

# Exploring Housing Affordability: Six Modern Applications of the Housing Expenditure-to-Income Ratio

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**Abstract** In recent years, "housing affordability" has become a prevalent term highlighting the complex housing challenges faced by many nations, though its precise definition remains elusive. This paper critically examines the concept of "affordability" as a framework for understanding housing problems and defining housing needs, focusing on North American perspectives. It identifies six distinct applications of the housing expenditure-to-income ratio commonly used to measure affordability: characterizing household expenditures, analyzing temporal trends, administering public housing through eligibility criteria and subsidy determination, establishing housing needs for policy formulation, predicting household ability to meet rent or mortgage payments, and informing decision-making processes regarding renting or mortgage provision. Each application is evaluated for its validity and reliability in capturing the intended aspects of affordability, aiming to clarify the strengths and limitations of this metric in addressing housing issues.

**Index Terms** housing affordability, expenditure-to-income ratio, housing costs, income analysis, affordable housing

## I. Introduction

In recent years, the term 'housing affordability' has gained prominence as a concise way to characterize the challenges within housing across numerous nations. This stands in contrast to previous decades, where issues were often defined as the 'slum problem', 'low-rent housing problem', 'housing shortage', or 'housing need'. Typically, a household is deemed to face a housing affordability challenge when it expends more than a certain percentage of its income to secure suitable housing [1]–[5].

The concept of 'affordability' in the housing context traces back to 19th-century studies of household budgets and the popular expression 'one week's pay for one month's rent' at the turn of the century [3], [4]. Over time, mortgage lenders and private sector landlords in North America began employing a housing expenditure-to-income ratio as part of their assessment criteria. This ratio, seen as a 'rule of thumb' for gauging ability to pay, gradually shifted upwards over the decades, with variations such as a 20%, 25%, and eventually a 30% 'rule of thumb' in Canada [5].

Economists in the 1950s also delved into the relationship between housing consumption and household income to understand housing demand elasticities for their models. However, during the 1980s, the term 'housing affordability' gained widespread popularity in North America and Western Europe, albeit with a growing body of literature questioning its utility.

This paper delves into the origins and theoretical underpinnings of the housing expenditure-to-income ratio, aiming to assess its validity and reliability as a measure of ability to pay for housing. By reviewing historical developments and contemporary housing literature, six distinct uses of this ratio are identified and evaluated: description, analysis, administration of subsidies, definition of housing need, prediction of ability to pay, and selection criteria [6].

| Income Bracket (CAD) | % of Owners Spending > 30% | % of Renters Spending > 30% |
|----------------------|----------------------------|-----------------------------|
| Under \$10,000       | 75%                        | 85%                         |
| \$10,000 - \$19,999  | 50%                        | 65%                         |
| \$20,000 - \$29,999  | 35%                        | 45%                         |
| \$30,000 - \$39,999  | 20%                        | 30%                         |
| \$40,000 - \$49,999  | 15%                        | 20%                         |
| \$50,000 - \$59,999  | 10%                        | 15%                         |
| \$60,000 - \$69,999  | 5%                         | 10%                         |
| \$70,000 and above   | 3%                         | 5%                          |

Table 1: Percentage of Household Income Spent on Housing in Ontario by Owners and Renters, 1991 Census

Methodologically, the paper employs a historical approach to trace the evolution of housing expenditure 'rules of thumb' and conducts content analysis of key reports, studies, government documents, and academic literature. The assessment criteria

focus on the validity and reliability of each use, ensuring the trustworthiness of the measurement instruments employed. Validity examines the accuracy of reflecting underlying concepts, while reliability tests the consistency of results across repeated trials.

## II. Evolution of Household Expenditure Patterns

The pursuit of 'scientific laws' governing household expenditure patterns finds its roots in the quest of early social scientists to establish systematic principles governing social and economic phenomena. Departing from earlier religious conceptions of societal order, modern social scientists sought to apply the rigorous methods of natural sciences to study human behavior objectively. They aimed to uncover laws akin to those governing physical sciences, believing that understanding these laws would enable effective social governance and improvement of citizens' well-being [7].

However, contemporary housing literature often neglects this broader historical and intellectual backdrop. Yet, many foundational assumptions in current housing analysis trace back to past researchers and their methodologies. For instance, the origin of the housing expenditure-to-income 'rules of thumb' is commonly attributed to Ernst Engel and Herman Schwabe, 19th-century German statisticians who formulated early 'laws' regarding income and household expenditures.

Engel proposed a law asserting that the proportion of income spent on lodging and fuel remains constant across income levels, while Schwabe suggested that the percentage allocated to housing decreases as total family income rises. Despite conflicting interpretations, contemporary usage of the 25 or 30 percent 'rule of thumb' aligns more closely with Engel's proposition. However, scholars like Margaret Reid disputed Schwabe's law, leading to confusion over which law accurately represented reality. Subsequent revisions and empirical evidence further complicated the debate [2].

Engel's pioneering 1857 study of Belgian working-class families laid the groundwork for understanding budgetary patterns, emphasizing the relationship between income and expenditure categories. Schwabe's research specifically addressed housing expenses, observing a decline in the proportion of income spent on rent as income increased.

Nevertheless, attempts to establish similar laws for housing expenditure encountered numerous challenges, including definitional inconsistencies and methodological limitations. The lack of standardized definitions and statistical techniques hindered efforts to generalize findings beyond basic budgetary categories like food. As a result, multiple conflicting 'laws' emerged, contributing to a muddled understanding of housing consumption dynamics [5], [7].

In practice, simplified versions of these 'laws' permeated popular discourse, such as the adage "one week's wage for one month's rent" in the late 19th century. This evolved into the contemporary notion that 25 or 30 percent of income represents the upper limit of housing affordability. However, these rules often rely on generalized assumptions about household spending habits without specifying the demographic context or normative basis for these assumptions.

Overall, the historical pursuit of scientific laws governing household expenditure patterns reflects a complex interplay of theoretical frameworks, empirical research, and practical considerations. While early efforts yielded valuable insights, they also underscored the challenges inherent in studying the multifaceted dynamics of household consumption [8].

## III. Understanding the Varied Uses of Housing Expenditure-to-Income Ratios

Housing expenditure-to-income ratios serve multiple purposes within housing research and policy. Distinguishing between valid and invalid applications of these ratios can refine their utility and clarify their implications. This section explores the diverse uses of housing expenditure-to-income ratios and evaluates their appropriateness. Descriptive Analysis: Shedding Light

| Income Quintile  | Housing Expenditure-to-Income Ratio (%) |
|------------------|---|
| Lowest Quintile  | 50%                                     |
| Second Quintile  | 40%                                     |
| Third Quintile   | 30%                                     |
| Fourth Quintile  | 20%                                     |
| Highest Quintile | 15%                                     |

Table 2: Housing Expenditure-to-Income Ratios by Income Quintile for All Ontario Households

on Household Expenditures Examining housing expenditure-to-income ratios can provide valuable insights into household spending patterns. By analyzing these ratios, researchers can paint a detailed picture of how different household types allocate their income toward housing. However, it's crucial to interpret this data cautiously, recognizing its limitations and the subjective nature of any conclusions drawn [9].

Trend Analysis: Exploring Socio-Economic Dynamics These ratios can also serve as a tool for investigating trends and socio-economic phenomena. Researchers like Smith (1990) have used housing expenditure-to-income ratios to explore the financial stress faced by various demographic groups. By employing these ratios within a conceptual framework, researchers can deepen their understanding of societal dynamics without oversimplifying complex issues [10].

Administration of Public Sector Subsidies: Guiding Policy Decisions In public sector housing programs, housing expenditure-to-income ratios play a role in determining eligibility for subsidies. By setting maximum income criteria, policymakers aim to target assistance to those in need. However, these decisions are subjective and driven by policy goals

rather than scientific rigor. The use of these ratios in public policy underscores their versatility but also highlights the need for careful consideration of their implications [11].

**Definition of Housing Need:** The text argues against the use of the housing expenditure-to-income ratio as a valid measure of housing need. It criticizes the simplistic approach of defining housing need based on a fixed percentage of income spent on housing, pointing out that it ignores the diversity of household consumption patterns and the complexity of household finances [12].

**Prediction of a Household's Ability to Pay the Rent or Mortgage:** The passage questions the reliability of the housing expenditure-to-income ratio as a measure of ability to pay rent or mortgage. It argues that the ratio fails to account for various sources of household income and support beyond cash income, leading to potential discrimination against households with limited cash income resources [13].

**Selection Criteria:** The text discusses the controversy surrounding the use of minimum income criteria by landlords and mortgage lenders in selecting tenants or granting mortgages. It highlights concerns about discrimination against lower-income households and questions the validity of using the housing expenditure-to-income ratio as a basis for such decisions [14].

Overall, the passage emphasizes the limitations and potential biases associated with relying solely on the housing expenditure-to-income ratio in housing policy and decision-making. It suggests that a more nuanced and comprehensive approach is needed to accurately assess housing need and ability to pay [15].

#### IV. Conclusion

The contemporary discourse on housing often lacks a historical perspective, failing to acknowledge the roots of its fundamental assumptions. One such assumption is the use of the housing expenditure-to-income ratio as a measure of affordability. This paper explores the historical origins and modern implications of this ratio.

The first part delves into the 19th-century origins of this ratio and the theoretical and empirical foundations underlying its use. Historically, attempts to study household consumption led to the emergence of simplified 'rules of thumb' about housing affordability. These rules were based on casual observations rather than scientific knowledge, evolving into the housing expenditure-to-income ratio.

However, despite its widespread use, this ratio lacks scientific validity. Its historical trajectory is one of failure, with successive attempts to define it as a 'law' or 'rule' about household consumption proving unsuccessful. Referring to it as a 'rule of thumb' aptly highlights its lack of scientific basis.

While the ratio may have some utility in specific research contexts, it is inherently flawed as a measure of housing need or ability to pay. Its arbitrary nature is evident in the shifting percentage thresholds used by different sectors over time. The lack of empirical sense in any fixed ratio underscores its arbitrariness.

Ultimately, household consumption patterns are diverse and complex, defying simplistic measures like the housing expenditure-to-income ratio. Researchers should refrain from using the term 'housing affordability' uncritically, as it fails to provide meaningful structure to our understanding of housing dynamics. Instead, a more nuanced approach is needed to comprehend the complexities of housing affordability.

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