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**KNOWLEDGE OF BASIC ECONOMIC CONCEPTS AS A FACTOR
IN HOME INVESTMENT PREFERENCES**

by G.A. Chown

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KNOWLEDGE OF BASIC ECONOMIC CONCEPTS
AS A FACTOR IN HOME INVESTMENT PREFERENCES

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SYNOPSIS

The average Canadian's knowledge of economics is restricted to a general understanding of simple payback, how interest is calculated on a savings account and, to a lesser extent, how to calculate the cost of and monthly payments on a loan. The inability of current and prospective homeowners to determine the return on housing investments is reflected in the kinds of features they seek in housing and in their responses to programs that encourage home repairs, energy retrofitting and the purchase of energy efficient homes. This paper explores the relationship between home investment preferences and knowledge of basic economic concepts, outlines the implications at both the national and consumer levels, and suggests means of encouraging investment in 'quality' housing.

RÉSUMÉ

Les connaissances du Canadien moyen en matière d'économie se limitent souvent à une compréhension générale du principe de recouvrement, de la méthode pour calculer l'intérêt que rapporte un compte d'épargne et, dans une moindre mesure, de la façon de calculer le coût et les versements mensuels d'un prêt. L'incapacité des propriétaires actuels ou éventuels d'évaluer le rendement du capital investi dans le logement se reflète dans le type de caractéristiques qu'ils recherchent dans une habitation ou dans leur intérêt vis-à-vis les programmes pour encourager la rénovation ou l'amélioration des maisons, ou les programmes d'achat de maisons efficaces au plan énergétique. Cette communication étudie le rapport entre les préférences au niveau de l'investissement dans le logement et la connaissance des concepts économiques de base; elle en examine les conséquences pour le consommateur et l'économie en général et propose finalement des moyens pour encourager l'investissement dans le logement de "qualité".

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INTRODUCTION

The energy 'crisis' of the early 1970's generated considerable interest in those aspects of residential construction that affect the consumption of energy for space heating. Since then, construction techniques have evolved to such an extent that the energy consumption of new homes ranges from slightly better than 'pre-crisis' levels to a point where very little or no dedicated space heating is required. These changes are reflected in the policies of various government agencies responsible for housing and energy. Canada Mortgage and Housing Corporation has upgraded the minimum insulation levels required for houses constructed using CMHC mortgage funds. Millions of dollars have been spent to encourage energy retrofitting or the construction of energy efficient homes.

Nevertheless, at least as recently as 1982, some homes were still being built to 'pre-crisis' levels. Within many consumer groups, resistance to investing in energy conservation remains high.

Due to the close relationship between energy investment and potential monetary gains, the question was posed as to whether there exists a correlation between energy investment and knowledge of basic economic concepts. The context of the question has since been expanded to include any type of home investment that could affect the life cycle cost of the home.

This paper presents the preliminary findings of research into the correlation between home investment and knowledge of basic economic concepts. These findings are discussed with respect to implications for both the consumer and the national economy. Suggestions for encouraging quality home investment are outlined.

For the purpose of this paper, 'quality' investments are defined as those that reduce the life cycle cost of the home. Such investments assume compliance with current code requirements and include the purchase of homes constructed of more durable, low maintenance materials, or the retrofitting of existing homes to reduce energy consumption.

RESEARCH PROCEDURE

The information presented here was obtained from the literature and from a preliminary survey of school boards, high school, college and university students, and professional and non-professional members of the work force.

A questionnaire was sent to ten of the larger school boards across the country to obtain information on the economics instruction currently being provided at the junior and senior high school levels. The same questionnaire was sent to the principals of three high schools in the Ottawa area to supplement those sent to the school boards and to provide a reference against which to compare students' answers to economic questions. Input from students was obtained through a second questionnaire.

The second questionnaire was sent to high school, college and university students, and to professional and non-professional members of the work force. All respondents were from the Ottawa area. The questionnaire addressed five subject areas: demography, simple economics, preferred features of a new home, reasons for and against investing in a currently occupied house, and expected payback period for home investments. Of the 750 questionnaires sent, 315 were returned, a rate of 42 per cent. The return rate between respondent groups, however, varied considerably: 84 per cent from high school students, an average of 37 per cent from college and university students, and an average of 9 percent from members of the work force. The higher rate of response from students was undoubtedly due to the supervision of the teachers who assisted in the distribution and collection of the questionnaires. Although supervisors assisted in distribution to and collection from some of the non-professional groups, returns were not nearly as high. Discussions with those assisting with distribution and collection indicated that, although respondents were encouraged to return the questionnaires whether or not they were able to answer all the questions, failure to answer the questions discouraged many of them from doing so.

With respect to the questionnaires returned by high school students, only the answers to the economics questions were analyzed since it is believed that the home investment priorities of these people will change considerably by the time they enter the housing market. Their responses, however, could bear closer scrutiny since they do reflect the aspirations of future homeowners and provide some interesting information on the influences of different home and school environments on consumer values.

Responses from college and university students provided information on the level of economics knowledge and home investment priorities of prospective home buyers. This information was compared to that provided by respondents currently in the housing market.

FINDINGS

Knowledge of Economic Concepts

Education is a provincial responsibility. There is, therefore, considerable variation in the course material provided to students and in the percentage of students who take basic economics courses. Under some school boards, all students are introduced to a variety of concepts beyond simple principal and interest. Under other boards, only 5 percent of the students go beyond the most basic level. In the high schools surveyed, between 10 and 50 per cent of the students take courses covering subjects such as annuities, amortization, present and future value, and simple and discounted payback. The survey data indicated that, at the high school level, there is not a strong correlation between exposure to economics instruction and the ability to correctly answer basic financial questions. This may be due to the sampling techniques used. Further research is required to determine more accurately the relationship between economics instruction and the ability to carry out simple investment calculations. In any case, the ability of this group to answer basic financial questions is very limited.

Similar results were obtained from all of the other groups surveyed, indicating a general lack of economics knowledge or inability to apply the concepts to typical 'real life' questions. Over 90 per cent of all respondents were able to calculate correctly the interest accumulated after one year on \$100 at 10% compounded annually. Over 80 per cent of college and university students and professionals, and less than 80 per cent of high school students and non-professionals, could calculate the interest accumulated after two years. When interest is compounded monthly, less than 75 per cent of the respondents could answer correctly.

For questions involving the use of amortization or present value tables, or requiring more detailed calculations, the success rate of all groups dropped to between 0 and 16 per cent. The higher success rates are questionable since there is rarely any consistency within any one response as to which questions are answered correctly or at all. At the lower success rates, lucky guesses become a significant factor in the accuracy of the data.

The only exception to the above is the group of community college students studying business subjects. This group achieved a 65 per cent success rate in answering a question requiring a present value calculation.

In general, university students and professionals have a slightly better understanding of basic economic concepts than do college students and non-professionals. College students studying business are the exception and are most likely to be able to calculate present value. Referring to the initial premise of the research, these trends are reflected to some extent in the investment priorities for both new home purchases and investment in currently occupied homes.

Investment Priorities for New Homes

Because of the many factors that can affect a consumer's values and priorities, one might expect to find a wide variation in the features sought in housing. This occurs only to a limited extent. The preferences outlined below were compiled from the survey responses. As discussed previously, high school students were excluded from this analysis.

The primary criteria for house selection are location, size, lot size and the number and type of rooms. With respect to the house itself, certain features are generally sought. These include wall-to-wall carpeting, modern bathroom fixtures, laundry appliances, kitchen appliances including refrigerator, stove, microwave oven and dishwasher, energy saving features such as increased insulation, and miscellaneous features such as fireplaces and patio doors. The priorities specified by the various sample groups differ to some extent depending primarily on education.

In general, university students and working professionals rank energy features of the building envelope, such as insulation and thermal glazing, as their first priority. This is followed by finishing and detailing, such as flooring, wall colours and finished basements, and special features such as fireplaces. College students and non-professional members of the work force rate special features, finishing and detailing before energy features.

Quality of construction, energy features of the heating system, plumbing and wiring were listed as important features by less than 14 per cent of all respondents and less than 7 per cent of those in the work force.

These findings are consistent with those described in other studies to the extent that research reported to date has focussed on the locational, spatial and aesthetic features of the home.^{1,2}

A number of conclusions may be drawn from the observations. The general tendency is to focus on the aesthetics of the home. The average consumer does not have the knowledge to enable him or her to assess the more technical aspects of house construction or the investment potential beyond current market value. Those aspects of house construction that influence structural stability and durability are generally taken for granted. Maintenance or life cycle costs are ignored.

In contrast to these conclusions, rising energy costs and advertising have significantly increased general knowledge of the energy aspects of housing, in particular the effectiveness of increased levels of insulation. University students and professionals, respondents with a somewhat better than average understanding of economic concepts, rank energy features higher than do college students and non-professionals. Since the difference in the levels of knowledge of these two groups is not large, it is suggested that, in the case of new home purchases, the greater awareness of energy issues, and possibly a better understanding of the monetary benefits of energy investment, is more likely due to a higher level of education in general rather than knowledge of economics specifically.

Investment in Currently Occupied Homes

Survey respondents provided a variety of reasons for and against investing time and money in their homes.

A principal reason given by all groups for investing in their homes is to increase energy efficiency. Energy retrofitting, however, tends to focus on those procedures that are most frequently promoted by contractors and government agencies, are easy to carry out, cost little and are generally believed to pay back in a relatively short time. This is understandable given the general inability to calculate return on investment.

Maintaining or increasing the value of the home and adding more space are the next priorities. The priorities listed for new housing would suggest that, to maintain or increase the value of the home, the homeowner is more likely to invest in aesthetic features than constructional features. Similar findings are described in other studies.³

General building maintenance, aside from painting, is rarely mentioned. The survey data indicated that there are two groups that have some concern for maintenance. These are architects and college students studying business. This is understandable with architects given their educational background although it is interesting to note that they give improvements top priority above energy, space and value considerations. The college student's concern for maintenance is more surprising but, given the greater exposure to economic concepts,

may indicate a general awareness of the need to maintain the value of the investment.

Repairs are mentioned with considerably more frequency than general upgrading, improvement or maintenance. This supports the hypothesis, documented elsewhere,⁴ that the homeowner tends to overestimate the condition of his home and that investment in upkeep tends to be minimal until the need for major repairs is identified.

Monetary considerations are the primary deterrent to home improvement, renovation, maintenance and repair. Given the generally low level of economics knowledge, however, it is debatable whether the homeowner is in a position to accurately assess the long-term value of home investment or his ability to finance such a project. It is suspected that, in the majority of cases, such projects are carried out only if there is a wide margin of financial safety.⁵

The survey respondents provided information on what they considered to be a reasonable payback period for home investment projects.

Accountants, members of the work force operating their own businesses and college students studying business were the only groups to suggest that, all else being equal, paybacks of more than 10 years would be reasonable. This would suggest that training or experience in the area of economics encourages an appreciation of housing as an investment rather than as a simple consumer good.

In summary, aside from energy retrofitting, those with training in building construction or basic economics are more likely to invest in home improvement and those with training or experience in business are more likely to take on projects with longer payback periods.

Discussion

The differences in the knowledge of simple economics among the groups surveyed would appear to be slight. There does appear, however, to be some correlation between knowledge of or experience in the field of economics and the likelihood of investing in quality housing.

In the case of new home purchases, economic factors appear to have little significance when compared to factors such as the location of the home and the amenities provided. Economic considerations become more important in the case of renovation, maintenance or repair where the project is more likely to be seen as an investment and assessed as such.

Energy is given as an important factor in both buying a new home and in renovating an existing home. Maintaining or increasing the value of an existing home is often cited as an important reason for retrofitting. However, when given a specific question relating to the investment of \$1500 for energy retrofitting with a discounted payback period of less than five years, only 22 per cent of the survey respondents indicated that they would recover their investment if they sold before the end of the payback period. That is, although the consumer can appreciate that he will save money by investing in the retrofit, he seemingly does not consider that such an investment will increase the value of his home nor does he expect the next owner to pay more in order to benefit from the same energy savings. Again, college students studying business are the exception with 58 per cent stating that they would recover their

investment. Professionals are more likely to expect to recover their investment than are non-professionals.

Given this type of response to an investment where the return may be calculated with some accuracy, it would appear that the likelihood of investment in projects with more uncertainties would be very low. As indicated, except for those trained in business or building design and construction, the attention paid to improvements, upgrading and general maintenance, with the exception of painting, is minimal and expenditures tend to be deferred until repairs are needed.

Similarly, the average consumer is unlikely to invest in quality new housing if there is a possibility of moving in the near future.

More research is required to determine whether the preferences indicated in the survey are reflected in actual home investment trends.

IMPLICATIONS

Failure to invest in quality housing, renovation or maintenance results in less wealth for the nation as a whole. 'Standard' quality homes, renovations and maintenance imply only the deferral of higher expenditures and a need for new accommodation as existing buildings succumb to the filter-down process. Investment in 'quality' homes implies that resources currently required to repair or replace existing homes could be diverted to the consumption of other durable or non-durable goods or to improved national welfare.

The filter-down process places those buildings most in need of maintenance in the hands of those least able, for financial or educational reasons, to carry it out. The filter-down/resurrection cycle now in evidence in city core areas, though an improvement on the filter-down/demolition process, could be slowed by quality maintenance. Quality maintenance will not eliminate the need for extensive renovation, but it will extend the life of the building before such work is necessary.

INCENTIVES

There are three approaches that are being used and could be used further to circumvent consumer resistance to investment in quality housing. These are legislation, assistance and education. Each is discussed briefly below in terms of current policy, effectiveness and possible future activity.

Legislation

Building legislation has the advantage that it can ensure that certain minimum requirements are met. There exists a variety of vehicles for legislating quality in buildings. These include building, fire and plumbing codes, and zoning and maintenance bylaws. Of primary interest here are codes and maintenance bylaws. Codes regulate the construction of new housing and the renovation of existing structures, and are essentially concerned with health and safety. Maintenance bylaws are municipal laws that define minimum levels of maintenance for existing buildings.

Within their terms of reference, codes appear to be quite effective in regulating the construction of new housing. Maintenance bylaws, however, are often non-specific allowing for considerable variation in interpretation. Improper terminology is used in some bylaws making clauses unreasonable and unenforceable. Neither codes nor bylaws address explicitly the question of quality construction. Although building codes are a provincial responsibility, enforcement depends on the priorities and capabilities of the local municipality where the home is being built. Some variation in product quality results.

Enforcement of maintenance bylaws tends to occur only where problems have become obvious from the outside of the building or when complaints are received. Houses are not generally inspected and it would be difficult to enact a bylaw allowing inspectors access to private homes on demand. Although this type of legislation exists in some countries in Europe, it is unlikely that it would be accepted in North America.

In order to encourage quality house construction, modifications to the scope, specificity and enforcement procedures of building codes and bylaws would be required.

Assistance

There is a variety of federal and provincial programs designed to assist the home purchaser in the acquisition of a high quality home and to assist the homeowner in repairing and retrofitting his home. Participation in these programs, however, depends on the consumer's assessment of their value to him. The accuracy of the assessment can be affected by the consumer's lack of knowledge of basic economic concepts.

Assistance programs may be divided into two categories: energy programs and repair programs. They are addressed separately here since they tend to be handled differently by the administering bodies and are designed for different audiences.

Energy Programs. The first hurdle encountered by agencies administering assistance programs is information dissemination. Awareness of the Canadian Home Insulation Program (CHIP), for example, is directly related to income and education. Energy assistance programs are least likely to assist those with lower levels of education since this group tends to be less aware of the existence of such programs, less able to recognize their value and less inclined to take full advantage of them.

As mentioned previously, the average homeowner is primarily interested in short-term payback projects. Even where an extensive energy retrofit is warranted and is economically viable, it is more likely that the consumer will apply grant money to a less extensive project that will not exceed the total of the grant. Where the amount of the loan is not restricted by income or otherwise regulated by the administering body, participants with higher levels of education will tend to obtain larger loans or grants. Those with higher levels of education are also more likely to retrofit their homes without assistance.⁶

Provincial programs, such as Saskatchewan's Enerwise, assist in the construction of new energy efficient homes. These programs supply funds to help offset the cost of adding energy saving features. More research is required to determine the participation in and effectiveness of these programs.

Repair. Home repair programs are designed to assist the low income homeowner to raise the quality of his home to meet current minimum standards. The federal RRAP (Residential Rehabilitation Assistance Program), for example, provided low interest and forgivable loans to carry out repairs identified as necessary to bring the building to minimum standards and to extend its life by 15 years. As such, little attention was paid to quality construction or economically viable alterations that exceeded the minimum.

Coming from lower income, lower education groups, participants in such programs are in the worst position to take advantage of them and to assess their value. Poor quality construction and inadequate inspection procedures are cited as two of the major problems encountered in RRAP.⁷

Education

The lack of investment in housing features that affect life cycle costs has been linked to lack of knowledge of basic economic concepts. The sample group showed a general inability to carry out anything but the most elementary interest calculations. Further research is required to establish whether students provided with more instruction at the high school level are better able to apply their knowledge to real life situations, and to determine in detail the degree of correlation between economics knowledge and actual home investment trends.

Much of the information used by the consumer when purchasing or renovating a home is acquired informally. For the majority, the initial information on a subject is generally obtained from family and friends. For more detailed information, those with lower levels of education again rely on family, friends and business relations while those with higher levels of education are more likely to refer to published material or the source agency.⁸ Outside of family and friends, the primary source of information for higher income university graduates tends to be written material such as newspapers and magazines. For lower income groups, television is the primary source.

The rate of response to programs such as CHIP indicates that the information dissemination techniques used by the administering agencies has been effective to a significant extent. Government agencies, however, are not generally involved in the dissemination of information on subjects such as housing investment. Information, designed for general consumption, on the economic aspects of home purchase or renovation is rare. The development of information on the economic considerations of home purchasing, maintenance, repair and renovation, and an advertising program to inform the public of the availability of the information would encourage home investment.

Given the 'buyer beware' approach to the sale and purchase of consumer goods, it is not surprising that some of those in the best position to

inform the consumer do not do so. One group that is directly involved with the purchase and sale of homes is the real estate agents. Although consultants can be hired to assess the condition of a home, this is not often done. Such an assessment, included as part of the real estate agent's services, could provide invaluable information to the uninformed consumer.

Loan officers at banks and trust companies are in a position to provide financial information aside from the current rate of interest or the amount of monthly payments on a loan. They, however, are generally consulted only to obtain rate information or to process a loan application after the consumer has decided to proceed with a project. Their input would be useful in determining the expected rate of return on projects such as energy retrofits or the increase in property value resulting from a general improvement or renovation project.

SUMMARY AND CONCLUSIONS

This paper has described the results of preliminary research into the relationship between economics knowledge and home investment priorities. The findings indicate that the consumer's knowledge of basic economic concepts is extremely limited and his views on what constitutes value in a home do not generally correspond with those factors that affect the building's durability or life cycle costs.

A major deterrent to any change in the status quo is the built-in impetus of existing values in housing. Legislation is seen as one means of encouraging investment in quality construction, renovation, maintenance or repair. As has been demonstrated by the energy retrofitting programs, monetary assistance must be accompanied by comprehensive information dissemination. Programs to assist in the repair of homes must include adequate quality control. Business students at the college level appear to obtain a better information base than other students. Further research is required to assess the content of these business courses. Similar courses at the high school level are recommended to enable future consumers to accurately assess the investment potential of home purchases, renovation, maintenance and repair. Information packages, preferably prepared by an impartial organization such as CMHC, addressing the subject of home investment would expedite the process by providing information to those currently in the housing market. Such information should be easily obtainable, preferably through financial institutions and retail outlets in addition to the source agency. Real estate and financial agencies are in a good position to assist the home buyer or homeowner and should be encouraged to do so.

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