

The Inflation of House Prices in Northern Ireland in the 1970s

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Précis: Official statistics published by the Department of the Environment (London) suggest that during the 1970s Northern Ireland changed from being the cheapest housing region in the United Kingdom to being the most expensive region but one. This article seeks an explanation for this remarkable change. It is argued that to some extent the apparent differences are a statistical distortion, but that it remains true that Northern Ireland has experienced a more rapid rate of house price inflation than the rest of the UK. An econometric model of the Northern Ireland housing market is estimated, the results of which suggest that increased demand, unmatched by increased supply, offers the major explanation. Key importance is attached to the availability of mortgage finance.

I INTRODUCTION

Over the period 1969-1979, official figures published by the British Department of the Environment (DOE) report that average house prices in Northern Ireland (NI) (based on building societies' returns for both new and existing properties) rose more than five and a half-fold: from £3,941 to £21,824. In contrast, over the same period, average dwelling prices for the

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United Kingdom (UK) as a whole rose by only just over four-fold: from £4,640 to £19,924. The inflation of house prices in Northern Ireland has been by far the fastest among all the regions in the UK. As a consequence, average prices in the Province rose to a level above the UK average for the first time in 1976 and have remained there ever since, moving from a low of 62 per cent of the national mean in 1973 to a peak of 118 per cent in 1978. Excluding the south-east of England, Northern Ireland has been the most expensive housing region in the United Kingdom since 1977.

These developments raise some interesting questions about the local housing market, especially since they have taken place in a highly unsettled political climate and over a period during which the economic situation in the region has shown no significant improvement relative to the rest of the United Kingdom.

In this paper we seek an explanation for these facts. In section II we first examine the nature of the statistical evidence and its interpretation. A demand and supply model of the Northern Ireland housing market is set-up and estimated in section III, while a final section summarises the findings and draws some conclusions. An appendix is also included, describing and reporting the results of causality tests on house price – mortgage funds relationship.

II THE STATISTICAL EVIDENCE AND ITS INTERPRETATION

The principal information about house prices comes from regular sample surveys of building societies conducted by the DOE (UK) in conjunction with the Building Societies Association (BSA) in which each society provides information about the houses on which it has given mortgage loans. However, reliable comparisons of average prices over time or space (i.e., between NI and the rest of the UK) demand that the data should satisfy certain conditions. Since housing does not constitute a single homogeneous product, it is important that account should be taken of differences in the *mix* of house types and other qualitative characteristics, in order to ensure, as far as possible, the comparison of like with like. Comparison of the absolute *level* of prices also demands that the statistics should cover all house-purchase transactions. On the other hand, the measurement of price trends over time imposes the somewhat less demanding requirement that the data should adequately represent price movements without necessarily measuring the absolute level of prices accurately. Unfortunately, the published statistics do not satisfy these conditions and, as a result, the comparisons that are commonly made are open to distortion. We examine here the causes of this distortion, the direction and, as far as possible, the size of the errors intro-

duced.

Comparisons are distorted for two reasons. One is because the data are crude averages in which no allowance is made for variations in the *mix* of transactions by type of house. The other is that the data cover only houses purchased with the aid of a loan from a building society. Consequently they are not representative of all transactions and, for reasons given below, the degree of non-representativeness has changed over time, affecting both the measurement of price levels and price trends.¹

II.1 *Housing Mix*

Variation in the mix of dwellings traded is important because of large differences in price for different types of dwelling. For instance, detached houses in NI, in 1979, were 39 per cent above the overall average dwelling price while terraced houses were 34 per cent below, see Table 1. There is a considerable difference between the UK and NI in the mix of dwellings for which the building societies have given mortgages and substantial changes in the mix have occurred over the last few years. It is particularly notable that in NI, bungalows (one of the most expensive types of dwellings) constitute over one-third of the market as against 10 per cent in the UK, whereas terraced housing (the cheapest type) constitutes less than 10 per cent in NI but over a quarter in the UK (Table 1).

Table 1. *Price differentials and the mix of dwellings by type. 1979*

	<i>Bungalows</i>	<i>Detached houses</i>	<i>Semi- detached houses</i>	<i>Terraced houses</i>	<i>Flats and maison- ettes</i>	<i>All types</i>
(a) Price Differentials — Prices as percentages of overall average.						
Northern Ireland	106	139	76	66	*	100 (£21,824)
(b) Distribution of Dwellings Mortgaged (Percentages)						
Northern Ireland	34.6	22.9	33.7	8.4	0.4	100
United Kingdom	9.9	21.2	32.8	27.8	8.2	100

* Insufficient sample

Source: Department of the Environment (London) 5 per cent sample survey (unpublished data).

¹ For a detailed analysis of these problems with respect to the UK housing market in general, see Fleming and Nellis (1981).

Given these differences in mix, the comparison of crude averages is inherently misleading. Appropriate comparisons between the two areas can only be made on a *standardised* basis – for example, by adopting a fixed set of weights for both the UK and NI. This we do in Table 2. Using weights for each type of house appropriate to the UK as a whole gives a “mix-adjusted” average price level for NI in 1979 of 98 per cent of the UK average, whereas the crude average price given in published tabulations shows NI price levels standing at 110 per cent of the UK average.

Table 2: *The effect of mix on house price comparisons. Northern Ireland 1979*

<i>Average Price</i>	<i>Price £</i>	<i>Price as per cent of UK average</i>
Actual Average	21,824	110
Standardised for mix*	19,567	98

* Average price for each type of dwelling weighted in proportion to the distribution by type in the UK as a whole.

Source: Based on 5 per cent Sample Survey, unpublished data (DOE, London).

We conclude, therefore, that a good part of the apparent rise in NI prices relative to the UK is a statistical distortion reflecting a difference in the mix of house transactions. However, whilst on this mix-adjusted basis price levels in the Province are currently shown to be no higher than those in the UK generally, it does appear, none the less, that the *rate of change* of prices in NI has been greater than in the UK generally. This is implied by the elimination of the differential that existed in the early 1970s.

Information on price trends for each *type* of property is not available from the official statistics for this period. However, the above conclusion is supported by detailed analyses prepared by one of the largest building societies (the Nationwide), which are broken down according to type and age of dwelling. These confirm that for each housing category the rate of increase of prices has been higher in NI than in the rest of the UK (Table 3).

II.2 Coverage of the Data

We now turn to the second factor – the representativeness of the building society statistics themselves. Building societies are not the only source of finance for house purchase. Some houses are purchased without the aid of loans at all and others are purchased with loans from insurance companies,

Table 3: *Nationwide Building Society data – comparative prices by types of dwelling. Northern Ireland and United Kingdom 1973-79*
(Data refer to 4th quarter of each year)

	New dwellings			Other dwellings						All dwellings		
				Modern			Older					
	1973	1979	% change	1973	1979	% change	1973	1979	% change	1973	1979	% change
<i>(a) Detached houses</i>												
Northern Ireland	£ 8,760	£29,150	333	£ 9,890	£28,140	285	£10,290	£29,800	290	£ 9,690	£28,770	297
United Kingdom	£13,280	£31,660	238	£13,650	£31,220	229	£12,650	£30,300	240	£13,350	£30,570	229
NI as % of UK	66	92		72	90		81	98		73	94	
<i>(b) Semi-detached houses</i>												
Northern Ireland	£ 5,640	£19,170	340	£ 6,590	£18,990	288	£ 6,580	£19,040	289	£ 6,440	£19,040	296
United Kingdom	£ 8,430	£20,320	241	£ 9,310	£20,330	218	£ 9,140	£22,160	242	£ 9,130	£20,880	229
NI as % of UK	67	94		71	93		72	86		71	91	
<i>(c) Terraced houses</i>												
Northern Ireland	*	*	—	£ 4,810	£16,660	346	£ 5,420	£12,990	240	£ 5,110	£13,970	273
United Kingdom	£ 8,640	£21,080	244	£ 9,620	£20,680	215	£ 7,470	£16,480	221	£ 8,140	£17,780	218
NI as % of UK	—	—	—	50	81		73	79		63	79	
<i>(d) Other types</i>												
Northern Ireland	£ 7,770	£24,310	313	£ 8,420	£24,130	287	£ 7,360	£22,530	306	£ 8,110	£24,140	298
United Kingdom	£ 8,890	£23,700	267	£ 9,980	£22,350	224	£ 9,380	£21,400	228	£ 9,650	£22,050	228
NI as % of UK	87	103		84	108		78	105		84	110	
<i>(e) All types</i>												
Northern Ireland	£ 7,520	£24,100	320	£ 7,820	£22,640	290	£ 7,450	£19,240	258	£ 7,690	£22,580	294
United Kingdom	£10,080	£25,310	251	£10,430	£23,090	221	£ 8,770	£20,100	229	£ 9,760	£21,950	225
NI as % of UK	75	95		75	98		85	96		79	103	

Source: Nationwide Building Society, London

*Insufficient data

commercial banks, public agencies or from other sources. A particularly important development occurred in the 1970s with the establishment of a Home Loans Scheme by the newly-formed Northern Ireland Housing Executive (NIHE) directed at the needs of low-income families wishing to purchase low-valued properties. This has become an increasingly important source of finance. At the end of 1979 the maximum mortgage acceptable under this scheme was £15,000.² The annual number of loans made by the NIHE doubled between 1976 and 1978 whereas building society loans increased by little over one-fifth; in value terms this represents a threefold increase for NIHE loans compared with one and a half times for building societies operating in the North of Ireland. By 1978, the NIHE provided 19 per cent of the total number of loans (Table 4).

Table 4: *Number and value of home loans advanced in Northern Ireland, 1971-79*

Year	No. of loans			Value of loans		
	Building societies	NIHE	NIHE as % of total	Building societies	NIHE	NIHE as % of total
	Thousands		%	£m	£m	%
1971	8.7	—	—	28.6	—	—
1972	8.8	—	—	32.9	—	—
1973	7.6	na	—	33.2	6.7	16.8
1974	5.8	na	—	31.5	7.2	18.6
1975	7.9	na	—	54.7	5.7	9.4
1976	8.6	1.3	13.1	68.6	4.6	6.3
1977	9.3	2.0	17.7	84.8	9.0	9.6
1978	10.6	2.5	19.1	107.2	14.0	11.6
1979	9.2	2.0	17.9	116.5	12.4	9.6

Sources: *Northern Ireland Housing Statistics 1979*, (HMSO, Belfast) and Department of Finance (NI) — unpublished data.

Limitations in the scope of the statistics to that sector of the housing market financed by building societies would be of no consequence if there were no difference between this sector and those served by other sources. However, the advent of the NIHE into the house finance market appears to have had the consequence that building societies have tended to concentrate

² Whilst not necessarily limited to second-hand properties, the maximum lending ceilings have resulted in few loans being made for new houses under this scheme, and indeed none at all after 1975.

their lending "up-market" in NI. This view is supported by the fact that the average recorded income of borrowers from the societies in the Province has risen above the UK average (Table 5) whereas income levels in general in the former region have remained substantially below those in the UK (Table 6). The inference is, therefore, that the building society price data for NI have tended to be biased upwards on account of this factor over recent years. However, it is doubtful, for reasons given below, whether this is sufficient to explain away entirely the apparent change in relative price levels even after allowing for the mix-effect discussed earlier.

Table 5: *Average recorded income of borrowers from building societies, Northern Ireland and United Kingdom, 1971-79*

	1971	1975	1979
Northern Ireland	£1,937	£4,010	£7,184
United Kingdom	£2,187	£4,036	£6,735
NI as % of UK	89%	99%	107%

Source: DOE/BSA. Five per cent sample survey of building societies — *Housing and Construction Statistics*, No. 15, Table 38 (1976) and No. 32, Table 39 (1980), London: HMSO.

Some indication of the effect on the NI series is provided by data for both existing and new dwellings now being collected separately by departments of the NI administration on a more comprehensive basis than hitherto.

Existing Dwellings: Virtually all (approximately 96 per cent) of the transactions in existing dwellings — the type affected by the activities of the NIHE in the housing finance market — are now covered by the new survey. This gives an average 1979 price of £16,793, compared with the building society survey figure of £21,254. This confirms our view that the limitation in the scope of the DOE/BSA survey to building societies alone has introduced a strong upward bias to the DOE/BSA series for existing dwellings in NI.

None the less, it still appears that the rate of increase of prices for existing dwellings has remained substantially higher than in the UK. Data collected retrospectively for the period May-June 1972 on the new survey basis indicates a rise in prices of well over four-fold for all types of dwellings (over five and a half-fold in the case of medium/large terraced houses), whereas in the UK, prices increased less than three-fold (see Table 7).³

³ No breakdown by type of house for the UK is available from the official data for this period but compare the Nationwide Building Society analyses in Table 3.

Table 6: *Income trends in Northern Ireland and the United Kingdom*
(Index numbers, 1971 = 100)

	1971	1972	1973	1974	1975	1976	1977	1978	1979
<i>Average weekly household income</i>									
Northern Ireland	100	112	115	152	190	227	239	263 (£ 87.14)	na
United Kingdom	100	111	128	152	189	214	242	276 (£106.13)	na
<i>GDP at factor cost per head:</i>									
Northern Ireland	100	106	126	150	192	221	253	293	334 (£2220)
United Kingdom	100	112	129	151	190	221	251	287	325 (£2,866)
NI as % of UK	75.4	71.6	74.1	75.1	76.0	75.2	76.1	76.9	77.4

Sources: *Regional Statistics*, London: HMSO, Annually – various issues; *Family Expenditure Survey*, London: HMSO, Annually – various issues.

Table 7: Comparison of surveys* of prices of existing houses, Northern Ireland and United Kingdom, 1972-79

	Northern Ireland						United Kingdom			
	New Government Survey*						DOE/BSA Surveys			
	Small terrace	Medium/large terrace	Semi-det./chalet bungalows	Semi-detached bungalows	Detached bungalows	Detached house	All types	5% Survey	5% Survey	90% Survey
1972 May-June †	£1,539	£ 2,067	£ 4,121	£ 4,256	£ 5,598	£ 6,650	£ 3,869	£ 4,880 ‡	£ 6,927 ‡	£ 7,010 ‡
1979	£6,496	£11,669	£16,855	£17,334	£25,395	£28,906	£16,793	£21,254	£19,675	£20,739
% change	422	564	409	407	454	441	434	436	284	296

* The new Northern Ireland government survey covers approximately 96% of all sales of existing dwellings.

† Data for Northern Ireland collected respectively; no other data were collected prior to 1977.

‡ Second quarter 1972.

Sources: *Northern Ireland Housing Statistics 1979* (HMSO, Belfast); Dept. of Finance (NI); Central Economic Services – unpublished data; *Housing and Construction Statistics* (HMSO, London) and Building Societies Association, *Facts and Figures* (The Society, London, quarterly).

New Dwellings: In the case of new properties, the new survey is still confined to building societies but with a much greater coverage than the DOE/BSA survey (50 per cent as against 5 per cent). Thus, the new data are more reliable for this reason. Further, limitation in scope here to building societies is less important than in the case of existing dwellings because the societies are responsible for a much bigger proportion of new house sales than second-hand sales. As noted earlier, the NIHE has been active only in the second-hand market in recent years because of the lending ceilings it imposes. This new survey gives an average price (£22,928 in 1979)⁴ very much in line with the figure produced by the DOE/BSA survey (£23,484). These figures, of course, do not cover houses purchased without the aid of a building society loan, but the proportion of transactions excluded is small and there is no reason to believe it introduces an important bias, especially since the NIHE is not active in the new property market. For comparative purposes, the new survey, like the earlier DOE/BSA surveys, is also limited in that it makes no allowance for the changing mix of dwellings by type (and the new data have not been collected retrospectively). We may turn again, however, to the Nationwide Building Society analyses, given earlier in Table 3, which do provide a breakdown by type – accepting that these data are adequately representative. These indicate that prices for each type of new dwelling have risen faster in Northern Ireland than in the UK as a whole.

Unfortunately, it remains impossible to quantify precisely the difference in prices, certainly not on a fully comparable basis, between the Province and the rest of the UK. Nevertheless, it seems reasonably clear, given the more comprehensive data now available for new and existing dwellings separately, and after allowing for the changing composition of dwellings by type, that the level of house prices in the north of Ireland is not generally higher than the average for the United Kingdom, but that the difference between the two areas has undoubtedly narrowed as a result of a faster rate of increase in prices in NI during recent years.

As in any similar competitive market, the more rapid rise in house prices in the Province can only be explained in terms of the interaction between demand and supply factors, such as to differentiate this region from the rest of the UK. It is to this aspect of the problem that we now direct our attention.

⁴ Data supplied by the Department of the Environment (NI).

III MODELLING DEMAND AND SUPPLY FACTORS

III.1 *Theoretical Issues*

The approach which we follow here is to derive an estimating equation as a reduced form relationship from the specified arguments of demand and supply functions for housing. This approach closely follows that adopted by Nellis and Longbottom (1981) in their study of the UK housing market.

In the NI housing sector, market clearing prices are determined by those variables which influence the demand for, and supply of, houses. Thus, in the long-run, prices will adjust to their market clearing level. Analysis of demand and supply factors must therefore reflect the influence of the main economic agents that operate in this market, namely, potential buyers, sellers and financial intermediaries. In the case of housing, financial intermediaries play a particularly important role because of the inability of the majority of house buyers to finance their purchases entirely out of their personal assets. Thus, the cost of obtaining additional finance is a factor which enters the potential house buyers' decision calculus. However, due to the fact that the mortgage rate in the UK (and thus in NI) has typically been set below its market-clearing level, the mortgage market has often been characterised by excess demand and, consequently, funds for house purchase have been rationed. Thus a quantity constraint operates which must be considered when specifying the housing demand function.

The *demand* for houses, conceived in real terms, is determined by real household income, demographic factors (i.e., the number of potential buyers), prices, the cost and availability of mortgage finance,⁵ and the preferences of consumers. Hence, the demand function (H^d) may be specified as:

$$H_t^d = a_1 + a_2 PH_t + a_3 RYD_t + a_4 PTB_t + a_5 MR_t + a_6 M_t + a_7 PC_t \quad (1)$$

where PH = price of housing, RYD = real disposable income, PTB = number of potential buyers, MR = mortgage rate of interest, M = availability of mortgage finance, and PC = the general price of consumer goods.

The *supply* of housing in any period is dependent on the total stock available. This is identically equal to the existing stock of houses carried over from the previous period and units completed during that period, plus conversions and renovations minus demolitions. Since the latter three factors

5 The inclusion of the cost and availability of mortgage finance as separate explanatory variables may be questioned on the grounds that they are not independent of each other. However, in practice the mortgage rate in the UK is an administered rate which is changed relatively infrequently, whereas the availability of mortgage finance is much more volatile in the short-run, being directly related to the inflow of funds and the level of liquid assets held by the building societies. On balance, therefore, we feel justified in including these as separate variables.

can be regarded as being largely dependent on past stock, we postulate that the supply of houses depends on price and the existing stock of houses. House completions do not determine the desired stock of houses. In equilibrium, the existing stock is just sufficient to satisfy the demand for housing. So we may write the supply function (H^s) as:

$$H_t^s = b_1 + b_2 PH_t + b_3 HS_t \quad (2)$$

where HS = the existing housing stock.

In equilibrium,

$$H^d \equiv H^s \quad (3)$$

in which case we get

$$PH_T^* = c_1 + c_2 RYD_t + c_3 PTB_t + c_4 MR_t + c_5 M_t + c_6 PC_t + c_7 HS_t \quad (4)$$

where PH^* = equilibrium price of housing which ensures market clearing.

In the above equation it is assumed that the availability of mortgage lending is exogenous with respect to the demand for housing. An alternative approach is to treat the demand for mortgage finance as a derived demand: i.e., one which is dependent on house prices. We have examined the validity of this approach by conducting causality tests. These show that the direction of causation flows much more strongly from advances to house prices, than the reverse. This is strong evidence in favour of the hypothesis that mortgage finance should be treated as an exogenous explanatory variable. The results of the tests are set out in full in an Appendix.

III.2 Estimation Methodology

Equation 4 above is our estimating equation. It is an equilibrium relationship which will not hold at every moment in time, reflecting the cost of instantaneous adjustment towards equilibrium and modifications to the basic relationship caused by short-term influences. The relationship is thus intended to be a *steady-state* hypothesis. Hence, it is assumed that house prices adjust towards equilibrium (PH^*) on the basis of an *error-correction* hypothesis, such as

$$\Delta PH_t = -\lambda \left(\frac{PH}{PH^*} \right)_{t-1} \quad 0 < \lambda \leq 1 \quad (5)$$

The estimation methodology developed by Davidson *et al.*, (1978) was applied, enabling us to model the short-term dynamic behaviour of agents around a long-term trend in relation to Northern Ireland.

Before examining the results obtained using this estimation procedure, the

following sub-section sets out the actual variables used.

III.3 *Variables Used in the Regression Analysis*

PH: the average price of houses for which Northern Ireland building societies have granted loans, and is recorded at the completion stage in the mortgage process. The data used are those obtained in the DOE/BSA five per cent sample survey of building societies. It was not possible to employ the data from the new Northern Ireland Government survey, referred to earlier, because they were not available for the total sample period.

RYD: real permanent income, proxied by a four-quarter moving average on real personal disposable income. Northern Ireland, however, lacks a quarterly income series and following the example of Hewitt and Thom (1978), it was decided to interpolate a quarterly series from the available annual series. The annual growth rates of disposable income were distributed on a quarterly basis, weighted according to the relative quarterly growth rates from the overall UK income series.

PTB: there is the problem of deciding which demographic variable is most appropriate in measuring the pressure of demand from the number of potential house buyers, given that no adequate series for the rate of household formation exists. As a proxy, it was decided to use the number of marriages per quarter in Northern Ireland as an explanatory variable (coded MARG in the results).

MR: the rate of interest on mortgages. In NI this is the same as that recommended by the BSA for the UK in general.

M: the building societies' stock of mortgage assets (end period). A quarterly series is estimated using annual published data for the mortgage stock and the volume of building societies' net advances per quarter in NI.

PC: the implicit consumer price deflator for the UK (Central Statistical Office). An independent price series for NI is not available.

HS: a quarterly series for the existing housing stock in the Province, derived by interpolation from the annual published housing stock figures on the basis of completions and demolitions.

THC: the total number of house completions distributed on the basis of a four-quarter moving average. While the number of completions in any single quarter represents an insignificant proportion of the total housing stock, short-term fluctuations in the rate of new construction may have a significant impact on the expectations of potential buyers and sellers in the housing market.

All variables were expressed in natural logarithms, and seasonal dummies were included.

III. 4 Regression Results

The estimated equation given below (Equation 6) is the equation preferred after investigating alternative specifications of the general model, including different lag structures. It should be noted that not all coefficients are statistically significant, and some bear a contradictory sign (in particular MR, HS and MARG). We comment further on the results for individual variables below; at this stage however we would stress that the results are naturally dependent upon the reliability of the available data about which we expressed important reservations earlier.

$$\begin{aligned}
 \Delta \ln(\text{PH})_t = & 2.455 - 0.594\Delta \ln(\text{PH})_{t-1} + 0.339\Delta^2 \ln(\text{M})_t \\
 & (1.45) (3.64)^* \qquad (0.21) \\
 & - 0.260\ln(\text{THC})_t - 0.401\ln\left(\frac{\text{PH}}{\text{PC}}\right)_{t-2} \\
 & (2.36)^* \qquad (2.96)^* \\
 & + 0.096\ln(\text{RYD})_t + 0.034\ln(\text{MR})_{t-2} \\
 & (0.34) \qquad (0.27) \\
 & + 0.339\ln\left(\frac{\text{M}}{\text{PC}}\right)_{t-2} + 0.35\ln(\text{HS})_{t-2} - 0.320\ln(\text{MARG})_{t-1} \\
 & (2.00)^* \qquad (1.94)^* \qquad (1.62) \\
 & + \text{seasonal dummies} \qquad (6)
 \end{aligned}$$

$$R^2 = 0.571$$

$$\text{SE} = 0.058$$

$$\text{DW} = 2.347$$

Notes: Δ = first difference; Δ^2 = difference of first difference;
t-statistics are reported in parentheses below the estimated coefficients.

* - significant at the 5 per cent level.

Estimation period: 1968(Q2) - 1978(Q4)

Noting that in long-run equilibrium, the short-term influences will have zero effect, and accepting as a valid constraint the homogeneity of house prices with respect to the prices of other goods (see Nellis and Longbottom, 1981, p. 18), the estimated equation renders the following steady-state solution:

$$\begin{aligned}
 \ln \text{PH} = & \text{constant} + 1.0\ln(\text{PC}) + 0.375\ln(\text{RYD}) + 0.153\ln(\text{MR}) \\
 & + 0.787\ln(\text{M}) + 0.089\ln(\text{HS}) - 0.665\ln(\text{MARG}). \qquad (7)
 \end{aligned}$$

The elasticity of house prices with respect to each of the explanatory variables can now be observed directly. From the overall results, the following important points emerge: in the long-run, the stock of real mortgages appears to have the greatest influence on house prices — a 10 per cent rise in the real mortgage stock could be expected to raise prices by 7.8 per cent. This result is almost identical to that found for the UK as a whole by Nellis and Longbottom (1981, p. 19). In contrast, however, real permanent income in N. Ireland is found to play a much smaller role — a 10 per cent rise in RYD could be expected to raise house prices by only 3.7 per cent. Again, we would stress that this result should be viewed with caution, due mainly to the problems of generating an adequate quarterly income series (see Section III.3). The estimated coefficient on the mortgage rate variable (MR) exhibits a positive sign, contrary to our *a priori* expectations, and the elasticity of prices with respect to this variable was found to be very small. It can be argued that such a result is not surprising, since the mortgage rate in the UK is not a market-clearing rate anyway. The housing stock and marriage variables also produced unsatisfactory results in that both bear signs contradictory to *a priori* expectations. Here too, however, it is probable that the underlying data are at fault: on the one hand, it is difficult to reconcile changes in the published housing stock figures with completions, demolitions and conversions data, while on the other hand, the marriage variable fails to reflect other demographic influences on the number of households — it is particularly notable that the population of Northern Ireland fell during the 1970s.

Taking the statistics at their face value, the price of houses is seen to be relatively more responsive to *demand factors*, and in particular, most responsive to the availability of mortgage finance. This result is all the more important in relation to the advent of the Northern Ireland Housing Executive, in that, given the housing supply situation, the increased availability of mortgage funds, channelled through the NIHE, may well be a major factor in explaining the rapid increase in house prices in the Province during the 1970s. The available statistics indicate that over this period there has been no marked increase in lending in the Province by *building societies* relative to the rest of the United Kingdom. The number of loans granted in the Province, as a proportion of the total number for the UK, has remained fairly stable at 1.3 per cent. However, within Northern Ireland, as we indicated earlier, the NIHE became an important additional source of finance after 1973. In Great Britain, on the other hand, the equivalent source of funds — local authorities — reduced their lending very considerably after 1975. The result was a clear increase in total mortgage lending in the Province relative to the rest of the UK (Table 8).⁶ It should be noted,

⁶ Lending by insurance companies and other agencies is not covered as data for Northern Ireland are not available but such lending represents a small part of the total.

too, that the advent of the NIHE coincides with the timing of the acceleration in house prices in the Province in 1973, and that the properties which fall within the range of the NIHE lending (in the main, terraced housing) have risen most in value — this is evident from the new survey data referred to earlier (see Table 7).

Table 8: *Northern Ireland home loans as percentage of United Kingdom*

Year	Building Societies		Building Societies & Public Agencies*	
	Number %	Value %	Number %	Value %
1971	1.3	1.0	1.2	1.0
1972	1.3	0.9	1.2	0.9
1973	1.4	0.9	1.3	1.0
1974	1.3	1.1	1.1	1.1
1975	1.2	1.1	1.0	1.1
1976	1.2	1.1	1.3	1.2
1977	1.3	1.2	1.5	1.3
1978	1.3	1.2	1.6	1.4
1979	1.3	1.3	1.5	1.4

*NIHE in Northern Ireland and local authorities in England and Wales (data for Scotland are not available).

Sources: *Northern Ireland Housing Statistics 1979* (HMSO Belfast); Department of Finance (N.I.) unpublished data and *Housing and Construction Statistics* (HMSO, London, quarterly).

Taken together, these facts suggest that the increase in the supply of finance, made available through the Housing Executive, has been a causal factor behind the rapid rate of house price increases from 1973. Since the NIHE confines its lending to low-income groups wishing to purchase cheaper properties (in the main, terraced houses), the inflationary mechanism has operated by stimulating demand at this end of the market. The new Northern Ireland government survey of existing dwellings (see Table 7) highlights this point: it is notable that from mid-1972 to 1979, medium/large terraced houses rose in price over five and a half-fold, whereas most other types rose less than four and a half-fold. At the same time, however, it is likely that the stimulus to prices would spill over to more expensive properties as the building societies moved up-market.

Finally, one cannot overlook the civil disturbances that have occurred in the Province over the last decade. It would seem likely that these have generated concentrated demand pressures on certain areas, particularly around Belfast. Unfortunately, it has not been possible to quantify the effects of such factors on the housing market in general.

IV SUMMARY AND CONCLUSIONS

In this paper we have questioned the validity of inter-regional comparisons of house prices made on the basis of sample survey data obtained by the DOE (UK) and the Building Societies Association covering houses purchased with mortgage loans from building societies. These data indicate that after 1973 average house prices in NI rose to such an extent as to make the Province the most expensive region but one in the whole of the UK.

We argue that incomplete coverage of transactions and differences in the mix of house types introduces a lack of comparability which is particularly acute in the case of NI. In the absence of adequate statistical data, conclusions must be tentative but we suggest that the available data support the view that the general *level* of prices was probably no higher in NI in 1979 than in the rest of the UK, but that the *rate of increase* in prices in the Province was certainly higher from the early/mid-1970s onwards. The most plausible factors that may be held to account for this would appear to be an increase in demand pressures in certain areas within the Province caused by the effects of the civil disturbances and an increase in effective demand generally as the supply of funds was increased after 1973 via the Northern Ireland Housing Executive. On the supply side, although the stock of housing has risen, it would appear none the less to have failed to keep pace with the increased demand for owner-occupation in Northern Ireland.

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APPENDIX

Causality between House Prices and Mortgage Availability

The model estimated above includes mortgage availability as an explanatory variable. This rests on the assumption that the demand for mortgage finance is exogenous with respect to the demand for housing. However, it could be argued that the demand for such finance is itself a *derived* demand; that is:

$$M^d = \alpha PH.H^d$$

where M^d = the demand for mortgage finance.

To investigate this hypothesis, we applied the *causality* test suggested by Granger (1969). Basically, the test consists of regressing a dependent variable Y on a vector of lagged values of Y and a trend variable; then a vector of lagged values of X is added to the regression. F-tests are used to assess whether the addition of the X-lag vector significantly reduces the residual sum of squares of the regression. If the decrease is deemed significant, then X is said to *cause* Y . The procedure is then reversed (i.e., with X as the dependent variable, Y as the independent variable) to assess whether or not causality may also run from Y to X . There are important *caveats* to be made about the interpretations of the results of these tests. We turn to these later.

In relation to the present study, regressions were carried out on the average price of houses (PH) and the value of net advances (NA) made by building societies in the Province over the period 1968(Q2) – 1978(Q4) – quarterly data for 1979 not being available. It was assumed that the relationships were linear in logarithms. Seasonal dummies were included in all regressions and a linear time-trend was incorporated to satisfy the covariance – stationarity requirement. The test results shown below (Table A) contain 4 lagged values of the dependent variable and 4 of the independent variable – this structure gave the most significant results.

It will be seen that taking prices as the dependent variable, the addition of net advances brings about a marked fall in the standard error of estimate (s.e.e.); this fall is statistically significant at the 5 per cent level, based on an

Table A: *Summary statistics of causality tests 1968(Q3)–1978(Q4)*

(a) Dependent variable - average house prices (PH)				
No.	Variables	s.e.e.	F(dof) Statistic	
			Regression	Specific
1	PH-lag	0.0817	203.78(8,30)**	—
2	PH-lag, NA-lag	0.0737	168.40(12,26)**	3.72(4,26)*
(b) Dependent variable = net advances (NA)				
3	NA-lag	0.2206	38.06(8,30)**	—
4	NA-lag, PH-lag	0.2137	27.52(12,26)**	1.49(4,26)

Footnotes: The constant term for each regression is not reported;
s.e.e. = standard error of estimate: $F(dof) = F$ -statistic with
 (v_1, v_2) degrees of freedom;
* = significant at the 5 per cent level.
** = significant at the 1 per cent level.

F-statistic of 3.72 (section (a) of Table A). Conversely, with net advances as the dependent variable, it will be seen that the inclusion of a vector of lagged values of house prices also leads to a fall in the s.e.e.; but it should be noted that this fall is statistically insignificant; F-statistic = 1.49 (section (b) of Table A). On balance, therefore, these results provide evidence that causation runs from mortgage advances to house prices, rather than the reverse.

Naturally, it will be appreciated that these tests are subject to inevitable limitations. For instance, the results may be subject to biases arising from mis-specification, inappropriate choice of functional form etc. They may also be sensitive to the choice of time period. Qualifications of this kind are common to all such statistical analyses. While it cannot be argued, therefore, that the results provide conclusive proof of the hypotheses, it is none the less reasonable to argue that they are informative (for further discussion on the application of causality tests, see Jacobs *et al.*, 1979 and Mixon *et al.*, 1980).