

The Housing Market & Residential Property Price Indices (RPPIs) in Korea

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Introduction

Introduction — Background & Motivation

- Residential Property Price Indices (RPPIs) are core statistics used to monitor housing-market conditions and to inform macroprudential policy as well as housing-market policies (Borio and Lowe, 2002).
- A key challenge is that housing is inherently heterogeneous — each property differs systematically in location, size, quality, and other attributes (Bailey et al., 1963).
- Therefore, RPPI compilation requires a disciplined and consistent methodology.
- RPPI outcomes can differ materially depending on
 - (i) data source (transactions vs. surveys)
 - (ii) methodology (hedonic vs. repeat-sales)leading to different index levels and volatilities.

Key Ideas of RPPIs

Key Ideas of RPPIs

- **Conceptual classification:** International standards (IMF/Eurostat) define RPPIs as **asset-price indicators**, not CPI measures.
 - More directly linked to national balance sheets, wealth, and financial stability (Eurostat, 2013).
- **Data requirement:** Standards prioritize **transaction prices** as the preferred input (best reflect market-clearing values).
- **Methodological choice matters:** Different methods can produce materially different levels and volatilities, depending on heterogeneity control, sample selection, and trading intensity.

Key Ideas of RPPIs (continued)

- Cross-country comparability is a **governance issue**, not just a **model issue**.
- Emphasis is placed less on “one universally best method” and more on:
 - Transparency of the index-construction process (clear documentation)
 - Appropriate heterogeneity control (defensible quality adjustment)
 - Coverage and representativeness of data (comprehensive, unbiased samples)
 - Stability and robustness (revisions policy, sensitivity checks, consistency)
 - Data availability and accessibility (replication and comparison)

Korean Housing Market

Korean Housing Market

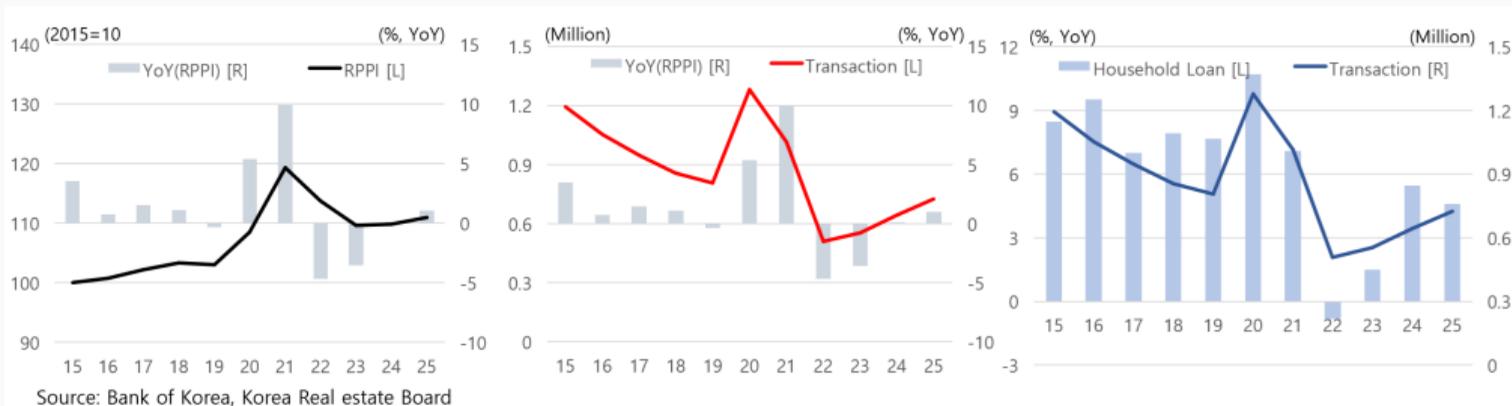
	Total	Apartment	Townhouse	Detached house
Nationwide House	19.9m	13.0m	2.9m	4.0m
Seoul (Capital)	3.2m	1.9m	1.0m	0.3m

Source: Ministry of Data and Statistics(2024)



Korean Housing Market (recent dynamics)

- Korea's housing prices(RPPI) climbed through 21, then corrected in 22-23 and have since moved into a broad stabilization/low-growth phase in 24-25.
- Transaction volumes surged in 20-21 but collapsed in 22 and are recovering.
- Household loan growth slowed sharply and briefly turned negative in 22-23, but has rebounded since, alongside a recovery in housing transactions.



Korea's RPPIs

Korea's Official RPPIs

- (1) **Survey House Price Index (SPI)** is a **survey-based appraisal** (Laspeyres/Jevons) measure.
- (2) **Actual Transaction Price Index (RPI)** is a **transaction-based, repeat-sales** index, and is **more sensitive to market turnover**.

	National Survey of House Price Index	Multifamily House Actual Transaction Price Index
Agency	Korea Real Estate Board (KREB)	Korea Real Estate Board (KREB)
Data	Survey-based appraised price data (≈ 48,000 sampled dwellings)	Transaction (sale) price data
Aggregation	Laspeyres index	Transaction-volume-weighted aggregation
Estimation	Jevons index (geometric mean)	Repeat-sales regression model
Formula	$I_J = \prod_{i=1}^n \left(\frac{p_i^t}{p_i^0} \right)^{\frac{1}{n}}$	$\ln\left(\frac{P_s}{P_f}\right) = \sum_{t=2}^T \beta_t D_t + \sqrt{w} \epsilon_t$

Korea's Official RPPIs (details)

(1) Survey House Price Index (Sample-Based Survey Index)

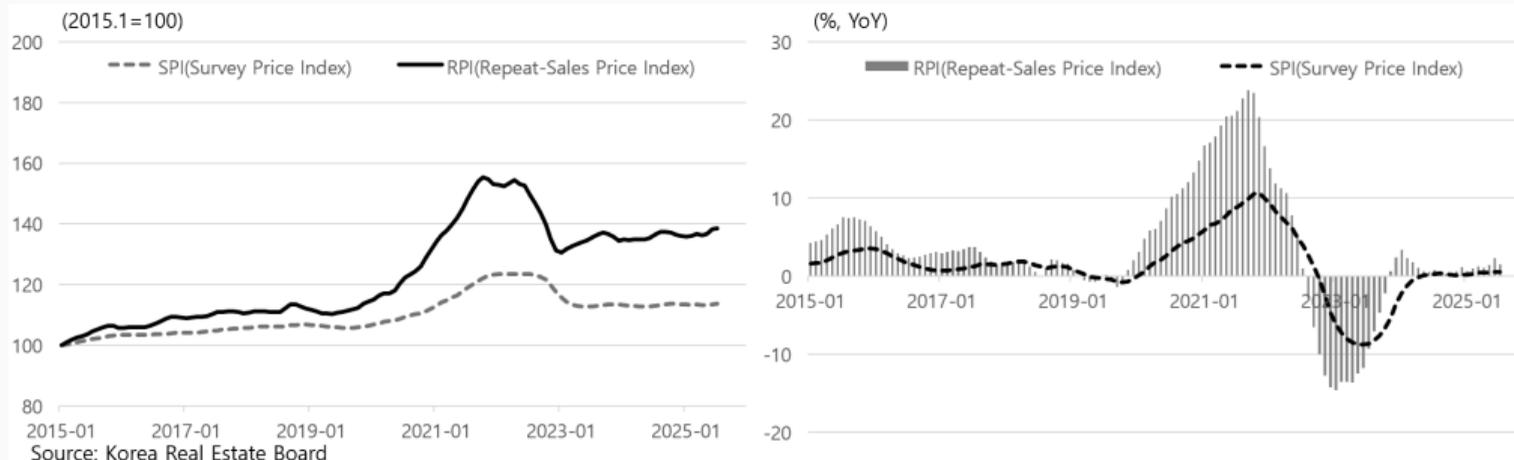
- Housing price survey since 1986, based on a stratified sample of dwellings.
- Official, recognized price indicator; often used as a complementary measure.
- Professional surveyors price dwellings using appropriate stratification.
- Helps maintain continuous coverage, even when the market is thin.

(2) Actual Transaction Price Index (Repeat-Sales Model Index)

- Since mandatory transaction reporting in 2006, Korea produces an index based on actual transaction prices.
- Compiled using a repeat-sales regression framework: compares multiple sales of the same property over time.
- Widely used as a market-based indicator reflecting observed prices.

SPI vs. RPI: What each index measures

- **RPI (repeat-sales, transaction-based)** is more sensitive to market turnover and closely reflects actual transaction prices.
- **SPI (survey-based)** captures broader price movements of the entire housing stock, including non-traded units.



Alternative Indices

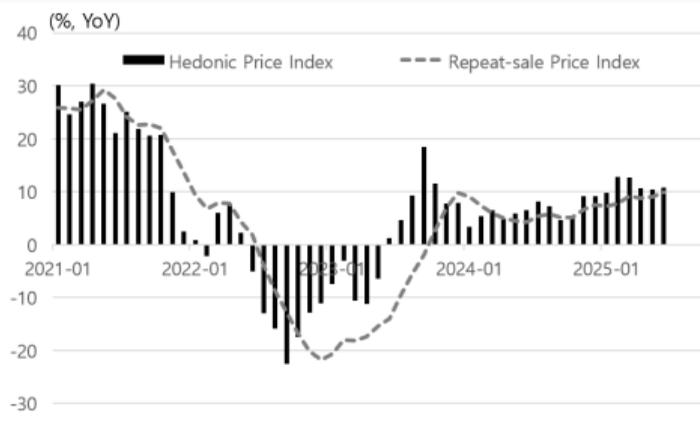
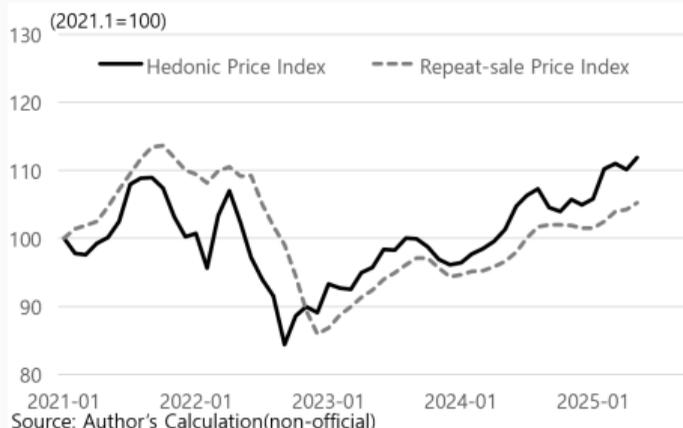
Alternative Indices (1): Hedonic Index — Why Seoul?

- **Hedonic Price Index for Seoul**
- Why Seoul apartments are well-suited for index construction:
 - Relatively standardized housing products
 - Active transaction flows
 - Highly usable micro transaction data for RPPI compilation
 - **Repeat Sales(RSM) VS Hedonic(HRM)**

	Repeat Sales Model (RSM)	Hedonic Regression Model (HRM)
<i>Concept</i>	Compare prices of the same property over time	Control for property characteristics to isolate pure price change
<i>Strength</i>	Clear control for heterogeneity (time-invariant property quality)	Flexible heterogeneity control; can use broader samples
<i>Limitations</i>	Sample restrictions; sensitive to turnover/market liquidity	Requires careful model design and stable quality measures

Seoul Hedonic Index (experimental)

- Using Seoul apartment transactions, we construct a **hedonic price index** controlling for: (*Experimental; not an official index*).
 - location, unit size, building age, floor level, brand, transport accessibility, and education environments
- The hedonic index appears more **sensitive** and **forward-looking** than the repeat-sales index.



Alternative Indices (2): Sentiment Indices

	Housing Price Outlook Consumer Survey Index (CSI)	Housing Market Consumer Sentiment Index
Compiling institution	Bank of Korea (BOK)	Korea Research Institute for Human Settlements (KRIHS)
Survey population	General households (consumers)	Real estate brokers and general households
Core Objective	Price expectations (direction and intensity of anticipated housing price changes)	Market conditions and behavior (prices, transactions, supply–demand balance)

- **Housing Price Outlook Consumer Survey Index (CSI):** captures households' expectations about the direction and intensity of future housing price changes.
- **Housing Market Consumer Sentiment Index:** reflects broader perceptions of housing-market conditions and behavior, based on market survey.

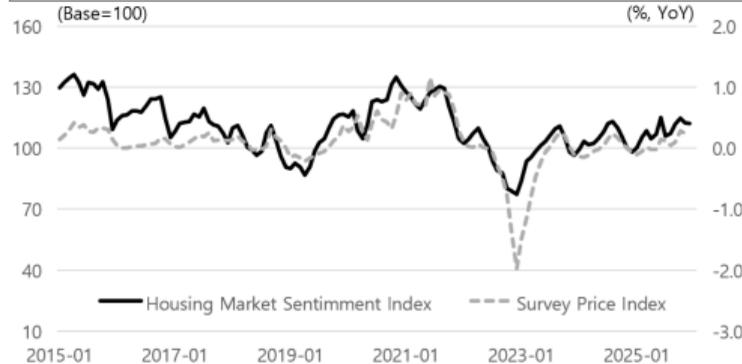
Sentiment Indices: Lead-Lag Pattern

- Both the housing price outlook index and the market sentiment index closely track the movements of the **Survey price index (SPI)**.
- They tend to **lead SPI by approximately one month**.

-2M	-1M	0M(Correl)	+1M	+2M
0.825	0.881	0.871	0.773	0.649



-2M	-1M	0M(Correl)	+1M	+2M
0.767	0.806	0.768	0.673	0.570



Source: Bank of Korea, Korea Research Institute for Human Settlements

Conclusion

Conclusion — Key Takeaways

1. RPPIs are asset-price indicators central to macro-financial surveillance, so **methodological discipline and transparency** are critical.
2. Korea's two official indices — **SPI** and **RPI** — measure different objects: **stock-wide valuation** vs. **turnover-sensitive transaction prices**. Their divergence is often informative about market liquidity and trading intensity.
3. Alternative indices — especially **hedonic** and **sentiment** measures — can complement official RPPIs by improving **signal extraction** and providing **more timely** information around turning points.

Thank you

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