significant lags. Consequently, the efficiency of housing markets is often impaired, making them particularly susceptible to sentiment-driven fluctuations in prices—beyond what can be explained by fundamental factors as posited by Clayton (1998).

Our empirical analysis shows that the Economic News Sentiment Index (ENSI) has significant predictive power for short-term changes in real apartment prices when used alone, but its informational content becomes redundant once macro-financial indicators are included. The Macro-Financial Activity Index (MFAI) consistently outperforms ENSI in forecasting housing price movements, offering stronger and earlier signals. Comparisons with survey-based sentiment indices reveal that ENSI dominates consumer sentiment (CSI) and complements business sentiment (BSI), while neither index fully substitutes the other. Overall, ENSI provides timely insights into housing market dynamics, yet its usefulness is conditional and limited when comprehensive macro-financial data are available.

The remainder of the paper is organized as follows. Section 2 introduces the dataset used in the empirical analysis and explores its low-frequency characteristics. Section 3 evaluates the predictive power of the ENSI, with particular emphasis on comparisons against alternative predictors, including fundamental and survey-based indices. Section 4 concludes by summarizing the key findings and implications of the analysis.

2. Data and Preliminary Analysis

Covering the period from January 2005 to December 2024, the dataset used in this study comprises three main categories of variables: housing market indicators, macro-financial variables, and sentiment indices, The housing market variables pertain to the Seoul Metropolitan Area (SMA) and include real apartment prices, real rents, and the price-to-rent ratio. The macro-financial indicators are selected with reference to prior studies, e.g., Cho (2014) and Lee and Jin (2013), and divided into nationwide variables (i.e., he M2 money supply, market interest rate, USD/KRW exchange rate, current account balance, and the KOSPI index) and SMA-specific variables (i.e., the unemployment rate, dishonored bill ratio, and the balance of mortgage guarantees extended to homebuyers). The sentiment index employed is the Economic News

Table 1: Summary of Variables

Code	Descriptions	Geography	Source
Housing Market Return Variables			
RAP	Real Apartment Price (log)	Regional	Kookmin Bank
RENT	Real Rents (log)	Regional	Kookmin Bank
PtR	Price-Rent ratio (log)	Regional	Kookmin Bank
Macro-Financial Variables			
UR	Unemployment Rate, %	Regional	KOSIS
DR	Dishonored Bill Ratio, %	Regional	Bank of Korea
RMCG	Real Mortgage Credit Guarantee, log	Regional	Korea Housing Finance Corp.
RM2	Real M2 Balance (average), log	Nationwide	Bank of Korea
MRIR	Market Real Interest Rate, % (APR)	Nationwide	Bank of Korea
XR	US$ - Korean\ Exchange Rate, log	Nationwide	Bank of Korea
CA	Current Account Balance (in USD)	Nationwide	Bank of Korea
KOSPI	KOSPI Index, log	Nationwide	Bank of Korea
Sentiment Indexes			
ENSI	Economic News Sentiment Index, log	Nationwide	Bank of Korea

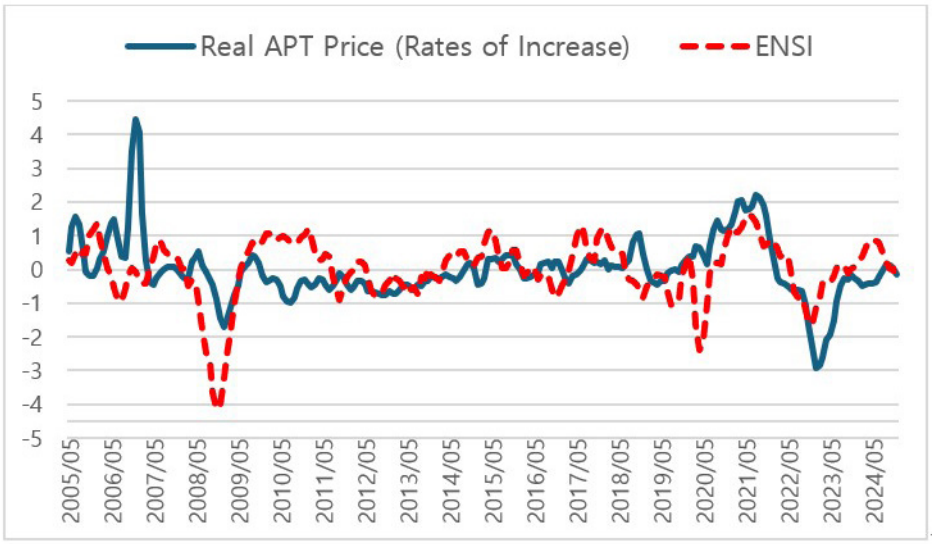

Figure 1: ENSI and Housing Price Dynamics

Sentiment Index (ENSI), published by the Bank of Korea. Table 1 summarizes the name, format, and source of each variable.

As a preliminary check on the efficacy of ENSI, Figure 1 plots the logarithm of the ENSI alongside the rate of change in real apartment prices, where the two series are transformed into their 3-month moving averages and then standardized for the ease of visual inspection. The two series exhibit a considerable degree of co-movement, with a contemporaneous correlation coefficient of 0.299. A cross-correlation analysis further reveals that the ENSI leads changes in housing prices, with a peak correlation coefficient of 0.359 with two-month lead. Albeit exploratory, these findings suggest that public sentiment reflected in news media may serve as a meaningful explanatory variable for housing price dynamics—consistent with prior studies linking sentiment to real estate market fluctuations.

To mitigate the risk of spurious regression in the following empirical analysis, we examine the low-frequency properties of the data series using two widely adopted unit root tests: the Augmented Dickey-Fuller (ADF) test and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test. The test statistics and corresponding p-values are reported in Table 2, where both tests yield consistent results for most variables (highlighted in

Table 2: Results of Unit Root Test

Variable Code	ADF Test (H_0: Unit Root)		KPSS Test (H_0: Stationary)		To be specified as
	Level	Difference	Level	Difference	
RAP	-2.397	-12.595**	0.285**	0.128	Diff. Stationary
RENT	-2.077	-9.384**	0.536*	0.079	Diff. Stationary
PtR	-2.212	-9.589**	0.239**	0.058	Diff. Stationary
UR	-1.528	-5.029**	0.588*	-	Level Stationary
DR	-4.202**	-	0.324	-	Level Stationary
RMCG	-1.534	-13.760**	0.396**	0.261	Diff. Stationary
RM2	-1.825	-2.397*	0.285**	0.341	Diff. Stationary
RIR	-1.934	-13.696**	2.876**	-	Level Stationary
XR	-1.499	-10.915**	0.999**	0.066	Diff. Stationary
CA	-1.984	-6.517**	0.270**	0.071	Diff. Stationary
KOSPI	-2.715	-12.044**	1.724**	0.116	Diff. Stationary
ENSI	-0.522**	-	0.569		Level Stationary

Note: P-values are reported in parentheses. Rejection of the null hypothesis at the 1% and 5% significance levels is indicated by double asterisks and single asterisks, respectively. The testing equations for each series are specified depending on the presence of an apparent linear trend in the data.

bold) supporting the difference-stationarity. For instance, the real apartment price (RAP) exhibits a unit root in its level form and becomes stationary upon first differencing, as indicated by the ADF test. The KPSS test similarly confirms stationarity only after differencing. Another example is the dishonored bill rate (DR), for which the ADF test does not detect a unit root, and the KPSS test fails to reject the null hypothesis of stationarity.

In contrast, a brief note is warranted regarding the three variables highlighted in shaded rows. According to the ADF test, the unemployment rate (UR) and the real interest rate (RIR) appear to be non-stationary and thus would typically require differencing. From a theoretical standpoint, however, these series are expected to be mean-reverting over the long run, implying stationarity in their levels. Given that the

KPSS test results align with this theoretical expectation—failing to reject the null hypothesis of stationarity - we choose to retain these variables in their level form without differencing.

The results for the ENSI also warrant clarification. While the KPSS test supports the stationarity of the ENSI series, the ADF test rejects the null hypothesis of a unit root even at the 1% significance level, suggesting non-stationarity. However, considering the construction and interpretation of the index,(5) we choose to use the ENSI without differencing. This decision aligns with the theoretical understanding of the index as a real-time sentiment measure, despite the conflicting statistical indication from the ADF test.

3. The Predictive Value of the Economic News Sentiment Index

3.1 ENSI and the Housing Market: Bi-variate Causality

To evaluate whether the ENSI serves as a potential predictor of the housing market dynamics in the Seoul Metropolitan Area (SMA), we conduct Granger causality tests within a bivariate VAR model pairing the ENSI with each of the three housing market return variables. Table 3 presents the Wald test statistics along with their corresponding p-values (reported in parentheses).

We first examine whether the ENSI exhibits predictive power for housing market return variables. For real rents and the price-to-rent ratio, the lack of causal relation between ENSI and housing returns cannot be rejected in either direction, as the associated p-values exceed conventional significance thresholds. In contrast, the ENSI

(5) To ensure the stability of the index and facilitate comparison with other indicators, the ENSI is standardized so that its historical mean and standard deviation—calculated from January 2005 up to the period immediately preceding the date in question—are set to 100 and 10, respectively. As such, an ENSI value above 100 indicates that the economic sentiment expressed in news articles is more optimistic than the historical average up to the end of the previous year, while a value below 100 reflects a more pessimistic sentiment. For further details on the construction and standardization methodology, see Seo et al. (2022).

Table 3: Results of the Simple Causality Test

Y variable	H_0: ENSI does not cause Y	H_0: Y does not cause ENSI
ΔRAP	7.031 (0.030)*	0.272 (0.873)
ΔRENT	4.532 (0.104)	0.215 (0.898)
ΔPtR	3.143 (0.208)	0.147 (0.929)

Note: The number of lags in the VAR model is selected based on the Schwarz Information Criterion.

demonstrates statistically significant predictive power for changes in real apartment prices, with a p-value well below the 5% level. Furthermore, the reverse causality—where housing market performance influences future news sentiment—is not supported by the data. The results suggest that economic news sentiment helps predict future movements in real estate prices, but not vice versa.

In summary, the bivariate causality tests indicate that ENSI contains useful forward-looking information specifically for real apartment price changes. This supports that ENSI can provide a valuable signal for market participants and policymakers. As a side note, the lack of predictive power for real rents -considered a fundamental indicator of housing price - suggests that ENSI may be more reflective of non-fundamental factors such as market sentiment, fads, or speculative behavior in the SMA housing market.

3.2 Comparison with Macro-Financial Variables

Although housing prices can also be influenced by market sentiment as above, they are fundamentally shaped by a range of idiosyncratic factors - such as geographic location, school district quality, and demographic characteristics- and economic factors like income levels and access to credit. Among the latter, macro-financial variables such as interest rates, employment, and income growth are widely regarded as key drivers of housing prices, as they directly affect buyers' purchasing power and overall market demand.

To evaluate the role of economic factors, we construct an aggregate indicator - the

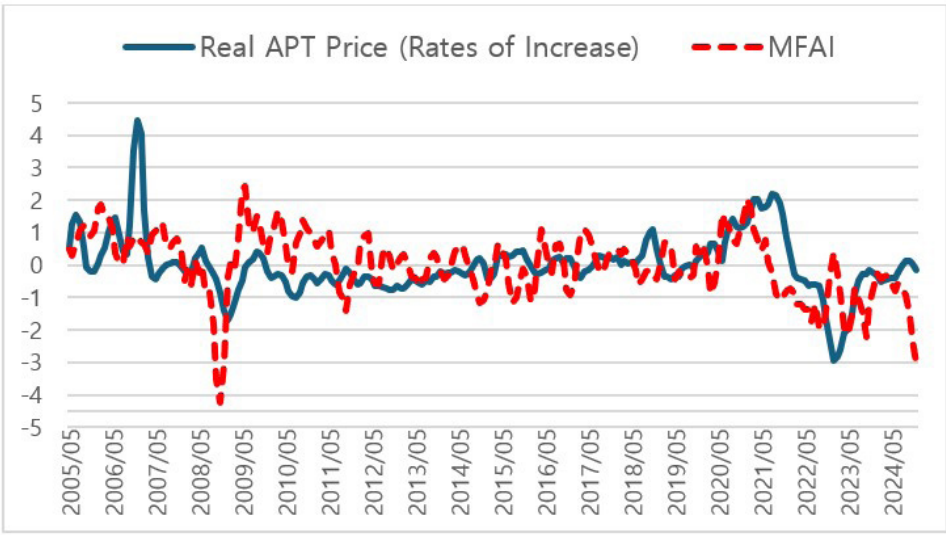

Figure 2: Macro-Financial Activity and Housing Price Dynamics

Macro-Financial Activity Index (MFAI)(6) - and examine its movements with changes in real apartment prices. Both series are standardized and smoothed using 3-month moving averages for clarity. As expected, the two series plotted in Figure 2 exhibit a notable degree of co-movement, with a contemporaneous correlation of 0.276, which is comparable to the correlation 0.299 between real apartment prices and the ENSI in Figure 1. Compared qualitatively, while ENSI exhibits some early upticks before price accelerations, these signals are relatively noisy and inconsistent. In contrast, MFAI displays smoother dynamics and clearer alignment with major turning points in housing prices. Its peaks and troughs correspond more closely to subsequent price changes, and the lead relationship appears stronger than that of ENSI. These observations suggest that, although ENSI provides timely sentiment-based signals, MFAI may offer more reliable and robust predictive information for housing market dynamics.

(6) MFAI is calculated as the first principal component of eight macro-financial variables transformed as in Table 1. This weighted average serves as a reliable summary of overall economic conditions and is analogous to the Chicago Fed National Activity Index (CFNAI). For further details, see Brave (2008).

Table 4. Cross Correlation Coefficients with RAP Changes: ENSI vs MFAI

X	Corr (ΔRAP_t, X_{t-k})				
	k=0	k=1	k=2	k=3	k=4
MFAI	0.276 (p＜0.001)	0.350 (p＜0.001)	0.406 (p＜0.001)	0.423 (p＜0.001)	0.413 (p＜0.001)
ENSI	0.299 (p＜0.001)	0.345 (p＜0.001)	0.359 (p＜0.001)	0.333 (p＜0.001)	0.281 (p＜0.001)
ENSI (net of MFAI)	0.187 (0.004)	0.201 (0.002)	0.190 (0.004)	0.152 (0.020)	0.098 (0.136)

Note: The net ENSI index is the residuals obtained by regressing ENSI on an intercept and MFAI. P-values are in parentheses.

The superiority of the Macro-Financial Activity Index (MFAI) over the Economic News Sentiment Index (ENSI) is formally supported by the cross-correlation analysis in Table 4. MFAI exhibits both stronger correlations and a more pronounced lead relative to housing price changes than ENSI. Between RAP and ENSI, the highest correlation (0.359) occurs at a two-month lead, whereas MFAI reaches a peak correlation of 0.423 at a three-month lead, indicating a more robust predictive relationship. Furthermore, when the informational content of MFAI is statistically removed from ENSI through regression residuals, the cross-correlation between RAP and ENSI declines sharply, underscoring the extent to which MFAI subsumes ENSI's predictive power. Taken together, these results suggest that MFAI outperforms ENSI as a forecasting tool for housing market movements, offering signals that are not only stronger but also more reliable in predicting price dynamics.

Given the strong predictive power of macro-finance indicators with considerable leads, a key question arises: Does the Economic News Sentiment Index (ENSI) still offer useful information for forecasting housing market developments once the effects of major economic indicators are accounted for? To address this, we construct a Vector Autoregression (VAR) model comprising the changes in regional housing prices (RHP), the Macro-Financial Activity Index (MFAI), and the ENSI:

$$\begin{bmatrix} \triangle RAP_t \\ MFAI_t \\ ENSI_t \end{bmatrix} = A_0 + A_1 \begin{bmatrix} \triangle RAP_{t-1} \\ MFAI_{t-1} \\ ENSI_{t-1} \end{bmatrix} + \cdots + A_n \begin{bmatrix} \triangle RAP_{t-n} \\ MFAI_{t-n} \\ ENSI_{t-n} \end{bmatrix} + \varepsilon_t .$$

Once the VAR system is estimated, and Wald tests are applied to evaluate the following two null hypotheses on the coefficients:

H_0 (A): $a_1^{12} = \cdots = a_n^{12} = 0 \Leftrightarrow$ the lagged observations in the MFAI do not affect ΔRAP_t, and

H_0 (B): $a_1^{13} = \cdots = a_n^{13} = 0 \Leftrightarrow$ the lagged observations in the ENSI do not affect ΔRAP_t,

where each hypothesis tests whether the respective index contributes additional predictive information beyond the other. Specifically, H_0(A) assesses the added value of the MFAI when ENSI is included as a pre-existing predictor, and H_0(B) evaluates the ENSI's contribution after accounting for the information contained in MFAI. To allow for richer dynamics, we also consider the VAR model where both indexes are used in their 3-month moving averages. The results of the causality tests are summarized in Table 5.

We first note that MFAI is likely to have useful predictive value. The null hypothesis H_0(A) is rejected in three out of four specifications at a moderate significance level (10%), and most strongly for 3-month moving averages of the indexes with n = 1.

Table 5: Results of the Generalized Causality Test (I)

Forms of ENSI and MFAI	As is		3-month moving average	
	(a) p=1	(b) p=2	(c) p=1	(d) p=2
H0 (A) : MFAI ⇏ ΔRAP	3.116 (0.078)	4.911 (0.086)	6.387 (0.015)	3.673 (0.159)
H0 (B) : ENSI ⇏ ΔRAP	2.393 (0.122)	1.870 (0.393)	0.584 (0.445)	1.830 (0.401)

Note: Lag lengths are selected based on AIC, BIC, and HQ criteria, which suggest values between 1 and 2. P-values are shown in parentheses.

This indicates that the MFAI provides meaningful predictive information for housing price changes even when ENSI is already included. In contrast, ENSI makes only limited contribution: with the p-values consistently high, the null hypothesis H_0(B) cannot be rejected in any of the four specifications. The ENSI therefore does not offer additional predictive value once the MFAI is considered. These results imply that, at least for the Seoul Metropolitan Area (SMA) housing market, publicly available macro-finance indicators already capture the relevant information, and the ENSI does not contribute further explanatory power.

3.3 Comparison with the existing sentiment indexes

As another assessment of the ENSI as a timely sentiment index, we perform a comparison with three widely recognized official survey-based sentiment indicators of monthly frequency: i) Consumer Sentiment Index (CSI) reflecting consumer perceptions of the current economic conditions, ii) Business Sentiment Index (BSI) intended to capture the sentiment of business owners, and iii) Economic Sentiment Index (ESI), a composite of CSI and BSI, representing overall private sector sentiment. All official sentiment indexes are sourced from the ECON database of the Bank of Korea.

The comparison is performed using a series of tri-variate Vector Autoregression (VAR) models, including RAP growth, the ENSI, and one of the official sentiment indexes at a time, with both indexes used in logarithmic forms. The VAR models test whether lagged values of each sentiment index significantly explain current RAP growth, especially when considered alongside the competing official indexes. Due to data availability, comparisons of BSI and ESI cover the period from January 2005 to December 2024, and comparisons with CSI span July 2008 to December 2024. The results of the generalized causality test are shown in Table 6.(7)

When BSI and ENSI are pitted, both indexes show statistically significant

(7) When the same tests are conducted using 3-month moving averages of the sentiment indexes, the null hypothesis of no causality is not rejected in any case.

Table 6: Results of the Generalized Causality Test (II)

Official Index	H_0: Official Index $\nRightarrow$ ΔRAP	H_0: ENSI $\nRightarrow$ ΔRAP
BSI	6.842 (0.037)	7.194 (0.027)
CSI	7.202 (0.126)	9.680 (0.046)
ESI	6.088 (0.048)	6.871 (0.032)

Note: Lag lengths are selected by AIC, BIC, and HQ criteria. P-values are shown in parentheses.

predictive power (p-values less than 0.05), indicating that each index contains unique information not included in its competitor. As such, they complement rather than substitute each other. In the comparison of CSI and ENSI, the ENSI significantly improves RAP prediction even when CSI is included. However, the reverse is not true - CSI does not add predictive value when ENSI is already considered. This suggests that ENSI informationally dominates CSI. Finally, the comparison of ESI and ENSI yields similar results to the BSI-ENSI pairing, with both indexes offering complementary insights.

The summary of these findings is as follows: ENSI, derived from timely news article data, provides predictive advantages over the survey-based CSI. ENSI also captures information not reflected in business owner responses from monthly surveys. However, ENSI does not replace BSI or ESI, as the two official indexes reflect business sentiment not present in news sources.

4. Conclusion

This paper investigates whether the News Sentiment Index (ENSI) developed by Bank of Korea contains predictive information regarding housing price movements in Seoul Metropolitan Area (SMA). To this end, we employ a series of predictive Vector Autoregression (VAR) model using monthly data on apartment price increases, the ENSI, and other potential predictors. These models allow us to assess the ENSI's effectiveness in forecasting housing market dynamics.

The results from the causality tests conducted with the predictive VARs reveal

several key insights, First, used as a stand-alone predictor, the ENSI shows significant predictive power for short-term movements in housing prices. However, its ability to forecast other valuation metrics - such as the price-rent ratio or rent payments - is limited. Second, the Macro-Financial Activity Index (MFAI) continues to provide predictive value for SMA housing prices even after accounting for the ENSI. In contrast, the ENSI does not provide additional explanatory power once the MFAI is included, suggesting that its informational content may be largely redundant when macro-financial indicators are available. Third, comparisons with other survey-based sentiment indexes yield mixed results. While the ENSI and business-owner sentiment indices appear mutually complementary in predicting SMA housing price movements, the degree of complementarity varies across specifications.

Given that the ENSI is an experimental index still in its nascent stage, its predictive capabilities warrant further investigation. Future research should examine its applicability beyond regional housing markets, including its potential to forecast stock market trends or broader business cycle indicators. Additionally, assessing the ENSI's performance in out-of-sample contexts - since this study focuses on in-sample analysis - would provide a more robust evaluation of its efficacy. Finally, qualitative applications, such as identifying business cycle turning points or detecting peaks and troughs in various markets, could offer deeper insights into the ENSI's role as a predictive tool. Extending the current work along these dimensions remains a priority for future research.

Acknowledgement

This work was supported by the Center for Distributional Justice and Innovation at the Institute of Economic Research, Seoul National University. The first author gratefully acknowledges research support from Hankuk University of Foreign Studies.

Declaration of the use of generative AI or AI-assisted technologies

The authors declare the use of Microsoft Copilot, powered by embedded ChatGPT-5, for assistance with tasks such as drafting, grammar correction, and structuring

portions of the manuscript. All outputs generated by the tool were critically reviewed, verified, and appropriately edited by the authors to ensure compliance with academic integrity standards. The authors assume full responsibility for the originality, accuracy, and ethical use of all material presented in the final content.

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References

Baker, M. and Wurgler, J. (2006), “Investor Sentiment and the Cross-Section of Stock Returns,” Journal of Finance, Vol.61, No.4, pp.1645-1680.

Brave, S. (2008), “Economic Trends and the Chicago Fed National Activity Index,” Chicago Fed Letter, No.250, Federal Reserve Bank of Chicago.

Byun, J. and Kim, K. (2013), “Application of Investor Sentiment Index in Financial Studies,” The Korean Journal of Financial Management, Vol.30, No.4, pp.225-248 (in Korean).

Cho, T. (2014), “A Study on the Effect of the Sentiment Index to the Housing Market,” Housing Studies Review, Vol.22, No.3, pp.25-48 (in Korean).

Choi, H. and Lim, B. (2009), “Role of the Housing Price Forecast in Housing Price and Business Cycle,” The Korea Spatial Planning Review, Vol.63, pp.141-158 (in Korean).

Clayton, J. (1998), “Further Evidence on Real Estate Market Efficiency,” Journal of Real Estate Research, Vol.15, pp.41-57.

Clayton, J., Ling, D. C., and Naranjo, A. (2009), “Commercial Real Estate Valuation: Fundamentals Versus Investor Sentiment,” The Journal of Real Estate Finance and Economics, Vol.38, No.1, pp.5-37.

Goodman, J. L. Jr. (1994), “Using Attitude Data to Forecast Housing Activity,” The Journal of Real Estate Research, Vol.9, No.4, pp.445-453.

Hahn, D. H. and Kang, H. (2023), “An Empirical Study on the Short-Term Effects of Economic Sentiment on the Direct and Indirect Investment Markets in Real Estate,” Journal of Housing and Urban Finance, Vol.8, No.1, pp.19-45 (in Korean).

Jin, C., Soydemir, G., and Tidwell, A. (2014), “The U.S. Housing Market and the Pricing of Risk: Fundamental Analysis and Market Sentiment,” Journal of Real Estate Research, Vol.36, No.2, pp.187-220.

Kim, D. H. and Park, T. (2020), “Effects of Investor Sentiment on Residential Property Return,” Korean Real Estate Society Review, Vol.58, No.3, pp.89-114 (in Korean).

Kim, H., Lim, J. H., Lee, H. Y., and Lee, S. H. (2019), "Developing a Supplementary Economic Sentiment Index Based on Online News Articles," Quarterly National Accounts Review, Vol.34, No.2, pp.1-33 (in Korean).

Kim, D. H., Kim, T., and Kwak, D. C. (2022), "Analysis of the Effect of Investor Confidence on the Comprehensive Housing Price Ratio: Focusing on Region and Policy," Journal of Management and Economics, Vol.44, No.2, pp.155-177 (in Korean).

Lee, S. and Jin, C. (2013), "A Study on the Relationship Between Investor Sentiment and Home Prices," The Korea Spatial Planning Review, Vol.78, pp.53-69 (in Korean).

Lin, C. Y., Rahman, H., and Yung, K. (2009), "Investor Sentiment and REIT Returns," The Journal of Real Estate Finance and Economics, Vol.39, No.4, pp.450-471.

Park, C. and Lee, Y. (2010), "Analysis on the Predictive Power of the Housing Market Survey Indices," Journal of the Korean Real Estate Analyst Association, Vol.16, No.1, pp.131-146 (in Korean).

Psaradakis, Z., Rapetti, F., Sola, M., and Yunis, P. (2025), "The Role of Consumer Sentiment in the Stock Market: A Multivariate Dynamic Mixture Model with Threshold Effects," Oxford Bulletin of Economics and Statistics, forthcoming. https://doi.org/10.1111/obes.12682

Seo, B., Lee, Y., and Cho, H. (2022), "Construction and Applications of the News Sentiment Index via Machine Learning," National Accounts Review, Vol.45, pp.68-90 (in Korean).

Shiller, R. J. (2003), "From Efficient Markets Theory to Behavioral Finance," Journal of Economic Perspectives, Vol.17, No.1, pp.83-104.

Shiller, R. J. (2017), "Narrative Economics," American Economic Review, Vol.107, No.4, pp.967-1004.

Song, M. and Shin, K. (2017), "Construction of Consumer Confidence Index Based on Sentiment Analysis Using News Articles," Journal of Intelligence and Information Systems, Vol.23, No.3, pp.1-27.