Accounting for quality differences between goods is a concern when constructing a price index, in particular for very heterogeneous goods like residential properties. The goal of a price index is to capture a pure price movement across two periods, but if there are systematic differences in the goods being compared over time that also affect price—so called differences in quality—then a pure price movement cannot be captured using transaction prices.

Statistics Canada publishes a New Housing Price Index (NHPI), an Experimental New Condominium Apartment Price Index (NCAPI), and is developing a Resale Residential Property Price Index (rRPII) to capture these three distinct markets. Each of these sectors have their own unique dynamics that require individualized approaches to index methodology and quality adjustment. Statistics Canada will be combining the NHPI, NCAPI and rRPII into one Residential Property Price Index (RPPI) in order to capture the price inflation in the residential property market. Bringing these unique markets together into one price index requires a unified approach to the concepts of constant quality indexes.

New Housing Price Index
Matched Model

Hedonically Enhanced New Housing Price Index
Hedonics for Model Replacement

New Condominium Apartment Price Index
Stratification

Resale Residential Property Price Index
Repeat Sales

Potential Outcomes Framework

A constant-quality index averages price relatives based on potential prices so that quality is held fixed over time.

\( X_{it} \) is a vector of characteristics for a property; the following assumptions can identify a constant-quality index with transaction prices.

\[ p_t = p(0) + \alpha_t + X_{it} \beta_t. \]

A matched-model, hedonic, stratified, and repeat-sales indexes are all special cases of a constant-quality index that attempt to operationalize an assumption of conditional independence while satisfying the overlap condition.

References