THE HOUSING SECTOR OF THE ECONOMY

AND

HOUSING FINANCE CHARACTERISTICS:

POTENTIAL ANALYSES

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I. Introduction

The objective of this paper is to outline an analysis of the country monographs on housing finance. The objective of the analysis is to identify and analyze relationships that exists between various financial characteristics of housing, and housing production.

There are a number of ways in which one can conduct such an analysis. If information over a significant length of time, say 10 or 15 years, were available for each country one could use this information to examine the interrelationships for each country separately. The results obtained from each country could then be compared and an explanation could be sought for the cross-country differences in the observed relationships. This time series approach suffers from the practical problem that it requires data over a significant length of time for a number of countries.

An alternative approach is to use data for a given year or time interval (say 3 or 5 years) from each country and try to explain the differences between countries in housing-finance characteristics. This cross-section approach has the practical advantage of requiring less data from each of the countries.

There are limitations to each of these approaches which should be made explicit. In time series analysis one assumes that the basic structure of the relationships being examined is unchanged during the time period in which the data were collected. The cross-section analysis assumes that the determinants of housing activity in different countries are basically similar and can be compared. Each of these limiting assumptions can be questioned and can be subjected to criticism. The assumption underlying time series analysis seems to be as limiting as the assumption underlying cross-section analysis. Given the data advantage in cross-section analysis as well as the nature of the issue at hand, namely, a cross-country comparison, it is the cross-section approach which is outlined below.

One word of caution is in order with regard to institutional detail, or lack thereof. In any overall analysis aimed at finding common trends, relationships, or impacts it is necessary to abstract from excessive institutional detail. The key to the exercise is to extract the essential characteristics of a policy, program or economic institution, otherwise one gets caught

in a myriad of detail with little hope of finding common characteristics. Naturally the question of where to draw the line is a subjective one. In what follows there are some institutional characteristics which receive more attention than others. This simply reflects the a priori expectations of the writer of what is likely to be important. Clearly, the final interpretation of the results of the study (When it is implemented) will use institutional differences to help refine, where applicable, the conclusions.

In Section II the interrelationship between certain specific housing-finance characteristics and various housing production issues will be set forth. A list of the major housing production issues will be presented based on the experience in various countries. A list of potentially relevant housing-finance characteristics will also be set forth. The potential impact of housing-finance characteristics on the real housing issues will then be explored in detail. A specific example of how the analysis will be conducted is also set forth.

Section III will be devoted to the data required for the implementation of the analysis outlined in Section II. The specific data series required as well as their current availability will be spelled out. Suggestions for additional data collection will also be made.

II. <u>Housing Finance and Housing Production: The Relationships</u>

A. <u>Introduction</u>

Three issues or objectives that relate to the housing sector of the economy have received significant attention by many governments. They are: (1) the objective of maintaining a high level of housing production; (2) the desire to avoid large cyclical swings in housing; and (3) the desire to increase the rate of housing production over time. These issues have developed because of the existence of a shortage of adequate housing, due either to a legacy of past neglect or wars or due to the desire to increase the standard of housing afforded the public. In this context, objectives (1) and (3) are quite straightforward. Object (2), the desire to avoid large cyclical swings in housing, is an attempt to avoid the inefficiencies that emerge in an industry which is subject to stop-and-go pressures, e.g., the inability to maintain an adequate reserve of skilled labor and the tendency to under-utilize capital-intensive production methods. In other

words, large cyclical swings are seen as a feature which makes a high level of housing production either very difficult, very expensive, or both.

Most governments have concluded that the financing side of housing activity is at the root of much of the problem and therefore also contains a solution. This conclusion stems from the empirical observation that housing is a very durable good, usually requiring a large cash outlay relative to an individual's budget and/or wealth, hence usually requiring some significant amount of borrowing by the household in order to finance the expenditure. Therefore, adequate finance may be one source of restraint in achieving the above-mentioned housing objectives as well as a potential source for attaining them.

It should be noted, however, that government programs may be counter-productive for unless real productive capacity is available, subsidizing housing finance might only serve to raise the price of existing housing and the limited volume of new housing.

It is useful to divide the overall approach to financial influences on housing activity into two categories: (1) demand-related factors, and (2) supply-related factors. In order for housing construction to proceed at some desired rate, prospective home owners (or renters) must be induced to demand the housing to be provided. In general, the demand will be greater the lower the price. For our purposes, we take the real costs and hence selling price of the house as given (except in so far as they are affected by the "complicating factors" mentioned above). The cost to the individual, in terms of downpayment and monthly rent, is what determines the demand for houses. These two factors are determined by the characteristics of the mortgage the prospective borrower can get and the interest rate that is charged on the mortgage loan. We may note that governments can intervene to increase the demand for mortgage funds and housing by such measures as mortgage interest subsidies, tax benefits, and rent supplements. These type of policies will be referred to below as government demand-directed-housing-finance policies.

In order to insure that the mortgage credit demanded by prospective homeowners is available, the supply side of the mortgage market must also be considered. Clearly, financial institutions will make more mortgage credit available the higher the return on mortgages. It is possible that the interest rate on mortgages that produces the "appropriate" demand for housing according to the government's objectives also elicits an adequate supply of funds

from the capital market. This need not be the case, however.
The volume of mortgage funds supplied in the capital markets
at any given interest rate depends upon many factors, such as
the nature of the mortgage instrument (e.g., its marketability)
and the nature of the financial institutions engaged in mortgage
lending (e.g., their degree of specialization and the way they
raise funds).

The government can intervene on the supply side of the mortgage
market by such measures as government subsidized (explicit or
implicit) mortgage-lending institutions and government guarantees
of mortgages (thereby making the instrument more attractive to
potential lenders). These policies will be referred to below as
government supply-directed-housing-finance policies.

B. Specific Financial Characteristics and Housing Activity

A list of housing finance characteristics which should be parti-
cularly relevant for the issues outlined above includes the
following items: (1) the magnitude (and type) of government
tax and subsidy measures to support the demand for housing;
(2) the magnitude of government support and intervention in
the supply of funds to the mortgage market; (3) the level of and
variability in interest rates; (4) specific characteristics of
financial institutions, such as the degree of institutional
specialization in the financing of mortgages; (5) specific charac-
teristics of the mortgage instrument and the mortgage market such
as the use of the variable rate mortgage, the typical maturity of
the mortgage, and the existence of a secondary market.

The relationship between each of these housing-finance character-
istics and the real housing objectives outlined in Section II.A
will be set forth below. The objective of a high level of housing
production will be analyzed first. Second, the desire to minimize
variability in housing will be examined. Third, the objective of
increasing housing production will be analyzed.

Before proceeding with the analysis, however, it is important to
provide at least tentative working definitions of each of the
housing objectives and housing-finance characteristics. Several
alternative definitions are set forth in Table 1. At this point,
we will not be concerned with the availability of such data. That
matter will be discussed in Section III. The working definitions
listed in Table 1 indicate much more precisely the focus of the
three general headings under housing objectives and the five
headings under housing finance characteristics.

T A B L E I

Housing Objectives and
Housing-Finance Characteristics

Housing Objectives

1. **Level of Housing Activity**

   (a) housing starts or completions per
   capita (adjusted and unadjusted for
   average number of rooms per dwelling);

   (b) percentage of gross investment
   devoted to residential construction;

   (c) percentage of GNP devoted to
   residential construction.

2. **Variability on Housing Activity**

   (a) the range (high minus low) in 1(a),
   1(b), 1(c) during, say, a 5 year period

   (b) standard deviation in 1(a), 1(b),
   1(c) during a 5 year period;

   (c) deviation around a trend (see 3) in
   1(a), 1(b), 1(c) during a 5 year period

3. **Growth in Housing Activity**

   (a) average annual percent change in 1(a),
   1(b), 1(c) during, say, a 5 year interv

Housing-Finance Characteristics

4. **Government Demand-Directed**
   Policies

   or monthly payment

   (a) percentage of average rent provided by
   the Government in the form of subsidies

   (b) percentage of housing starts or com-
   pletions provided with some explicit
   subsidy;

   (c) percentage of housing starts under
   "government auspicies";

   (d) percentage of average annual rent
   provided by estimated value of tax
   rebates (or deductions);

   (e) Government housing-subsidy funds as
   a percent of residential construction.

Both should be covered. Alone hard to [?] subsidies as well as rent. Perhaps best that separate [?] first + then combine to get overall impact on budget, etc.

T A B L E I (cont.)

5. **Government Supply-Directed Policies**

    (a) percentage of total mortgage loans serviced by government institutions;

    (b) percentage of total mortgage loans serviced by government plus semi-government institutions;

    (c) percentage of mortgage loans provided with government guarantees.

6. **Level of Interest Rates**

    (a) level of mortgage rate;

    (b) level of mortgage rate relative to (divided by) an average of market interest rates;

    (c) level of mortgage rate minus the rate of inflation;

    (d) average level of all interest rates.

7. **Specific Characteristics**

    (a) percentage of total mortgage loans provided by institutions with over, say, 50% of assets in mortgages;

    (b) percentage of mortgage loans provided by institutions which raise most (above 50%) of their funds directly in the capital market (as opposed to via deposits).

8. **Specific Characteristics**

    (a) percentage of mortgage loans with the "variable-rate" characteristic;

    (b) the existence of a secondary market for mortgages

    (c) the typical maturity of the mortgage loan.

Complicating Factors
9. **Production Incentives**

    (a) value of accelerated depreciation allowances given to purchasers of houses;

(b) percentage of dwellings subject to
     rent control;

(c) others:

10. Other Institutional
     Factors

The expected relationships between the five housing-finance characteristics (as well as each of the working definitions) and the level of housing activity are relatively straight-forward. Presumably, an increase in the magnitude of government demand-directed policies as measured by 4(a), (b), (c), (d) or (e) in Table I would be associated with an increased level of housing as measured by 1(a), (b) or (c). Similarly, a higher level of government supply-directed policies as measured by 5(a), (b) and (c) should also be associated with a higher level of housing activity.

The relationship between the level of (mortgage) interest rates as measured by 6(a), (b),(c) or (d) and housing activity is ambiguous. If there is an autonomous increase in the demand for housing (because, say, income increased) then the resulting increase in the mortgage rate would be associated with an increase in housing activity. If, however, there is an autonomous decrease in the supply of funds to the mortgage market (because, say, depositors are withdrawing funds from savings institutions), the resulting increase in mortgage rates would be associated with a decrease in housing activity. The empirical relationship will be determined by the relative frequency and magnitude of the underlying causes of rate movements.

The relationship between 7(a) and 7(b), the "specific characteristics of financial institutions," and housing activity must be explored separately. The a priori assumption is that the existence of specialized mortgage lending institutions increases the availability of mortgage funds (with better mortgage terms) because these institutions can utilize expertise and take advantage of other cost economies. Hence the greater the percentage of mortgage funds made available by such institutions, the greater should be housing activity, i.e., 7(a) should be positively related to 1(a) and 1(b). The relationship between 7(b), the way the mortgage institutions raise funds, and 1(a) or 1(b) is less clear. In fact, 7(b) is included in the list of financial characteristics specifically for objective 2, the variability in housing activity. It will be discussed below.

The relationship between 8(a), the first of the characteristics of the mortgage instrument, and the level of housing activity is also not well defined a priori. The use of the variable rate mortgage, 8(a), is included in our list primarily for the "variability in housing" topic. The existence of a secondary mortgage market, 8(b), should clearly raise the availability of mortgage credit (as well as lowering rates), hence it should be positively related to 1(a) and 1(b).

The relationship between 8(c), the typical maturity of the mortgage loan and the level of housing activity can go either way. Financial institutions which finance mortgage loans with short-term liabilities (such as deposits) would prefer short-term mortgage loans and presumably would make more housing credit available (or at reduced rates) if this were the case. This implies a positive relationship between 8(c) and 1(a), (b) and (c). On the other hand, shorter maturities on mortgage loans imply higher monthly payments and this tends to discourage housing demand.

The last category listed in Table I is a "catch-all" group called "complicating factors." There are obviously many influences on housing activity which do not come under the topic of housing-finance characteristics. If these other factors are of primary importance, it is conceivable that no systematic relationship between housing-finance characteristics and real housing activity will emerge unless these other factors are taken into account. Obviously this list can be very long. We have concentrated on production incentives since this is one area which is outside the scope of this study but might have to be incorporated into the analysis in order to produce meaningful results.

The provisions for accelerated depreciation allowances in the tax structure of countries [9(a)] varies considerably. Given that accelerated depreciation is an incentive to producing all types of capital goods, in our case, housing, it is possible that this variable may help account for part of the variations between countries in housing activity. Similarly, the degree to which rent controls are used [9(b)] and are effective in lowering rents below what competitive forces would produce might also account for differences in housing activity. We expect that an effective and pervasive set of rent controls would produce a negative impact on housing activity. In order to permit the introduction of additional complicating factors we have included 9(c) under production incentives and item 10 labelled "institutional factors."

The second real housing objective is reducing the variability in housing activity. In order to relate the housing-finance characteristics to this objective some of the finance characteristics must be put on a "variability" basis; that is, either the range, standard deviation or deviation around a trend of each variable. In particular, if countercyclical government policies succeed in reducing the fluctuations in housing activity, then high variability in 4(a), (b), (c), (d), (e) and 5(a), (b), (c) would be associated

with low variability in housing activity. It is also possible that a high level of government intervention itself could be associated with low variability in housing activity since government supported programs are less subject to the pressures of the market (which produce variability in the private sector's housing activity)

High variability in interest rates (the variability version of finance characteristic number 6) is clearly associated with high variability in housing activity as measured by 2(a), (b) or (c). Furthermore, there is interaction between high variability in interest rates and the relationship between some of the other finance characteristics and the variability in housing activity. There is also some interaction among the other characteristics themselves. For these reasons, the relationships between 7(a), 7(b) and 8(a) and the variability in housing activity must be discussed together and in light of interest rate variability.

For a given level of interest rate variability and with little use of the variable rate mortgage [low 8(a)], higher levels of 7(a) and lower levels of 7(b) should be associated with increased variability in housing activity. The reasoning is as follows: with little use of the variable rate mortgage, high concentration of mortgages in specialized institutions [7(a)] and little use of the capital market as a source of funds to the mortgage financing institutions [7(b)] these institutions are very vulnerable to outflows of deposits. Such outflows occur when the level of open market rates rise (since deposit rates cannot keep pace with rising open market rates). Deposit outflows from mortgage specializing institutions are likely to contribute to cyclical variability in housing. With substantial use of the variable rate mortgage, and with little use of deposits as a source of mortgage funds, there is likely to be less variability in housing. There is considerable uncertainty regarding this relationship, however, since it has been suggested that even with the variable rate mortgage financial institutions may be reluctant to raise rates during periods of tight credit.

Deposit institutions which tie deposits and mortgage loans by paying low rates on deposits and guaranteeing a mortgage loan with a low interest rate (after a certain time period has elapsed) might very well be insulated from variability in open market rates even without the variable-rate mortgage. This specific

characteristic of mortgage financing (which exists in some countries) should be examined for its relationship to housing variability. We would expect a negative relationship, that is, significant use of the tie between deposits and mortgage loans should be associated with low variability in housing activity.

The third housing objective is to increase the rate of housing production over time. In this case, it is necessary to put all of the housing finance characteristics on the same basis as . 3(a); that is, the rate of increase in each of the finance measures during the same time interval. Furthermore, the same relationship between the finance characteristics and the level of housing activity ought to obtain in the context of economci growth. In other words, growth in the government demand-oriented policies and supply-oriented policies could also be positively related to the growth in housing activity. Increases in the level of interest rates could be either negatively or positively related to growth in housing. Growth in the percentage of funds supplied by specialized institutions [7(a)] should be positively related to growth in housing activity. Furthermore, the establishment or enlargement of a secondary market for mortgages [8(b)] should be associated with growth in real housing activity.

C. Another Impact of Financial Characteristics

The relationship between the financing characteristics and various issues or objectives in housing activity was set forth above. There is a side issue in this general area which is worth noting; namely, the unique problems of the various institutions that engage primarily in mortgage financing. Those institutions which specialize in mortgages and rely on deposits as a major source of funds, and do not or cannot use the variable rate mortgage are subject to severe pressures during periods of high and rising interest rates. It will be worthwhile to investigate whether financial pressures on other types of mortgage financing institutions also occur during periods of high market rates.

One source of difficulty faced by a financial institution is involuntary loss in liabilities due either to deposit withdrawals or inability to raise capital in the open market. An ex-post

measure of such adversity is whether explicit or implicit
government subsidies are made available to these financing
institutions. If the government provides increased (sub-
sidized) loans or grants to these financial institutions
during periods of tight money, this may indicate that with-
out such aid the institutions (and the mortgage market) would
suffer considerably.

D. Method of Analysis

The analysis of the interrelationships between the various
housing production characteristics and the housing finance
characteristics will take the form of a cross section comparison
of data from the member countries of the ECE. Data sources and
limitations, to be discussed in Section II, may very well limit
the number of countries included in the various parts of the
actual analysis and the precise housing characteristics that
will come under scrutiny. A simple example of how a specific
relationship will be analyzed will provide an idea of the approach
to be taken.

The expected relationship between government demand-oriented
policies and the level of housing activity is positive. Accord-
ingly, the five measures of demand-oriented policies, 4(a), (b),
(c), (d) and (e) will be calculated for each country. The
calculations can be based on some "representative year or, ideally,
an average of a number of years (say, 1965-1969 as used in the ECE
questionaire). The same calculations will be made for the two
relevant measures of the level of housing activity, 1(a) and 1(b).
It is then possible to compare the ranking of each country in,
say, housing starts per capita [1(a)] and, say, the percentage
of average annual rent provided by the government in the form of
subsidies [4(a)]. If there is, in fact, a strong positive effect
of government demand-oriented policies on housing starts then
the country with the highest (high, low)level of housing starts
per capita should also be the country with the highest (high,low)
percentage of average annual rent provided by the government in
the form of subsidies. This casual empiricism will be checked
more carefully with formal statistical techniques.

The case of government demand-oriented policies illustrates
an added dimension with which the empirical analysis will have
to be concerned. There are a number of working definitions associ-
ated with this housing-finance characteristic as well as with most
of the others. Ideally, we would expect a consistent relationship

to be exhibited between each working definition and the
particular real housing activity. This situation is unlikely
to obtain in the actual analysis for a number of reasons.

First, the quality of the data underlying each of the measures
may vary considerably. To continue our example with government
demand-oriented policies, it is quite possible that the actual
estimate of the percentage of average annual rent provided by
the government (4(a)) is much less accurate than, say, govern-
ment housing-subsidy funds as a percent of residential con-
struction (4(e)). Second, even if the quality of the data
was the same for each working definition, there may be signi-
ficant differences in the quality or relevance of each working
definition. In other words, the potential impact of government
demand-oriented policies may be most accurately reflected by,
say, definition 4(a) rather than any of the others. Since all
of the working definitions are just proxies for the more general
housing-finance characteristic they supposedly represent, and
since once the data are analyzed we may have a better idea of
the relative quality of each underlying statistical series, the
inconsistencies that are likely to emerge might be less disturbing
than otherwise.

Clearly, some of the more complicated interrelationships, such
as those associated with the topic of housing variability, will
require simultaneous consideration of country-rankings in a
number of finance-characteristic variables. Explicit discussion
of specific institutional features will also be necessary.
Institutional analysis will be especially important in bringing out
the factors underlying the aggregate data. These institutional
details together with the formal analysis of cross-country
rankings in each of the working definitions of housing objectives
and housing finance characteristics should shed significant
light on the issues under examination.

III. Data Sources and Availability

In Table I above the working definitions of various housing objective
and housing-finance characteristics are listed. In Table II
below, each of these working definitions is listed along with the
data source or potential data source. Only the basic series are
listed since any transformations that must be done with the data
(such as trends or percent change) can be accomplished as the
study is implemented.

Working Definitions	Data Source
13. level of mortgage rate relative to other rates	13. Umrath paper, OECD, Financial Statistics
14. level of mortgage rate minus rate of inflation	14. Umrath paper, OECD, Financial Statistics
15. average level of all market rates	15. OECD, Financial Statistics
16. percentage of total mortgage funds provided by institutions with over 50% of assets in mortgages	16. can be derived from ECE outline
17. percentage of mortgage funds provided by institutions which raise most of their funds directly in the capital market	17. can be derived from ECE outline
18. percentage of mortgages with variable rate characteristics	18. could be based on country monographs
19. the existence of a secondary market for mortgages	19. could be based on country monographs
20. the typical maturity of the mortgage loan	20. could be based on country monographs
21. value of accelerated depreciation allowances to homebuilders	21. Unavailable
22. Percentage of dwellings subject to rent control.	22. Unavailable, could be based on casual observation

Some of the series that are required to implement the analysis have already been collected. This is especially true for the housing output data and interest rates. Almost all of the other data needed would be made available by the answers provided in the country monographs if such monographs followed the outline suggested and circulated by the ECE group of experts. As it turns out, the outline prepared by the group of experts was very well conceived. It requested the appropriate data from the participating countries. Whatever the quality of such data, it would be far superior to anything yet available.

At present only 11 countries have submitted monographs. Of these only a few have provided all of the appropriate information. Of those monographs which were made available, the following had at least some of the data required: Belgium, Federal Republic of Germany, Poland, Ireland, Sweden, and the United States. In addition, the Umrath paper presented some data for France, Netherlands and United Kingdom. The monograph containing the most comprehensive set of data is the one circulated by the Federal Republic of Germany. The data provided by almost all of the other country monographs would have to be amended in order to conform more closely to the outline of the group of experts.

Since consistency of definitions between countries is most important if quality data are to be generated the assumptions underlying the responses to the questionare should be made more explicit. In order to minimize the work involved this could be done only with respect to the particular data (listed in Table II) that will be required for the implementation of the analysis set forth above. The data also need only be provided for a 5 year period, say, 1965-1969. Perhaps the most important clarifications will be required for the working definitions associated with the government demand and supply-oriented policies. Since the most interesting results from this analysis, as far as the various governments are concerned, center about the effectiveness of government housing-finance programs, the additional data and expositions should be a relatively minor problem in view of the possible increased insight to be reaped from the analysis. While basic differences in definitions between countries may make a complete reconciliation near impossible, if these differences are made explicit then it will be possible to explain some potentially surprising results within this framework.

The one item in Table I which seems to be unavailable from the country monographs is an estimate of the value of tax benefits

for housing each country. A study now being conducted at
the Department of Housing and Urban Development in the U.S.
entitled "Foreign Housing Subsidies Study" devotes con-
siderable attention to this particular item. It is possible
that this source could be used to generate some estimates
of tax benefits in selected ECE countries.

Even after the data are refined there are likely to be gaps
in any particular series. In other words, some countries may
be unable to provide data on a particular item. This should
not present a significant problem, however. In comparing
country rankings in each item it is not essential that every
country be included in each set of data. It is certainly
possible to use data from, say, seven countries in analyzing
the relationship between, say, housing characteristic 4(a) and
housing objective 1(a) while using data from 11 countries in
examining the relationship between say, housing characteristic
5(b) and housing objective 1(a).

A. INTRODUCTORY NOTE

1. The United States Delegation submits herewith the Research Outline prepared by ECE consultant Dr. William L. Silber, as agreed upon at the meeting of the ECE Rapporteurs in Geneva, June 28-30,1971.

2. The U.S. Delegation views Dr. Silber's paper as an introductory theoretical framework and model for carrying out a study of governmental housing policies. The paper proposes a statistical and institutional cross sectional analysis involving all ECE countries supplying country monographs. In addition to this study, the Delegation proposes for consideration, an expansion of the analysis to include a time series analysis over a more extended period of time and an individual country basis.

3. Accordingly, with a view to advancing consideration of the broad issues involved in structuring the Housing Finance Study at the forthcoming meeting of the ECE Rapporteurs in Geneva, January 24-27,1972, a revised outline is also attached as a basis for discussion.

Economic Commission for Europe

HOUSING FINANCE STUDY

Broad Outline

I. The Problem and Its Setting

1. The Theoretical Framework: The Model (Silber's essay)

II. The Institutional Framework (Cf. Umrath's essay)

2. Demand-Related Variables
   Descriptive, historical, comparative

3. Supply-related Variables
   Descriptive, historical, comparative

III. Statistical and Institutional Analysis

4. Cross Sectional Analysis, 1965-69: The Consistency of Relationshi[p]
   Between Governmental Policies and Housing Production (Silber's
   analysis)

5. Time Series Analysis, The Impact of Governmental Policy on
   Housing Production over time and within individual countries.

IV. Conclusions