

Title: The concept of housing affordability: Six contemporary uses of the housing expenditure-to-income...

Authors: [Hulchanski, J. David](#)

Source: [Housing Studies](#); Oct95, Vol. 10 Issue 4, p471, 21p, 3 charts

Document Type: Article

Subject Terms: *[HOUSING](#)

Geographic Terms: [NORTH America](#)

Abstract: Questions 'affordability' as a concept for analyzing housing problems and as a definition of housing need in North America. Six uses of the expenditure-to-income ratio as an assumed measure of affordability; Assessment of the validity of the six uses of the ratio.

Full Text Word Count: 10467

ISSN: 0267-3037

Accession Number: 9512121897

Persistent link to this record: <http://search.epnet.com.myaccess.library.utoronto.ca/login.aspx?direct=true&AuthType=cookie,ip,url,uid&db=buh&an=9512121897>

Database: Business Source Premier

* * *



THE CONCEPT OF HOUSING AFFORDABILITY: SIX CONTEMPORARY USES OF THE HOUSING EXPENDITURE-TO-INCOME RATIO

Contents

[Six Contemporary Uses of the Housing Expenditure-to-Income 'Rule of Thumb'](#)

[\(1\) Description of Household](#)

ABSTRACT In recent years 'housing affordability' has become a commonly used term for summarising the nature of the housing difficulty in many nations. But what is the 'housing affordability' problem? This paper questions 'affordability' as a concept for analysing housing problems and as a definition of housing need. With a focus on the North American usage, this paper identifies six distinct ways in which the housing expenditure-to-income ratio is being used as an assumed measure of affordability: (1) description of household expenditures; (2) analysis of trends; (3) administration of public housing by defining eligibility criteria and subsidy levels; (4) definition of housing need for public policy purposes; (5) prediction of the ability of a household to pay the rent or the mortgage; and (6) as part of the selection criteria in the decision to rent or provide a mortgage. Each of

[Expenditures](#)

the six uses is assessed based on the extent to which it is a valid and reliable measure of what it purports to measure.

[\(2\) Analysis of Trends](#)

[\(3\) Administration of Public Sector Housing Subsidies](#)

It must be confessed that the attempt to reduce family needs to a classified budget is a denial of the manifold varieties of human nature . . . The idiosyncrasies, vanities, pleasures, and generousities that make life worth living cannot be accounted for in scientific budgets and economic formulae. But even this cold examination of minimum family needs has shown the many variable factors that must enter into household plans; it is clear that simple generalisations and rules-of-thumb for calculating a family's capacity to pay for housing may be quite misleading. (Humphrey Carver, 1948, p. 86)

[\(4\) Definition of Housing Need](#)

[\(5\) Prediction of a Household's Ability to Pay the Rent or Mortgage](#)

In recent years 'housing affordability' has become a common way of summarising the nature of the housing difficulty in many nations. This is in contrast to the 'slum problem', the 'low-rent housing problem', the 'housing shortage' or the 'housing need' definitions of previous decades. A household is said to have a housing affordability problem, in most formulations of the term, when it pays more than a certain percentage of its income to obtain adequate and appropriate housing.

[\(6\) Selection Criteria](#)

[Conclusion](#)

The 'affordability' aspect of this formulation of the housing problem has its roots in 19th century studies of household budgets and in the commonly used turn-of-the-century expression 'one week's pay for one month's rent'. During this century a housing expenditure-to-income ratio began to be used by mortgage lenders and, in recent decades, as part of the selection criteria by private sector landlords in North America (Feins & White, 1977; Gliderbloom, 1985; Lane, 1977). Through the decades the housing expenditure-to-income 'rule of thumb' deemed to be an appropriate indicator of ability to pay gradually shifted upward. In Canada, for example, a 20 per cent rule lasted until the 1950s when somehow a 25 per cent rule came into use, only to be replaced in the 1980s by a 30 per cent 'rule of thumb' (Bacher, 1993; Hulchanski, 1994b). Related to this practical assumption about an 'appropriate' relationship between housing expenditure and income is the work of economists who in the 1950s began to ask questions about the relationship between housing consumption and household income in order to attempt to specify housing demand elasticities for their models (for example, Grebler et al., 1956; Maisel & Winnick, 1966; Reid, 1962; Stigler, 1954; Winnick, 1955; Winger, 1968). During the 1980s the often undefined term 'housing affordability' has come into widespread popular usage in North America and Western Europe with a growing body of literature which, for the most part, finds the term problematic (Bramley, 1994; Hallett, 1993; Hancock, 1993; Kearns, 1992; Linneman & Megbolugbe, 1992; Stone 1990; Whitehead, 1991).

[Acknowledgements](#)

[Correspondence](#)

[Figure 1 The housing expenditure-to-income ratio: six uses of the per cent of income 'rule of thumb'.](#)

[Table 1 Percentage of household income spent on housing in Ontario. Owners and renters, 1991 Census](#)

[Table 2 Housing expenditure-to-income ratios by income quintile. All Ontario households, 1992](#)

[References](#)

This paper focuses on the following questions. What is the origin of the use of a housing expenditure-to-income ratio? What, if any, are the theoretical and empirical foundations upon which the percentage of income 'rules of thumb' are based? The aim is to determine how valid and reliable the housing expenditure-to-income ratio is as a measure of ability to pay for housing. That is, does such a 'rule' actually measure what its users claim it is measuring?

Based on a review of this history, and on an extensive review of the contemporary housing literature which explicitly uses housing expenditure-to-income ratios, six distinct uses are identified and assessed. The assessment is based on the extent to which each is a valid and reliable measure of-what it purports to measure. The six uses are: (1) description; (2) analysis; (3) administration of subsidies; (4) definition of housing need; (5) prediction of the ability to pay; and (6) selection criteria.

The research method used in this paper is historical--the identification of the origins and evolution of the use of housing expenditure 'rules of thumb'. It is also based on content analysis--an examination of-how key reports, studies, government documents and the academic housing literature have used and continue to use housing expenditure-to-income ratios. The criteria for assessing the six uses are based on the extent to which they are valid and reliable measures. Validity and reliability are tests of the trustworthiness of the measurement instruments used in research (see for example: Babbie, 1992; Blalock, 1979; Carmines & Zeller, 1979). Validity is a test of the extent to which a measuring instrument adequately and accurately reflects the meaning of the concepts employed. Is the relationship being asserted, for example, what it appears to be--is there an actual direct link between the two things? Or is there error in measurement? Reliability is a test of the consistency of a measure in yielding similar results in repeated trials.

The Search for 'Scientific Laws' of Household Expenditure Patterns

The intellectual context for the study of household budgets has its roots in the search by the founders of modern social science for 'scientific laws' of social and economic life. The view of the social world as one governed by transcendent religious laws was abandoned for the ideal of an objective knowledge of social and economic phenomena gained through the discovery and study of the 'laws' that regulate human behaviour. The emerging social sciences used the theoretical reasoning and research methods of the natural sciences, on the assumption that the social world could be objectively known in the same way as the natural world could be known. The task was to infer from observation of social activity laws of motion for society similar to those of physics, chemistry and astronomy. It was assumed that if natural scientists could discover the laws of nature so as to control and harness natural phenomena, then social scientists should be able to discover the laws governing social behaviour so as to control and regulate aspects of society. The aim was to develop "a quantitatively based science that might guide any government in improving the material well-being of its subjects" (Olson, 1993, p. 193). Indeed, the urban social unrest in the early industrialising and urbanising nations of Europe helped give special status to those who sought such laws (Kendall, 1968; Landau & Lazarsfeld, 1968; Lazarsfeld, 1961).

Contemporary housing literature rarely situates itself in this broader historic and intellectual context. The way in which social and economic 'science' evolved affects some fundamental assumptions upon which current housing analysis is based. The source of a number of key assumptions found in contemporary housing theory and practice can be traced to past researchers and their approaches. In the case of the origins of the housing expenditure-to-income 'rules of thumb', the credit is generally attributed to both Ernst Engel and Herman Schwabe, two prominent 19th century German statisticians who formulated the early and widely known 'laws' about the relationship between income and categories of household expenditures (Allen & Bowley, 1935; Feins & Lane, 1981; Feins & White, 1977; Lane, 1977; Reid, 1962; Stigler, 1954; Zimmerman, 1936).

In his study of the use of the housing affordability 'rules of thumb', for example, Lane (1977, pp. 5-6) stated that Ernst Engel "proposed an 'economic law' which included the proposition that the percentage of income that households spend for lodging and fuel is invariably the same what ever the income". In contrast Herman Schwabe "suggested that, as total family income rises, the amount allocated to housing increases at a lower rate". Lane implied that even though Engel was wrong and Schwabe was right, the contemporary use of the 25 or 30 per cent 'rule of thumb' defining affordability is closer to Engel's position. To add to the confusion, Margaret Reid, in her 1962 book *Housing and Income*, a work quoted by many contemporary neo-classical economists who write about the elasticity of housing demand, found "very substantial evidence" for the "rejection of the Schwabe law on rent", even though, Reid noted, the Schwabe law "has long been accepted and many predictions and policies have been formulated with such expectation". To further add to the confusion over which law was the law, economist George Stigler noted that Engel eventually recognised, based on further empirical evidence, that his earlier formulation of the housing part of his (Engel's) law was indeed wrong (Stigler, 1954, p. 99).

Ernst Engel's 1857 survey of Belgian working-class families was one of the best known statistical analyses of budgets for many decades and the first to draw empirical generalisations from budget data (Allen & Bowley, 1935; Houthakker, 1957; Prais & Houthakker, 1955; Stigler, 1954). On the basis of this study, and the work Frederic Le Play (1806--82) who published his monumental study of the budgets of working-class families in 1855 (*Les ouvriers europeens*, see Pitts, 1968), Engel proposed his law of consumption: "The poorer a family, the greater the proportion of total expenditure that must be devoted to the provision of food" (Stigler, 1954). Although his 1857 study was focused on food and the population problem, Engel's law is more general, including all major expenditure categories. The more general law attributed to Engel states that as income increases, the proportions of expenditures on different budget items change and the proportions devoted to the more urgent needs (such as food) decrease while those devoted to luxuries and semi-luxuries increase (Allen & Bowley, 1935; p. 7). In 1868, it was Schwabe who published the first detailed research on the housing part of the household budget, proposing a law related explicitly to housing. In his study of wage and rent data he found that for each income group the percentage of income spent on rent declined as income rose. His law stated: "The poorer anyone is, the greater the amount relative to his income that he must spend for housing" (Stigler, 1954, p. 100).

After Schwabe published his housing law the subject of housing expenditure patterns became the focus of much debate among analysts of household budgets. The conceptual, theoretical and practical problems were never satisfactorily resolved. What should be included in 'housing' costs: cash rent, some or all utilities, maintenance, furnishings? What is meant by 'income': gross or net, one or all adults' income, children's income if any? What about sharp temporary fluctuations in income and non-cash sources of goods and services which would otherwise have required expenditure of cash income? What about income from roomers, if any? In addition to the primitive nature of the statistical methods, there was little if any standardisation in definitions. As a result, numerous other laws of consumption related to housing flourished from a growing number of academics and government officials based on each of their own particular definitions and analyses of additional sets of budget data. By the mid-1930s Zimmerman was able to identify thirty-six different laws or theories about the relationship of household expenditure and specific budget categories, many related to housing with eight specifically focused on housing (Zimmerman, 1936, pp. 52-53).

The problem with the work of Engel and that of his followers is that the relatively valid relationships identified and the predictions made were peculiar to the food portion of the household budget. In retrospect, we can see that the identification of certain relationships was easy with regard to food, but very difficult in the case of more complex budget categories. Attempts to demonstrate similar laws for other categories of expenditure, especially for housing, therefore, met with much less success. This was due to the inadequacies of the available data and the yet underdeveloped statistical techniques and theoretical assumptions being used. Furthermore housing presented, as it indeed continues to present, numerous conceptual and practical difficulties.

It is fair to conclude, as Stigler did in his 1954 review of this 19th century 'scientific' work, that little of this early research constituted a solid contribution to either theoretical or empirical understanding of consumer behaviour. Rather, this history of attempts to study household consumption is largely a comedy of errors, all kinds of errors--conceptual, theoretical, empirical and methodological. Zimmerman referred to all of this as "fog which shrouds theories of the relation between rent and the standard of living". There was, he wrote sarcastically, "a series of so-called budgetary laws of rent such as the one by Schwabe, the rent law erroneously attributed to Engel, the revised rent law developed by the critics of the spurious law of Engel, and the several other alternative theories . . ." (1936, p. 180). By the 1930s the attempt to define 'laws' of housing consumption had run out of steam. Zimmerman's 1936 text on household consumption was one of the last major works to dwell on this approach (Zimmerman, 1936, p. 197).

At the level of day-to-day practice in the housing sector, however, these housing 'laws' and similar sorts of conjectures entered popular usage in yet further distilled and simplified forms. The major practical housing use emerged as the adage "one week's wage for one month's rent". By the 1880s a week's wage for a month's rent was a widely used way of describing the housing expenses of many tenants in the US. Kengott's 1912 study of the budgets of workers in Lowell, Massachusetts found, for example, that they usually set aside 20 to 25 per cent for rent, light and fuel (Kengott, 1912, pp. 128-129, 136). Kengott also noted that **housing studies** in a number of cities in the late 19th century found that the rents consumed "at least twenty per cent of the earnings of the husband in the family" (Kengott, 1912, p. 57; see also Buder, 1967). This late 19th century adage about "one week's wage . . ." is similar to the late 20th century adage about 25 or 30 per cent of income representing the upper limit of housing affordability. Both are based on not much more than grossly generalised assumptions about the amount that average households tend to or ought to pay for housing (the distinction is rarely made clear) without ever specifying which households are being averaged or how the normative 'ought' statement was derived. What had occurred over the decades was the translation of observations about what some households were spending into assumptions about what they 'ought' to be spending. The summary of all these observations and assumptions then took the easy-to-use format of a ratio of housing expenditure-to-income, which was increasingly referred to in the housing industry as the 'rule of thumb' about the ability of households to pay for housing. As such it also became a 'rule of thumb' about how to minimise risk in renting an apartment or granting a mortgage to a particular household.

Six Contemporary Uses of the Housing Expenditure-to-Income 'Rule of Thumb'

It is far too simple to state that the housing expenditure-to-income ratio is either valid or invalid, useful or not useful, or that it is being used appropriately or inappropriately. Instead, we must ask, in what way is it being used? What is it supposed to be measuring? Does it do so in a valid and reliable manner? In the post-war (mainly North American) housing literature it is possible to find the ratio being used in six distinct ways: (1) description of household expenditures; (2) analysis of trends and comparison of different household types; (3) administration of public housing by defining eligibility criteria and subsidy levels in rent geared-to-income housing; (4) definition of housing need for public policy purposes; (5) prediction of the ability of a household to pay the rent or mortgage; and (6) as part of the selection criteria in the decision to rent or provide a mortgage. Much of the contemporary practical or applied use of the housing expenditure-to-income ratio in the US and Canada relates to defining the ability to pay for housing. This typology helps in the process of distinguishing between valid and invalid, appropriate and inappropriate uses of housing expenditure-to-income ratios. It can also provide an improved vocabulary for those who use the term 'housing affordability'.

The list can be divided into two categories. The first three uses--description, analysis and administration--can be considered quite valid and helpful when used properly by housing researchers and administrators. 'Used properly' means that the research methods and the statistical analysis techniques are properly carried out, i.e. no significant methodological errors are made. This leads to valid and reliable descriptive and analytic statements about the housing expenditures of the different types of households being studied. This type of description and analysis of household expenditure patterns can also be helpful in defining administrative rules about eligibility for means-tested housing programmes.

The improper and inappropriate use of housing expenditure-to-income ratios, leading to invalid and unreliable results, is

due to a variety of theoretical and conceptual errors. Uses four, five and six--definition, prediction, and selection--are all invalid uses for they fail to measure what they claim to be measuring, even if the research methods and the statistical analysis techniques are properly carried out. The ratio is faulty when used to define housing need and to predict the ability of households to pay for housing due in part to a faulty conceptualisation of the income part of the ratio. In addition, it applies a statistical average of a group of households to an individual household, leading to the problem of statistical discrimination (Aigner & Cain, 1977; Galster, 1992; Hulchanski, 1994a; Sunstein, 1991; Thurow, 1975). Each of the six uses is examined below.

(1) Description of Household Expenditures

Data on housing expenditure-to-income ratios can be useful in describing what different households are spending at selected points in time. Table 1, for example, provides 1991 Census data on the percent of income households in Ontario, Canada's largest most urbanised province, pay for housing, making a distinction between home owners without mortgages, home owners with mortgages, and renters. Further details are also provided for different types of renter households. What do these ratios tell us?

There can be no objection to using any ratio of any relationship in an attempt to better describe some aspect of social reality. The problem is the next step, how should this information be interpreted? The subjective part of even the descriptive use of information starts with the very decision about what questions or relationships are to be examined and what data at what level of detail is to be used. Why use ratios? Why not use other types of comparisons? It simply depends on what questions are being asked by the person who compiles certain data in a certain fashion, leaving out other related data. The numbers do not speak for themselves. They are used to demonstrate certain points and contribute to a certain interpretation of what is being examined. What does data about ratios between household income and housing expenditure tell us? Table 1, for example, demonstrates that there are different ratios for different household types, something we might have suspected in the first place. Table 1 further provides information about the range of differences between the identified household types. This is about it. No claim about 'laws', or 'rules of thumb' or affordability patterns or ability to pay for housing are being made, nor can they be made without adding a great deal more information, analysis and theory, leading to some interpretative statements.

(2) Analysis of Trends

Rent-to-income ratios can be used to test hypotheses and to carry out comparative research. In a recent study, for example, Smith (1990) used "regular housing outlays as a proportion of regular income" to examine the relative position in the housing system of different types of households based on the gender, race and other characteristics of the household head. The concept of "housing outlays"

measures the financial stress incurred by individuals in paying rents, rates and mortgage costs (capital and interest components) in order to sustain a position in the housing system. (It is then, a measure of liquidity rather than of assets.) This measure also gives an indication of what portion of people's current disposable income remains for other household expenditures after mandatory housing costs (costs that are inescapable in the short run) have been met. (Smith, 1990, p. 77)

Use of housing expenditure-to-income ratios in this fashion does not attempt to identify or make subjective claims about affordability problems. A concept was developed and defined (housing outlays) in order to ask questions about different socio-economic groups. The housing expenditure-to-income ratios were used by Smith to help measure the relative position in the housing system of different groups of households. This adds to our knowledge and understanding about an aspect of current social reality--by isolating certain broad characteristics such as the gender of the head of the household and identifying how these households compared with other households. Smith concluded, for example, that: "In short, as renters, men seem more successful than women in minimising the proportion of income spent on housing, while as home buyers they [men] are more able to allot relatively higher proportions of their income to potentially lucrative housing investments" (Smith, 1990, p. 85). This is a comparison among categories of household types, not a sweeping claim about affordability or ability to pay.

This second use of the housing expenditure-to-income ratio takes the descriptive use one step further by using the ratios to help develop concepts and test hypotheses. In Smith's case, the ratio is used as a measure of 'housing outlay' and housing outlay is a measure of the 'financial stress' on groups of households. Data, in the form of housing expenditure-to-income ratios, is gathered to test out hypotheses related to these concepts. There is no simple use of a percentage of income 'rule of thumb'.

Another recent example is the study of US home ownership affordability trends by Gyourko & Linneman (1993). They ask: "Is a home of a given quality from, say, 15 years ago more affordable or less affordable today to a household similarly situated to the one that occupied the home then?" (Gyourko & Linneman, 1993, p. 40). In this case the price of a specified type of house (holding structural quality and neighbourhood characteristics constant) and the income of specified household types (real household income and occupational wage data) is compared over time to an initial starting date (1960 in this case). There are no sweeping assertions or conclusions about housing affordability in the abstract. There is no mention of a certain ratio of house cost-to-income as being appropriate or affordable. A research question about change over time is asked and answered.

The point here is simply that housing expenditure-to-income ratios can be used in a valid and reliable fashion to test hypotheses and improve our understanding of certain societal trends and dynamics. The ratios, however, do not speak for themselves. The researcher's theoretical and conceptual framework results in certain data being assembled in a certain fashion to identify relationships, interpret them, and draw conclusions.

(3) Administration of Public Sector Housing Subsidies

Most countries have some share of the housing stock in the non-market sector. The range in North America and Western Europe is quite broad--from about 5 per cent in the US and Canada to about 40 per cent in the Netherlands (Boelhouwer & van der Heijden, 1992; Dreier & Hulchanski, 1994). These are housing units in projects financed by various government programmes, known generally as public, social or non-profit housing. When housing units are not allocated on a market basis, and when the programme is not universal (that is, not available to everyone equally), regulations define eligibility. The regulations used in many countries include a formula that uses a housing expenditure-to-income ratio.

The income ratio is often but one part of a complex set of administrative regulations assessing eligibility and determining rent levels for subsidised housing. Used in this way the ratio has the effect of keeping out higher income households. It helps serve as a rationing device to target housing subsidy dollars. Administrators in the public sector have to draw a line related to eligibility for programmes which are not universal. Any variety of quantitative and qualitative measures may be employed. The decision as to where to draw the line, that is, what specific definition of eligibility is to be used for a subsidy programme, is a subjective judgement. It cannot be based on an objective scientific determination. Science can inform the debate over the judgement call being made, but it cannot answer normative questions--questions about values and beliefs. What is fair? How do we define 'the poor' or 'the needy'? Science cannot, for example, define the 'poverty line' for a nation. In democratic societies debate over various ways of measuring and defining poverty takes place and then, through elected representatives, a choice is made. "At some point", as Weale (1983, p. 115) points out, "the political argument has to stop and the voting begin." Even then, the debate continues because of the highly subjective value-laden nature of the judgement. Research can help inform this debate and improve our understanding of the issue, as outlined above, by describing and analysing trends.

The administrative use of housing expenditure-to-income ratios in public sector social housing programmes can be confused with the use of the ratios in the private sector (for example uses five and six, prediction of ability to pay and selection of tenants, discussed below). It is, therefore, important to make the distinction between the use of housing expenditure-to-income ratios as maximum income criteria (the public sector usage) and minimum income criteria (the private sector usage). The public sector uses a maximum income measure as a cut-off point to exclude higher income households from non-universal subsidised housing units, while some private sector landlords use a minimum income measure as a cut-off point to exclude lower income households from access to their rental units. The public sector's use is appropriate because the intent is to ration public subsidy dollars by excluding higher income households. The ratio is a valid means of identifying higher income households. The private sector's use is not valid because the intent is to measure (predict) ability to pay rent and then to select tenants based on the assumption that the ratio is a valid part of the criteria used.

In the public and non-profit sectors maximum income criteria are used in the process of defining eligibility for rent geared-to-income housing subsidies, often referred to as 'RGI subsidies'. The aim is to exclude higher income households so as to target lower income households for a particular type of housing subsidy. Even the term, 'rent geared-to-income' makes it clear that income criteria are being applied. They are being used in two ways: to exclude households above a certain income level and to define the amount of subsidy eligible households will receive.

The use of maximum income criteria as part of the process of defining eligibility and subsidy levels for government programmes has a long and relatively undisputed history. Debate takes place over specific cut-off points used in defining eligibility and subsidy levels. For example, in the debate over shifting from the use of 20 to 25 per cent of income in the eligibility and rent setting formula for Canada's public housing, one major federal government sponsored review of public housing programmes argued in favour of using 20 per cent (Dennis & Fish, 1972). It did so on justice and equity

considerations, noting that any figure "will be somewhat arbitrary".

For purposes of this analysis, the assumption was made that expenditures exceeding 20 per cent of income are excessive for low income households. Any figure chosen will be somewhat arbitrary. (Dennis & Fish, 1972, p. 58)

The authors based their equity argument on the fact that the average expenditure on housing for all Canadians in 1969 was 17 per cent, with the top two income quintiles paying 14 per cent.

In the mid-1980s a similar public policy debate took place. The Conservative government, as part of a review of all major government spending programmes, announced that it was shifting the income ratio portion of the eligibility and rent setting formula for housing subsidies from 25 to 30 per cent.

The study team recommends the [introduction of] . . . a new federal rent scale graduated from 25 per cent to 30 per cent of total household income, taking into account household size and income level. This scale would be applied to all income-tested households. . . . It should be phased in over a three-year period in order to minimise financial hardship on tenants. (Canada, Task Force on Program Review, 1985, p. 36)

This change was recommended, according to the report, "in order to reduce subsidies or improve targeting" (Canada, Task Force on Program Review, 1985, p. 36). It was a subjective decision based on certain values and norms about the role of government and about appropriate levels of subsidies. Others with different values objected to the change. One researcher from the Metropolitan Toronto Social Planning Council, for example, said the change in the formula, which reduced subsidies by about \$76 million, "would be putting an additional tax on the poor". Many others objected to the change, all with similar justice and equity arguments--not with claims that there was something scientific about the 25 per cent ratio (York, 1986).

Debate over which housing expenditure-to-income ratio to use is similar to the public debate over the poverty line. The definition of the dividing line, those included and those excluded, dramatically affects the number of households considered eligible. In 1988, for example, there were 630 000 Canadian households paying between 25 and 30 per cent of their income on housing. If the federal government chose to continue to use the 25 per cent ratio rather than switch to 30 per cent, these 630 000 households would be included resulting in a 50 per cent increase in the number of households considered eligible for social housing assistance (Van Dyk, 1993, p. 36). This demonstrates the arbitrary nature of the public policy choice involved. One choice includes more than half a million households, another choice excludes them. The Canadian federal government, in moving from 25 to 30 per cent, offered no research or scientific justification for the switch in ratios--nor could they offer any.

Maximum income criteria as part of the criteria in means tested programmes, therefore, is a distinctly different use of the housing expenditure-to-income ratio than the other five uses outlined here. There is a long history of using the housing expenditure-to-income ratios in the administrative set of regulations determining eligibility for subsidised housing as well as setting rent levels for the units. There is no claim that the ratio of housing expenditure-to-income used in the formula was selected on the basis of careful scientific study, nor that it is a valid and reliable measure of anything. It is merely used to ration a scarce resource from the point of view of the public interest. This is, however, quite a distinct use from that of defining housing need in general. The administrative use of housing expenditure-to-income ratios should not be confused with the difficult problem of defining housing need.

(4) Definition of Housing Need

It is common to find the housing expenditure-to-income ratio being used as a 'rule of thumb' for defining housing need for policy and programme purposes, often referred to as 'the housing affordability problem'. This fourth use of the ratio is based on a much too simplistic generalisation about household expenditures and cannot be accepted as valid. To define everyone spending more than 30 per cent of income on housing as having housing problem, for example, takes a descriptive statistical statement (the 30 per cent ratio) and dresses it up as an interpretative measure of housing need (or lack of need). It does so on the basis of a subjective assertion of what constitutes an 'affordable' housing expenditure for all households. This kind of generalisation is based on an assumption about the cash income required to pay for the other necessities of life.

The selection of a ratio of housing expenditure-to-income has, nonetheless, become a popular and commonly used statement about the nature and scope of the 'housing affordability problem'. Its nature relates to a lack of income, usually assumed to be gross household cash income from employment or transfer payments, and its scope is the number of households paying more than that ratio. For Ontario, as Table 1 indicates, 830 000 households, 23 per cent of the 3.56

million households in the province, were paying 30 per cent or more on housing in 1991. Renters and home owners with mortgages comprised most of these households which, some claim, have a 'housing affordability' problem. If they all have a problem, it is a problem of huge proportions: 430 000 renter households, 33 per cent of all renters; 345 000 owner households with mortgages, 30 per cent of all owners with mortgages; and 55 000 owners without mortgages, 5 per cent of this group of owners.

This use of the housing expenditure-to-income ratio is not a valid and reliable method of defining housing need or housing problems. Even without considering the limited definition of income used in the ratio, the sweeping generalisation that spending more than a certain percentage of income on housing means the household has a 'housing problem' is simply not logical. It does not represent the behaviour of real households. Housing researchers recognise that household consumption patterns are extremely diverse and complex. Donnison (1967), for example, referred to the assertion that a certain proportion of income should be devoted to housing as "a popular but ineptly posed conundrum for which some correspondingly inept solutions have been proposed" and that for individual households "any reckoning based on the income of the household or its principal earner is likely to be misleading" (Donnison, 1967, pp. 255-256). In his study of housing affordability Marks (1984) identifies and discusses the following weaknesses of the rent-to-income ratio "as a measure of affordability": it is essentially arbitrary; it does not account for household size, which has a bearing on the choice of an appropriate ratio; it fails to reflect changes in relative prices in all categories of household expenditures; it is not easily adjusted for the amount of housing services being consumed and the substitutions available to the household; and it relies on current rather than permanent income and is subject to seasonal and cyclical sensitivity (Marks, 1984, pp. 25-26). In his research on defining housing measures Stone (1990) notes that the ratio definition of housing need fails to "grapple in a logically sound way" with the wide variation in what households can actually afford to pay.

Any attempt to reduce affordability of housing to a single percentage of income--no matter how low or high--simply does not correspond to the reality of fundamental and obvious differences among households. Even attempts to establish a few prototypical groups and have somewhat different percentages for each, or set up narrow ranges in order to recognise some differences, fail to grapple in a logically sound way with the range of variation in what households really can afford to pay. (Stone, 1990, pp. 50-51)

Households can and do pay a great deal or very little for housing, whatever their income level, as any data on housing expenditure-to-income ratios demonstrate. A definition of housing need based on the ratio is simply not a valid measure. It fails to account for the diversity in household types, stages in the life cycle of the maintainer(s) of each household, the great diversity in household consumption patterns, and the problem of defining income the focus on only cash income.

(5) Prediction of a Household's Ability to Pay the Rent or Mortgage

Just as government must define housing need for policy and programme purposes private sector housing and mortgage lending entrepreneurs must minimise risk in the decisions they make. Mortgage lenders and landlords want to do business with households able and willing to pay their monthly rent or mortgage. Willingness is very difficult to assess. Is the use of a housing expenditure-to-income ratio a valid and reliable measure of ability to pay?

The fundamental practical problem with the private sector's use of the housing expenditure-to-income ratio is the definition of 'income' it relies upon. What is household 'income'? What is meant by 'income' in minimum income criteria? The ratio fails to be a valid measure of housing affordability because it relies on the easiest to measure income, money income. It ignores other sources of support, both cash and non-cash, by which households meet their needs. It is the money income, the cash resources which are easiest to measure and, as a result, the easiest to use as a convenient 'rule of thumb' to measure ability to pay. This convenient measure, however, goes much too far in simplifying reality to the point that it does not reflect the reality of most households. The use of the very narrow definition of income as cash income from the formal market economy leads by definition to discrimination against households with limited cash income resources from the formal market economy, such as the unemployed, the underemployed and those in low-paid jobs. It favours those who have a great deal of cash income from this source.

Housing choice is a response to an extremely complex set of economic, social, and psychological impulses. "Given the variety of circumstances facing different households", Baer writes in his study of housing indicators, "rules of thumb about the percent of income to be devoted to housing can be extremely misleading in individual cases and therefore in aggregate data as well." He adds that "a maximum rent-income ratio for one kind of household may not be appropriate for another, and that imposing the same standard for all households is unrealistic" (Baer, 1976, pp. 383-384). The pattern of household expenditures on housing is far too diverse to be explained by simple principles or averaged statistics about household budgets. There are so many diverse ways in which households meet their basic needs that it is not possible to apply one general rule, or even a set of a couple of related rules, to all households.

Theory and empirical evidence both point to the fact that households meet their basic needs through a variety of methods. As Hulchanski & Michalski (1994) point out, there are five economic spheres by which households can obtain resources (cash and non-cash) for meeting their needs. These are: (1) the domestic economy, internal to the household; (2) the informal economy, the extended family and close acquaintances; (3) the social economy, neighbourhood and community-based groups and agencies; (4) the market economy, the formal marketplace; and (5) the state economy, government. This typology is drawn from the vast body of theory and empirical evidence which indicates that households survive and even thrive in a complex intermingling of different economic spheres with their attendant webs of social relationships. When households find themselves in temporary situations of financial duress, most have other options for substituting certain types of self-provisioning and non-cash exchanges. Indeed, the one general proposition that seems to emerge from the many studies of sources of social and economic support may be stated as follows: households rely upon an extensive network of socio-economic relations to ensure that their basic needs are met, including but not limited to, market earnings (wages, interest, investments, etc.) and government transfer payments (Hulchanski & Michalski, 1994).

In short, the inadequacy in the definition of income used in the housing expenditure-to-income ratio is itself enough to invalidate the use of minimum income criteria as a measure for predicting the ability to pay. The ratio is not a valid and reliable indicator of what it claims to measure. There is no evidence to support its use as a measure of ability to pay for housing. There is a great deal of evidence to the contrary evidence that many households are paying more than the prescribed ratio. The reality of how households manage to meet their needs, including the need to have the cash to pay their rent, is too complex and diverse to be summarised in one simple measure.

(6) Selection Criteria

Minimum income criteria are being used as a key part in the decision for selecting tenants and granting mortgages in North America. This means that many landlords consider the housing expenditure-to-income ratio to be a valid and reliable measure of ability to pay (use no. 5). The use of minimum income criteria in the housing market, unlike the use of maximum income criteria by the public sector, is subject to a great deal of controversy--even to the extent of serious claims that it is a discriminatory practice. In 1992, for example, the Ontario Human Rights Commission estimated that active complaints related to discrimination in housing represent about 8 per cent of the Commission's total caseload. Many of the housing complaints are connected to the use of minimum income criteria by private sector landlords in evaluating prospective tenants. Many Ontario landlords use household income as part of the criteria in selecting tenants.

When asked "are there income requirements for your units", nineteen (70 per cent) reported that there are, six reported that there are not any (22 per cent), and two did not respond. Of the nineteen corporations which do have income requirements, fourteen answered the follow-up question: "What is the rent-to-income ratio that you require?" All but two are between 25 per cent and 33 per cent. The other two are 35 per cent and 40 per cent. Both the mean (the average) and the median rent to income ratio is 31 per cent. (Hulchanski & Weir, 1992, p. 2)

The Ontario Human Rights Commission, in a discussion paper released prior to the establishment of a tribunal to hear the discrimination complaints, stated the following about the use of minimum income criteria:

To date, landlords have not demonstrated that the use of a minimum income criteria was bona fide or reasonable, and that landlords would suffer undue hardship to refrain from this policy. In order for the continued use of minimum income criteria, it will be necessary for housing providers to demonstrate the rule is bona fide and reasonable . . . (Ontario Human Rights Commission, 1992, p. 1)

In contrast to this use of housing expenditure-to-income ratios as minimum income criteria, the aim of public sector housing regulations which use maximum income criteria is to assist disadvantaged households by imposing a means-test to determine eligibility. As pointed out above, maximum income cut-offs effectively achieve the exclusion of higher income households. No harm results from excluding these households. In fact, to the extent that their taxes are paying for the means-tested housing subsidies, the aim is to help better target the subsidy dollars. In effect, this helps higher income households by using tax dollars more efficiently. The public sector's eligibility criteria, it should be noted, is based on a variety of discriminatory criteria. Households are separated into eligible and non-eligible groups by many rules and regulations. Income criteria, based on a housing expenditure-to-income ratio, provides but one of the measures.

Where is the evidence to support the use of a housing expenditure-to-income ratio in the selection of tenants so as to decrease the risk of default? After noting that "there is a relatively low correlation between income and the amount that families spend for shelter" and that "families at the same income level spend widely varying amounts for housing", Lane (1977) points out that there is "limited evidence to support this practice" and that even though "lenders and rental agents use the rule of thumb to identify prospective borrowers and tenants who might not meet their monthly payments", there

are many other reasons why people, no matter what their income level, may default on their rent or mortgage payment. "Defaults and foreclosures", Lane points out, "are most often associated with unstable incomes or occupations and unexpected family crises such as unemployment, exceptional medical bills or divorce" (Lane, 1977, pp. iv-v).

The use of the rule of thumb is, at present, justified primarily by tradition. What constitutes a 'normal' allocation of income for shelter is not well understood, and even less is known about the maximum housing expenditure a family can make without jeopardising its ability to purchase other necessities. (Lane, 1977, p. v)

The conclusion reached by Lane was that "the rule [of thumb] is both inaccurate and inappropriately used" (Lane, 1977, p. iv). Lane's work was carried out as part of a larger US government sponsored research project related to the use of ability to pay 'rule of thumb' ratios (Burke et al., 1981; Feins & White, 1977; Feins & Lane, 1981; Lane, 1977). There is no reason to challenge these findings. There is no body of research even raising potential problems with the findings of the research by Lane, Feins & White.

The use by entrepreneurs of a minimum income test on potential customers in a marketplace for one of the basic human necessities is quite rightly controversial. It is controversial because it relates to whether it is an acceptable practice for the private use of an arbitrarily selected 'rule of thumb' to be the basis for making distinctions between groups of people. Individual households are not being assessed on the basis of individual characteristics but on their group characteristic--as part of a very large group with the aggregate characteristic of having a lower than average level of cash income. This is using the category lower than average household income as a negative stereotype. All it effectively achieves is the identification of lower income households. Table 2 provides 1992 data on the distribution of housing expenditure-to-income ratios in Ontario on the basis of income quintile. Very few (4.2 per cent) of the middle income quintile pay over 30 per cent of income on rent. No households in the two highest income quintiles pay over 30 per cent. A vast majority of the lowest income quintile (66.4 per cent) and a significant proportion of the second lowest income quintile (21.8 per cent) pay more than 30 per cent of household income on housing. As might be expected, on average, the higher the income, the lower the housing expenditure-to-income ratio. Any statistical measure that is used to deny access to housing which is based on an expenditure-to-income ratio is simply discriminating against households with a lower than average income. By definition these households must pay a higher percentage of income on housing because their incomes are low and there is no such thing as good quality cheap housing. The ratio does not measure the ability to pay rent. It simply identifies lower than average income households who must spend a greater percentage of their income (cash resources) on housing than do above average income households.

All households make choices as to how to allocate not only their cash income but also their total household resources, of which cash from the market is but one important part (Hulchanski & Michalski, 1994). In the case of the application of minimum income criteria in the decision to rent, however, an authority outside the household is imposing its determination of what it considers to be an 'appropriate' budget allocation of the cash income of a particular household. Households with higher than average cash incomes can, of course, easily meet the minimum income criteria (as Tables 1 and 2 demonstrate for Ontario's households). The 'rule of thumb' measure is not being applied to them. Households with higher than average incomes are, by definition, automatically exempt from that potential constraint on exercising their freedom of choice in the marketplace. These households are also exempt from the potential constraint on their freedom of choice in deciding for themselves what is an appropriate household budget allocation of their cash resources. Households who fail to meet the minimum income criteria are automatically denied the ability to exercise their freedom of choice in the marketplace and their freedom of choice in allocating the cash portion of their total household resources.

Conclusion

Contemporary housing literature rarely situates itself in a broader historic context. The way in which social and economic 'science' evolved affects some of the fundamental assumptions upon which housing analysis today is based. The source of a number of key assumptions found in contemporary housing theory and practice can be traced to past researchers and their approaches. The definition of housing affordability using a 'rule of thumb' ratio of housing expenditure-to-income is one such assumption.

The two parts of this paper cover the 19th century origins and the contemporary implications of the use of the housing expenditure-to-income ratio. The first part answered the questions: What is the origin of the use of a housing expenditure-to-income ratio? What, if any, are the theoretical and empirical foundations upon which the percentage of income 'rules of thumb' are based? The history of attempts to study household consumption demonstrates that it is a history of conceptual, theoretical, empirical and methodological errors.

Yet these housing 'laws' and similar sorts of conjectures entered popular usage in the late 19th and early 20th centuries in

even further distilled and simplified forms. What had occurred over the decades was the translation of this casual observation of what some households were spending into assumptions about what they are able to pay and what they ought to be paying. The summary of all these observations and assumptions then took the easy-to-use format of a ratio of housing expenditures-to-income, which was increasingly referred to as the 'rule of thumb' about the ability of households to pay for housing. A 'rule of thumb' is, by definition, not based on science. It is a "method or procedure derived entirely from practice or experience, without any basis in scientific knowledge" (Oxford English Dictionary, 2nd edn., vol. XIV, p. 232). Since the history of the attempts to define a housing expenditure-to-income ratio as a valid 'law' or 'rule' about household consumption is a history of failure, referring to it as a measure "without any basis in scientific knowledge" is very appropriate. The 'rule of thumb' does not measure what its users claim it is measuring, whatever the percentage selected.

The ratio can be useful as a valid and reliable quantitative indicator in housing research and analysis (nos. 1 and 2) depending on the nature of the research questions being asked and the methods being used. The housing expenditure-to-income ratio is a misleading and invalid indicator of either housing need or the ability to pay for housing (nos. 4, 5 and 6). Use no. 3, administration of public housing by defining eligibility criteria and subsidy levels in rent geared-to-income housing can make no claim to anything other than being a value-based policy decision--a subjective judgement call made in allocating means-tested subsidies.

Why did the specific ratio used by government and by the private sector shift upward from 20 to 25 per cent and then to 30 per cent over the course of this century (in nos. 3 to 6)? The use of 25 per cent and then 30 per cent in Canada over the past few decades seems to be associated with public sector decisions relating to subsidised housing eligibility and rent levels. Yet this is not a satisfactory, answer because it begs the question of why the public sector shifted the ratio it uses from 25 to 30 per cent. The only possible answer to the question lies in the absolute lack of validity any ratio has as a universal measure or indicator of housing need and ability to pay. No ratio as a generalisable statement about affordability makes any empirical sense. Any ratio used is, therefore, simply arbitrary. All an arbitrary measure requires is for many people to uncritically agree to use it and not another measure. A scientific measure, however, must pass the tests of validity and reliability and does not depend upon the values or beliefs of individuals (i.e. it is not based on a popularity contest).

There is simply no escaping the fact that household consumption patterns and the means by which households meet their needs are as diverse as the individual humans and their life situations who comprise these households. Since a concept helps "impose an intellectual organisation upon our observations" and helps "express our understanding of what is happening" (Harre, 1985, p. 28), housing researchers need to avoid using the term 'housing affordability'. It does not help bring structure and organisation to our observations.

Acknowledgements

The author wishes to thank Joe Michalski, Melanie Rock and Mari Wilson for research assistance. This paper is based on research carried out for the Ontario Human Rights Commission. An earlier version was presented at the 1994 housing conference sponsored by the European Network for Housing Research.

Correspondence

J. David Hulchanski, Professor, Centre for Applied Social Research, Faculty of Social Work, University of Toronto, 246 Bloor Street West, Toronto, Ontario, Canada, M5S 1A1. Tel: 416 978-1973. Fax: 416 978-7072. Email: JDH@fsw.utoronto.ca

Figure 1 The housing expenditure-to-income ratio: six uses of the per cent of income 'rule of thumb'.

- | | |
|--------------------|--|
| (1) DESCRIPTION | describe a typical household's housing expenditure |
| (2) ANALYSIS | analyse trends, compare different household types |
| (3) ADMINISTRATION | administer rules defining who can access housing subsidies |

- (4) DEFINITION define housing need for public policy purposes
- (5) PREDICTION predict ability of a household to pay the rent or mortgage
- (6) SELECTION select households for a rental unit or mortgage

Table 1 Percentage of household income spent on housing in Ontario. Owners and renters, 1991 Census

Legend for Chart:

- A - 1: Percentage of 1990 Household income
 B - 2: Owners: Owners without mortgages %
 C - 3: Owners: Owners with mortgages %
 D - 4: All renters %
 E - 5: Family renter household %
 F - 6: Renters: One person renter households %
 G - 7: Renters: One income earner in household %
 H - 8: Two income earners in households %
 I - 9: Renters in Toronto CMA %

A	B	C	D	E
	F	G	H	I
Less than 20 per cent	88 28	38 35	39 53	45 380
20-24.9 per cent	5 17	18 16	16 16	15 17
25-29.9 per cent	3 15	14 13	12 10	10 12
30-39.9 per cent	2 14	14 13	12 10	11 12
40-49.9 per cent	1 9	6 7	7 4	5 6
50% and over	2 18	10 17	15 8	13 15
	100 100	100 100	100 100	100 100
Average income	\$58 894 \$21 592	\$66 393 \$30 434	\$34 971 \$46 535	\$39 569 \$39 722
Number of households	1 100 900 483 565	1 156 475 958 090	1 298 620 310 850	626 225 565 555
30% or more	5% 40%	30% 37%	33% 22%	29% 33%

Source: Statistics Canada, Housing Costs and Other Characteristics of Canadian Households, Cat 93-330, May 1993.

Table 2 Housing expenditure-to-income ratios by income quintile. All Ontario households, 1992

Legend for Chart:

A - Quintile
 B - Under 20%
 C - 20 to 24.9%
 D - 25 to 29.9%
 E - 30 to 39.9%
 F - 40 to 49.9%
 G - 50 to 59.9%
 H - 60 to 69.9%
 I - 70% or more
 J - Quintile average %
 K - % over 30%
 L - % over 50%

A	B H	C I	D J	E K	F L	G
Lowest quintile	11.6 5.9	12.8 15.8	9.3 35.7	19.5 66.4	14.2 32.7	11.0
2nd quintile	32.1 0.3	25.2 25.4	29.7 21.8	17.4 1.0	3.4 --	0.7
Middle quintile	69.2 --	18.6 --	8.1 19.8	4.2 4.2	-- --	--
4th quintile	88.4 --	8.3 11.8	3.3 --	-- --	-- --	--
Highest quintile	100.0 --	-- --	-- 7.4	-- --	-- --	--
Ontario average	43.8 2.2	15.6 5.6	10.6 100.0	12.2 30.0	5.9 11.9	4.1

Source: Statistics Canada, Household Income, Facilities and Equipment Survey, Microdata File, 1992.

References

Aigner, D.J. & Cain, G.G. (1977) Statistical theories of discrimination in labor markets, *Industrial and Labor Relations Review*, 30(2), pp. 175-187.

Allen, R.G.D. & Bowley, A.D. (1935) *Family Expenditure: A Study of its Variation* (London, P.S. King & Son).

Babbie, E. (1992) *The Practice of Social Research* (Belmont, CA, Wadsworth).

Bacher, J.C. (1993) *Keeping to the Marketplace: The Evolution of Canadian Housing Policy* (Montreal, McGill-Queen's University Press).

Baer, W.C. (1976) The evolution of housing indicators and housing standards: Some lessons for the future, *Public Policy*, 24(3), pp. 361-393.

Blalock, H.M., Jr. (1979) Measurement and conceptualization problems: The major obstacle to integrating theory and research, *American Sociological Review*, 44, pp. 881-894.

- Boelhouwer, P. & van der Heijden, H. (1992) *Housing Systems in Europe: Part I, A Comparative Study of Housing Policy* (Delft, Delft University Press).
- Bramley, G. (1994) An affordability crisis in British housing: dimensions, causes and policy impact, *Housing Studies*, 9 (1), pp. 103-124.
- Buder, S. (1967) *Pullman: An Experiment in Industrial Order and Community Planning, 1880-1930* (NY, Oxford University Press).
- Burke, P., Casey, C. & Doepner, G. (1981) *Housing Affordability Problems and Housing Need in Canada and the United States: A Comparative Study* (Washington and Ottawa, a joint HUD/CMHC paper).
- Canada, Task Force on Program Review (1985) *Housing Programs in Search of Balance: A Study Team Report to the Task Force on Program Review* (Ottawa, Supply and Services Canada).
- Carmines, E.G. & Zeller, R.A. (1979) *Reliability and Validity Assessment* (Beverly Hills, CA, Sage).
- Carver, H. (1948) *Houses for Canadians* (Toronto, University of Toronto Press).
- Dennis, M. & Fish, S. (1972) *Programs in Search of a Policy: Low Income Housing in Canada* (Toronto, Hakkert).
- Donnison, D.V. (1967) *The Government of Housing* (Penguin Books).
- Dreier, P. & Hulchanski, J.D. (1994) The role of non-profit housing in Canada and the United States: some comparisons, *Housing Policy Debate*, 4(1), pp. 43-80.
- Feins, J.D. & Terry S. Lane, T.S. (1981) *How Much for Housing? New Perspectives on Affordability and Risk* (Cambridge, MA, Abt Books).
- Feins, J.D. & C. S. White, Jr. (1977) *The Ratio of Shelter Expenditures to Income: Definitional Issues, Typical Patterns and Historical Trends* (Cambridge; MA, Abt Associates).
- Galster, G.C. (1992) Research on discrimination in housing and mortgage markets: Assessment and future directions, *Housing Policy Debate*, 3(2), pp. 639-683.
- Gilderbloom, J.I. (1985) Social factors affecting landlords in the determination of rent, *Urban Life*, 14(2), pp. 155-179.
- Grebler, L., Blank, D.M. & Winnick, L. (1956) *Capital Formation in Residential Real Estate* (Princeton).
- Gyourko, J. & Linneman, P. (1993) The Affordability of the American dream: an examination of the last 30 years, *Journal of Housing Research*, 4(1), pp. 39-72.
- Hallett, G. (Ed.) (1993) *The New Housing Shortage: Housing Affordability in Europe and the USA* (London, Routledge).
- Hancock, K.E. (1993) 'Can pay? Won't pay?' or economic principles of 'affordability'. *Urban Studies*, 30(1), pp. 127-45.
- Harre, R. (1985) *The Philosophies of Science* (Oxford, Oxford University Press).
- Houthakker, H.S. (1957) An international comparison of household expenditure patterns, commemorating the centenary of Engel's law, *Econometrica*, 25(4), pp. 532-551.
- Hulchanski, J.D. (1994a) *Discrimination in Ontario's Rental Housing Market: The Role of Minimum Income Criteria* (Toronto, Ontario Human Rights Commission).
- Hulchanski, J.D. (1994b) *The Use of Housing Expenditure-to-Income Ratios: Origins, Evolution and Implications* (Toronto,

Ontario Human Rights Commission).

Hulchanski, J.D. & Weir, E. (1992) Survey of Corporations Owning or Managing Large Numbers of Rental Apartments in Metro Toronto: Requirement for Last Month's Rent Deposit (Toronto, University of Toronto, Faculty of Social Work, Research Report).

Hulchanski, J.D. & Michalski, J.H. (1994) How Households Obtain Resources to Meet their Needs: The Shifting Mix of Cash and Non-Cash Sources (Toronto, Ontario Human Rights Commission).

Kearns, A. (1992) Affordability for housing association tenants: A key issue for British social housing policy. *Journal of Social Policy*, 21(4), pp. 525-549.

Kendall, M.G. (1968) The History of Statistical Method, in: *International Encyclopedia of the Social Sciences* (NY, Macmillan).

Kengott, G.F. (1912) *The Record of a City: A Social Survey of Lowell Massachusetts* (NY, Macmillan).

Landau, D. & Lazarsfeld, P.F. (1968) Quetelet, Adolphe, *International Encyclopedia of the Social Sciences*, Vol. 13 (NY, Macmillan).

Lane, T.S. (1977) What Families Spend for Housing--the Origins and Uses of the "Rules of Thumb" (Cambridge, MA, Abt Associates).

Lazarsfeld, P.F. (1961) Notes on the history of quantification in sociology--sources and problems, in: H. Wolf, (Ed.) *Quantification: A History of the Meaning of Measurement in the Natural and Social Sciences* (Indianapolis, Bobbs-Merrill).

Linneman, P.D. & I. F. Megbolugbe (1992) Housing affordability: myth or reality? *Urban Studies*, 29(3/4), pp. 369-392.

Maisel, S.J. & Winnick, L. (1966) Family housing expenditure: elusive laws and intrusive variances, in: W. L. C. Wheaton, G. Milgram & M. E. Meyerson (Eds) *Urban Housing* (NY, Free Press).

Marks, D. (1984) *Housing Affordability and Rent Regulation* (Toronto, Ontario Commission of Inquiry into Residential Tenancies, Research Study No. 8).

Olson, R. (1993) *The Emergence of the Social Sciences, 1642-1792* (NY, Twayne Publishers).

Ontario Human Rights Commission (1992) *Minimum (Percentage of) Income Requirements in Renter Application* (Toronto, The Commission).

Pitts, J.R. (1968) Le Play, Frederic, *International Encyclopedia of the Social Sciences*, Vol. 9 (NY, Macmillan).

Prais, S.J. & Houthakker, H.S. (1955,1971 2nd printing) *The Analysis of Family Budgets* (Cambridge, Cambridge University Press).

Reid, M.G. (1962) *Housing and Income* (Chicago, University of Chicago Press).

Schwabe, H. (1868) *Die Verhaltnis von Miethe und Einkommen in Berlin* (Berlin).

Smith, S.J. (1990) Income, housing wealth and gender inequality, *Urban Studies*, 27(1), pp. 67-88.

Stigler, G.J. (1954) The early history of empirical studies of consumer behavior, *The Journal of Political Economy*, LXII(2), pp. 95-113.

Stone, M.E. (1990) *One-Third of a Nation: A New Look at Housing Affordability in America* (Washington, DC, Economic Policy Institute).

Sunstein, C.R. (1991) Why markets don't stop discrimination, *Social Philosophy and Policy*, 8(2), pp. 22-37.

Thurow, L.C. (1975) *Generating Inequality: Mechanisms of Distribution in the US Economy* (NY, Basic Books).

Van Dyk, N. (1993) *A Review of the Core Housing Need Model and the Allocation and Targeting of Federal Housing Assistance* (Ottawa, Canadian Housing and Renewal Association).

Weale, A. (1983) Issues of value and principle in social policy, in: M. Loney, D. Boswell & J. Clarke (Eds.) *Social Policy and Social Welfare* (Milton Keynes, Open University Press).

Whitehead, C.M.E. (1991) From need to affordability: An analysis of UK housing objectives, *Urban Studies*, 28(6), pp. 871-887.

Winger, A.R. (1968) Housing and income, *Western Economic Journal*, 6(3), pp. 226-232.

Winnick, L. (1955) Housing: has there been a downward shift in consumer preferences? *Quarterly Journal of Economics*, 69, pp. 85-98.

York, G. (1986) The Nielson Task Force Report, *The Globe and Mail* [Toronto], 13 March, p. A3.

Zimmerman, C.C. (1936) *Consumption and Standards of Living* (NY, Van Nostrand).

~~~~~

By J. DAVID HULCHANSKI

Centre for Applied Social Research, University of Toronto, Canada