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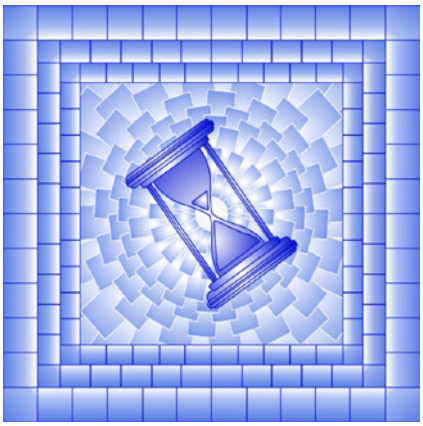
Different Perspectives on the Rate of Inflation, 1982-2000: The Impact of Homeownership Costs



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This paper represents the views of the authors and does not necessarily reflect the opinions of Statistics Canada.

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Preface

Prices Division first started publishing the Analytical Series in December 1996 as a means to convey conceptual and applied research undertaken by its staff, and at times, by other persons from within or outside Statistics Canada on the subject of price indexes.

All papers are reviewed by a panel of experts from within Statistics Canada or outside the agency. Views expressed in the papers are those of the authors and do not necessarily reflect those of Prices Division or Statistics Canada.

The purpose of the series is to disseminate knowledge and stimulate discussion. Questions and comments on any aspect of the papers are welcome and can be forwarded to the Director, Prices Division or to the Chief, Quality Assurance and Client Services Section, 13th Floor, Jean Talon Building, Statistics Canada, Ottawa, Ontario, K1A 0T6, Facsimile: 1 613 951–2848.

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Abstract

For a long time, the Consumer Price Index (CPI) has been the most commonly referenced measure of inflation. However, it is not generally perceived how sensitive the CPI is to the measurement of price change for owned accommodation. The relative importance of the homeownership component in the CPI and the movement of that component is critically dependent on the choice of concept for estimating homeownership costs, and there is no one concept that is generally agreed upon by official statistical agencies. As part of an ongoing research program into major issues involved in the construction of consumer price indexes, analytical indexes of consumer prices based on different treatments of owned accommodation are herein updated for the period 1995 to 2000. The paper presents seven alternative homeownership series based on four different concepts, including one based on the current concept used in the official CPI. Series are also shown for higher-level aggregates, including indexes at the All-items level. All of these higher-level aggregates differ only in their owned accommodation components; for all aggregates and all other components are based on the official concept.

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1. Introduction

For a long time, the Consumer Price Index (CPI) has been the most commonly referenced measure of inflation. However, it is not generally perceived how sensitive the CPI is to the measurement of price change for owned accommodation. Of the eight major components in the CPI, shelter is by far the most important. Homeownership costs account for a little more than half of shelter expenditures. The relative importance of the homeownership component in the CPI and the movement of that component is critically dependent on the choice of concept for estimating homeownership costs, and there is no one concept that is generally agreed upon by official statistical agencies. In this respect, there is a striking contrast with the deflator for Gross Domestic Product (GDP)—the most obvious alternative to the CPI as a measure of price change—where all countries have agreed upon a rental equivalence approach for the homeownership sector.

The CPI has five main uses, which will be discussed in turn:

1. as an escalator;
2. as a deflator of income series;
3. as a deflator of expenditure series;
4. as an indicator of the inflation rate; and
5. for international comparisons.

As part of an ongoing research program into major issues involved in the construction of consumer price indexes, analytical indexes of consumer prices based on different treatments of owned accommodation are herein updated for the period 1995 to 2000, with the intention that they be updated on a monthly basis. The main purpose of this research is to provide more insight into the treatment of homeownership, which is certainly one of the most controversial issues regarding the construction of the Consumer Price Index. The publication should be useful to the users of Statistics Canada data, in particular to those with specific analytical needs that are not fully met by the way owned accommodation is treated in the official CPI, for example, those who want to compare the movement of the Canadian CPI with that of another country, using a common approach to the treatment of homeownership. It is also hoped that the publication of analytical series will stimulate a debate on this important issue, and that user feedback may help Prices Division in assessing its own methodology for owned accommodation.

The paper presents seven alternative homeownership series based on four different concepts, including one based on the current concept used in the official CPI. Series are also shown for higher-level aggregates, including indexes at the All-items level. All of these higher-level aggregates differ only in their owned accommodation components, for all aggregates and all other components are based on the official concept.

2. Background

The official CPI is widely used as an escalator of various income payments—in the cost-of-living adjustment clauses of union contracts, in indexing income tax brackets and exemptions, and in indexing government transfer payments such as Old Age Security and family allowances. Escalation is the main use of the CPI, which largely determines the design of the index. For this purpose, the "user cost" concept employed in the official CPI is quite appropriate, but a case could also be made for using the "money outlay" concept.

For deflating income series, the content of the series will partly determine what concept is appropriate. The personal income and personal disposable income estimates of the Canadian System of National Accounts (CSNA) include imputed rent on owner-occupied dwellings as a component, so a CPI incorporating the equivalent rent concept is the appropriate deflator for these series, if a CPI were to be used at all for this purpose. But these official personal income series also include imputed values for income in kind received by farmers from consumption of their own food products, which are not reflected in the official CPI. Thus, for these income series it would probably be better not to use any CPI, however calculated, as a deflator since the CSNA's own personal expenditure deflator or its fixed-basket equivalent would be a more suitable index to use. On the other hand, the income estimates for Census families that are published by Statistics Canada (see Catalogue No. 13-208-XIB) "exclude all income in kind, such as free meals, living accommodation, or food and fuel produced on the farm"[1]. These series are deflated and published in the constant dollars of the most recent year published. For such a series, without any imputed items, the best deflator would be the series determined to be the best escalator, so again the money outlays concept would be favoured.

For deflating expenditure series at a detailed level, the content of the series will again partly determine what concept is appropriate. The personal expenditure estimates of the CSNA incorporate imputed rents on owner-occupied homes. If one preferred to calculate these imputed rents at constant prices using a deflator, rather than calculating them directly from the stocks of owner-occupied homes, then an owned accommodation CPI based on the rental equivalence concept would be required.

If the objective is a macroeconomic indicator of current inflationary trends, the official concept can be somewhat misleading because it includes mortgage interest, which in turn is calculated based on house prices over a 20-year span. Furthermore, the inclusion of mortgage interest in the official concept creates an inherent contradiction when used as a policy instrument for price stability, precisely because of the role of interest rates as an intermediate target in the conduct of policy. Therefore, for policy purposes, the "net purchase" approach would probably be more appropriate.

Strictly speaking, international comparisons do not constitute a purpose in themselves but are related to the above stated purposes. The most common purpose of international comparisons is to evaluate the inflationary performance of one country against its neighbours. For this purpose,

[1] *See* ***Family Incomes: Census Families****, Cat. 13-208-XIB, 1997, p. 13.*

the ideal would be to have a set of CPIs for all countries based on a common net purchase approach. However, it would be very difficult or impossible to derive a CPI for a foreign country in this way.[2] If this is not feasible, one would at least wish to match the treatment of owned accommodation of the foreign country in question. A homeownership component based on the rental equivalence approach would provide more reliable comparisons of inflation rates with our leading trading partners, including the United States (since 1983), Japan and France. It is also of value if one wishes to standardize the CPI and the GDP deflator for the treatment of homeownership costs in order to analyse other sources of difference between them. The limited money outlays approach is useful for comparisons with the United Kingdom (prior to 1995).

The treatment of owned accommodation is conceptually difficult because, first, the characteristics of a house, considered as a commodity, permit and encourage a variety of treatments that will give quite different estimates, and second, the range of uses of the CPI is such that no particular treatment is well-suited to every purpose. See the discussion of this in *The Consumer Price Index Reference Paper: Update Based on 1992 Expenditures* (Statistics Canada [1995; p. 83–92]).

A house is a consumer asset with a long useful life, generally purchased on credit, with active resale and rental markets in which households participate as both buyers and sellers. This is why a consumer price index for owned accommodation may be built around the cost of using a home, the cash outlays on a home, its assumed rental value or its purchase price. For most other commodities, including consumer durable goods, a consumer price index is simply based on the purchase price. Many consumer durables share the characteristics of a house, but usually not to the same degree. Like houses, most motor vehicles are purchased on credit, but credit payments on a motor vehicle purchase do not last more than 3–5 years before the loan is paid off, while the amortization period for a mortgage loan can be as long as 25 years. A typical automobile will have a useful life span of less than 12 years; houses last for decades and look towards centuries. This does not mean that some of the approaches to homeownership in the CPI are not also applicable to motor vehicles, or consumer durables in general, only that the differences in the indexes based on different approaches will never be as great for these commodities as for homes.

3. Definitions and concepts

3.1 Official concept

The official concept, upon which the owned accommodation component of the official CPI is based, is one variant of the user cost approach. An index based on the official concept measures the changes in the cost of using a fixed stock of owned dwellings. It incorporates five main components: replacement cost of that part of the dwelling that is assumed to be used up in the year in question, mortgage interest costs, property taxes, homeowners' insurance premiums and homeowners' repairs. Other homeownership costs include transaction charges (real estate commissions, legal fees, etc.), condominium charges and mortgage insurance.

[2] *None of the OECD countries currently adopt a net purchase approach to owned accommodation series in their CPI, except for New Zealand. Even New Zealand's concept is more a hybrid between a money outlays approach and a net purchase approach and is less than an ideal indicator of changing rates of inflation.*

The basic idea behind the official concept is to treat the homeowner as a landlord who rents a dwelling to himself. Whatever a landlord could expense is included in the index, even if it is an imputed item (e.g. depreciation). Whatever a landlord cannot expense is ignored by the index. Thus, according to the official concept, homeownership costs exclude capital gains (a negative cost) and the foregone interest on the owner's capital invested in his home. These expenses are excluded because they are considered an investment rather than a consumption. Another country that has adopted a user cost approach, South Africa, does include the cost of the owner's equity in their owned accommodation series. No country incorporates capital gains.

The mortgage interest component estimates price-induced changes in the amount of mortgage interest owed by the target population on outstanding mortgages. The volume of mortgage loans by age of mortgage is held constant so that the interest owed does not depend on the actual changes in lump-sum payments or changes in the loan-to-value ratio or amortization period of loans, but only on house prices and interest rates. The house price attached to an outstanding loan dates from the month of purchase. The interest rate dates from the month that the loan was last renegotiated, or the month of initiation if the loan has never been renegotiated. The interest owed on the stock of mortgages in the current month is therefore a function of current and lagged house prices and interest rates, mixed according to the proportion of new and existing mortgages. (See also *The Consumer Price Index Reference Paper*; pp. 113–117.)

This treatment of mortgage interest is consistent with the primary use of the CPI as an escalator; it is the costs paid by the mortgagors on their debt that are relevant for escalation purposes. Unfortunately, it also makes the official CPI a somewhat less accurate indicator of the "current" rate of inflation.

The Bank of Canada has been calculating core inflation using four different methods in the recent past to help it monitor its success in achieving its goal of price stability.[3] One of the Bank's technical reports noted that:

> It may be useful, for example, to exclude changes in mortgage interest costs from a core measure used for policy purposes, since changes in interest rates by the monetary authorities will directly affect published inflation rates through corresponding changes in mortgage interest costs.[4]

And another Bank of Canada study states:

> Monetary policy no doubt plays a large role in fluctuations in mortgage interest costs. A tightening of monetary policy, for example, aimed at reducing the inflation rate, has a perverse short-term effect on inflation, since higher interest rates will cause a temporary rise in mortgage interest costs. This perverse effect

[3] *Core inflation is basically defined as the "trend" or "underlying" rate of inflation. What has normally been used in empirical research, however is the rate of change of the All-items CPI excluding some of its more volatile components such as food, energy and the impact of changes in indirect taxes.*

[4] *See Hogan, Seamus, Marianne Johnson and Thérèse Laflèche, "Core Inflation", Bank of Canada Working Paper 89, p. 10.*

> explains why some countries, such as the United Kingdom and New Zealand, exclude this component from their core inflation measures.[5]

However, until May 2001, the measure of core inflation used by the Bank of Canada was the CPI excluding food, energy and the effect of changes in indirect taxes (CPIxFET), a measure that does not exclude the mortgage interest cost component. Since then, the preferred measure has been CPIX, which is the only one of the approaches used by the Bank of Canada that excludes mortgage interest cost altogether.[6] But the exclusion is not based on the perverse sensitivity of the mortgage interest component to changes in monetary policy, but strictly to its overall volatility. The mortgage interest cost index is also sometimes excluded in the "MEANSTD" measure of core inflation, and its weight is reduced in the CPIW measure, again, solely because of its volatility.[7]

Oddly enough, none of the Bank of Canada's studies seem to argue for the exclusion of the mortgage interest component on the basis of its incorporating a 20-year lagged series of house prices, although such an index may not have much value in monitoring the current rate of inflation.

The replacement cost component of the official concept is also problematic for a measure of the inflation rate. The price index that pertains to the replacement cost component is the price index of new dwellings, but new dwellings are seldom ever sold without lots. Therefore, dwelling price estimates necessarily depend on the more or less accurate estimates provided by builders with regards to the market price of the house excluding the serviced lot. The accuracy of such an estimate is likely to be poorer the longer the builder has held onto the lot before building on it given the more volatile the market for residential land.

There is reason to believe that in many cases the dwelling price series fails to entirely remove the impact of change in land prices, and what is calculated is something between an index of dwelling prices and an index for dwelling and lot prices combined. It is interesting that in the Bank of Canada's MEANSTD measure of core inflation, replacement cost was the 12th most frequently eliminated component because of its high variability; homeowners' insurance premiums was the 13th. Both series are based on the new housing price index series for dwellings. One suspects that the volatility of these series is partly due to the failure of the dwelling price series to entirely eliminate the influence of changes in serviced lot prices. In any case, these dwelling price estimates, by the nature of their collection are certainly not market prices in the same sense that the house prices from which they are derived are market prices.

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[5] *See Crawford, Allan, Jean-François Fillion and Thérèse Laflèche, "Is the CPI a Suitable Measure for Defining Price Stability?" in* ***Price Stability, Inflation Targets and Monetary Policy: A 1997 Conference Held by the Bank of Canada****, p. 57.*

[6] *See Bank of Canada, "Renewal of the Inflation Control Target – Background Information", pp. 5–7.*

[7] *MEANSTD is the weighted average of the cross-sectional distribution of price changes that has been trimmed to exclude values farther than 1.5 standard deviations from the average. As such, it excludes the most volatile components at each point in time.*

3.2 Rental equivalence concept

An index based on the rental equivalence concept measures changes in the cost of consuming the dwelling services of a fixed stock of owner-occupied homes by imputing market rents on tenant-occupied dwellings. Tenants pay only for the shelter services provided by their dwellings; their rental payments do not have any investment component, hence the rental equivalence concept guards against treating part of the changing return on an investment in housing as a change in the cost of consumption of shelter services.

The landlord directly pays most of the expenses on a tenant-occupied dwelling, including property taxes and insurance, mortgage interest, depreciation, transaction costs and most repairs. He recovers these expenses in the rent that he receives from the tenant. The tenant pays only his monthly rent, insurance premiums on his personal household effects, and the cost of those repairs performed at his own expense and choice (this is largely the cost of materials only since most contract repairs are performed at the landlord's expense).

Tables 1 and 2 show component shares for owned accommodation for the 1992 and 1996 baskets respectively for all the different concepts. It can be seen that the structure of the rental equivalence series differs most radically from the official series. Its ten components are reduced to just three, with one of them, equivalent rent, which has no counterpart in the official concept, occupying almost the entire basket.

Most homes are rented with some appliances in them and the equivalent rental values for the owner-occupied stock of homes will incorporate their rental value. To prevent double counting, the weights of the CPI for these appliances could be reduced accordingly,[8] as is done by the U.S. Bureau of Labor Statistics (BLS) in calculating the American CPI (see U.S. BLS [1983]). The adoption of a rental equivalence approach to homeownership, therefore, has implications for the calculation of some of the consumer durable components of the CPI.

Tables 3 and 4 show owned accommodation's share in shelter and All-items for the 1992 and 1996 baskets respectively for all the different concepts. Note that, for both basket reference years, owned accommodation has the smallest share in shelter and in All-items using the rental equivalence concept.

3.3 Money outlays concept

An index based on the money outlays concept measures the price-induced changes in the consumption-related cash outlays on owner-occupied homes. Imputed costs are excluded by definition, as are investment-related outlays, regardless of how these are viewed or defined. If the CPI's primary use is as an escalator of money incomes, then the money outlays concept is appropriate to such a purpose.

[8] *The alternative would be to deduct that portion of equivalent rental values representing the rental of household appliances in calculating equivalent rent weights, in which case the weights for these appliances could be left as they are without any double counting, as far as weights are concerned. But in this case, appliances would still potentially have an undue impact on the movement of the All-items CPI, since their price changes would inappropriately influence the equivalent rent series to the extent that it was based on quotes for dwellings with appliances included in the rent.*

Most of the components of owned accommodation using the official concept represent cash disbursements, and would be in scope under a money outlays concept, including such items as repairs, property taxes, insurance premiums and mortgage interest. The important omission from the preceding list is the replacement cost of depreciation, which would be excluded as an imputed item.

In this publication, two variants of the money outlays concept are shown, one including and one excluding net equity payments. Net equity payments consist of downpayments on owner-occupied homes, plus the principal portion of loan repayments when those houses are purchased on credit, less sales of owner-occupied homes. If net equity payments are considered to be primarily investment outlays, then they are excluded from the owned accommodation CPI. Such is the practice in all official consumer price index series based on the money outlays concept, including those of Iceland, Ireland and, until 1995, the United Kingdom. If net equity payments are considered to be primarily consumption outlays, then they should be included in the CPI, as advocated by Turvey [1981]. The advantage of this variant is that it is more consistent with the net purchase approach to consumer durables in the CPI. In the unusual case where all owner-occupied houses are purchased with cash, the net equity payments series reduces to a net purchase series.

The house prices attached to repayments of mortgage principal in the money outlays series would, like those on mortgage interest, cover a multi-year span. For this reason, a money outlays series excluding net equity payments would be no better as an indicator of the rate of current price change than a series based on the official concept. As well, a money outlays series including net equity payments would be a worse indicator. Also, the actual amounts of equity payments are extremely variable from year to year, and the estimated amounts—if they derive from family expenditure survey data—vary even more. It is not feasible to include net equity payments in a money outlays series without some kind of smoothing of the data.

As can be seen from Tables 3 and 4, the two variants of the money outlays concept have quite different implications for the share of owned accommodation in the All-items CPI. For both the 1992 and 1996 basket years, the relative importance of owned accommodation is greatest using the broadly defined money outlays concept, and least, the rental equivalence concept excepted, using the limited money outlays concept.

3.4 Net purchase concept

A series based on the net purchase concept measures changes in current transaction prices for owned accommodation. Net purchases of owner-occupied dwellings consist of all purchases of new and existing owner-occupied dwellings by the target population, minus the sales of such dwellings, that is, the purchases of new dwellings by the target population, plus the net purchases of existing dwellings by the target population from the non-target population. Since these net purchases of existing dwellings are usually insignificant, net purchases closely approximate new purchases for owner-occupied dwellings.

The simplest variant of a net purchase series for owned accommodation includes a home purchase component whose weight is based on net purchases but excludes mortgage interest (NP1). This is the first of the three variants shown in this publication. This type of series would

be particularly useful for judging the effectiveness of monetary policy in meeting its price stability targets. It would measure the change in current transaction prices but would not reflect interest rate hikes that might be a concomitant of a tight monetary policy intended to reduce the inflation rate.

This variant also has the advantage of being consistent with the treatment of consumer durables in the official CPI, and of being based on actual prices and not on hypothetical ones. For example, whether you assign a net purchase weight or a replacement cost weight to passenger cars in the CPI, you would still base the price index on the prices of new automobiles. But as was mentioned in the previous section, a replacement cost index for homes must be based on a hypothetical index for dwellings. Hypothetical because it must be derived from a hypothetical question about what the dwelling or serviced lot would sell for separately, when in reality they are sold as a package. By contrast, the net purchase index is based on the actual prices of dwelling and lot combined.

The scope of the net purchase series can be extended to include mortgage interest payments, as does the second variant of a net purchase series shown in this publication (NP2). From 1953 to 1984, the homeownership component of the U.S. CPI for urban wage earners and clerical employees was based on net purchases including mortgage interest. Under this concept, mortgage interest comprises those negotiated interest payments that are actually likely to be made. The qualification is necessary because so many mortgages are terminated before the end of their original amortization period due to renegotiations of the mortgage or the sale of the home.

Under the second variant of the net purchase approach, the net purchase weight may vary dramatically for a given volume of home purchases depending on the degree to which those purchases are credit financed. If a member of the target population purchases a $100,000 home using cash, that purchase will increase the home purchase weight by $100,000. If the same home is purchased with a $75,000 mortgage loan at 13% interest, the interest contracted for over the first 10 years of a 20-year amortization period will be about $87,000. This mortgaged purchase will have almost double the weight in the owned accommodation index as the cash purchase, although the purchase price is the same.

Instead of giving a much heavier weight to a mortgaged purchase than a cash purchase, Blinder [1981] suggested that the same weight be given to both. If a home is purchased on credit, the loan-to-value ratio will dictate a division of the home purchases. The index for the loan portion of the home purchase will then represent the discounted value of the stream of future mortgage payments for a home purchased in the given period compared to the discounted value of the stream of future mortgage payments on a home purchased in the base year. For both periods the base year mortgage interest rate is the discount rate.[9]

[9] *A net purchase series based on downpayments and discounted mortgage payments is similar to the outlays series on an acquisition basis proposed by Turvey [1981], but Turvey considers allowing changes in terms of credit, including the loan-to-value ratio, to be reflected in his proposed index. In this implementation, it is not possible to accommodate changes in the loan-to-value ratio since downpayments and mortgage payments are treated as separate basic groupings with fixed-basket shares. However, it would be possible to accommodate such changes if the downpayments and discounted mortgage payments were treated as a single basic grouping.*

This alternative net purchase concept (NP3) would provide a measure of the change in current consumer prices that took account of changes in interest rates, but without grossly exaggerating their impact. Oddly enough, this type of measure has not aroused much interest among official statisticians. In a survey examining the alternatives for pricing loan-related items, Woodhouse and Hanson seemed interested in exploring all reasonable possibilities, but such an index was not considered.[10] The only concept they discussed that would bring into play both commodity prices and interest rates was something resembling the mortgage interest component in the official CPI.

Such a measure would, of course, still be much inferior to the net purchase approach excluding interest in gauging the effectiveness of monetary policy for price stability. In contrast, NP3 would decently measure changes in prices of current transactions, including interest-related transactions, thus it would have some merit as a target for monetary policy. The following tables show that despite being based on the extreme and unrealistic assumption that a new house purchased in the current month will retain the negotiated mortgage rate for the duration of the mortgage, this net purchase series does not move very differently from its counterparts, even during periods of volatile interest rates.

Tables 3 and 4 show owned accommodation with a higher basket share under the NP3 concept than under the NP1 concept; in the 1992 basket, owned accommodation's share of All-items is less with the net purchase concept than with the official concept. The difference in their shares comes with the revaluation of the 1992 basket at December 1994 prices and of the 1996 basket at 1996 prices; in both cases the price revaluation favours the NP3 concept.

Tables 3 and 4 are misleading in the sense that neither the 1992 or 1996 basket years were particularly strong years for new housing, with completions of single family dwellings in 1992 only about 60% and in 1996 only about 50% of what they were in peak year 1987. If the basket year were a stronger year for home purchases, the share of owned accommodation under either the NP1 or NP3 concept would certainly be larger than under MO2 (second variant of the money outlays concept) or any other concept.

[10] *See Woodhouse, Thomas J. and Kathleen M. Hanson, "The Treatment of Finance-Related Commodities in a Consumer's Price Index",* ***ILO Bulletin of Labour Statistics****, 1987–3, pp. xxi–xxv.*

TABLE 1

Distribution of 1992 expenditures on owned accommodation for Canada, by homeownership concept at December 1994 prices

Commodity group	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept	
			Excluding equity payments	Including equity payments	Based on purchases	Based on down-payment and discounted mortgage payments
Maintenance and repairs	8.4	1.2	10.9	7.6	9.1	8.7
Condominium charges	1.4		1.7	1.2	1.5	1.4
Property taxes (incl. special charges)	20.9		27.0	18.9	22.6	21.5
Insurance premiums	4.7	1.0	6.1	4.3	5.1	4.9
Mortgage insurance	0.8		1.0	0.7		0.8
Mortgage interest cost	35.8		46.2	32.3		
Replacement cost	22.5					
Real estate commissions	2.6		3.4	2.4	2.8	2.7
Legal fees	1.2		1.6	1.1	1.3	1.2
Other shelter services	1.6		2.1	1.5	1.8	1.7
Equivalent rent		97.8				
Downpayments				37.1		23.5
Principal portion of mortgage payments				37.0		
Sale of home				–44.0		
Home purchase					55.9	
Discounted mortgage payments						33.6
Owned accommodation	100.0	100.0	100.0	100.0	100.0	100.0

Basket shares shown in this table may not add up exactly to 100 due to rounding.

TABLE 2

Distribution of 1996 expenditures on owned accommodation for Canada, by homeownership concept at December 1997 prices

Commodity group	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept	
			Excluding equity payments	Including equity payments	Based on purchases	Based on down-payment and discounted mortgage payments
Maintenance and repairs	10.6	1.6	12.8	8.4	9.9	9.3
Condominium charges	1.7		2.1	1.3	1.6	1.5
Property taxes (incl. special charges)	22.7		27.5	17.9	21.3	20.0
Insurance premiums	5.4	1.1	6.6	4.3	5.1	4.8
Mortgage insurance	1.3		1.6	1.1		1.2
Mortgage interest cost	31.3		37.8	24.7		
Replacement cost	17.3					
Real estate commissions	1.8		2.1	1.4	1.7	1.6
Legal fees	1.0		1.2	0.8	1.0	0.9
Other shelter services	6.9		8.3	5.4	6.5	6.1
Equivalent rent		97.2				
Downpayments				43.1		29.6
Principal portion of mortgage payments				31.7		
Sale of home				–40.1		
Home purchase					53.0	
Discounted mortgage payments						25.0
Owned accommodation	100.0	100.0	100.0	100.0	100.0	100.0

Basket shares shown in this table may not add up exactly to 100 due to rounding.

TABLE 3

Owned accommodation's relative share of 1992 expenditures at December 1994 prices, by homeownership concept

Commodity group	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept	
			Excluding equity payments	Including equity payments	Excluding interest	Based on down-payment and discounted mortgage payments
All-items	16.4	12.7	13.0	18.7	15.6	16.4
Shelter	60.2	46.6	47.9	69.3	57.3	60.3

TABLE 4

Owned accommodation's relative share of 1996 expenditures at December 1997 prices, by homeownership concept

Commodity group	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept	
			Excluding equity payments	Including equity payments	Excluding interest	Based on down-payment and discounted mortgage payments
All-items	15.6	12.0	13.5	19.5	17.3	18.8
Shelter	57.3	44.3	49.8	71.9	63.7	69.0

4. Update on the movement of the analytical series: 1995–2000

In the last six years, house prices at the national level declined in 1995 and 1996 but have been moving up since then. For the most part, the dwelling price estimates and total house prices have showed similar movements, but in 1998 dwelling prices moved up more strongly than total house prices (1.6% versus 1.0%), and in the year 2000 the difference was even greater (3.4% versus 2.2%)[11]. Conventional mortgage rates for a one-year term peaked at 10.75% in February 1995. The one-year rate dropped sharply in 1996 and 1997, but rose thereafter, particularly in 1998 and 2000. The mortgage rates for a five-year term behaved in a similar fashion except that the five-year rate was slightly lower in 1998 than in 1997. The mortgage interest cost index in the official CPI increased by 3.6% in 1995, fell in the next three years, but rose again strongly in the year 2000.

This pattern of house price and interest rate movements over the last six years is important in understanding the differences between the analytical owned accommodation series based on the different concepts. The two net purchase series show the greatest differences in movement from the official owned accommodation index. In 1997, the NP1 series (net purchase excluding mortgage interest) shows a strong increase of 1.4% from 1996, although the official concept series shows a decrease of 1.0%. This is due mainly to the strong decrease in the mortgage interest component of the official index (–6.1%) in that year, a component that is excluded from the NP1 series. For the first part of 2000, the series again diverge substantially, with the official series showing an increase of 2.3% for January to August over 1999, versus a 1.0% change for the NP1 series. Here the larger increases in estimated dwelling prices (3.4%) compared to total dwelling and lot prices (2.2%) account for a large part of the difference.

The net purchase concept based on downpayments and discounted mortgage payments (NP3) is highly sensitive to current mortgage rate movements. This accounts for its 3.1% decline in 1996, when both one-year and five-year mortgage rates fell sharply. This is the most different annual movement exhibited by any analytical series from the official series for the period from 1995 forward.

The other series show smaller deviations in movement from the official series. The rental equivalence index—moving essentially the same as its equivalent rent component in the official CPI—grows in every year, showing upward movements of 1.0% and 0.8% when the official index is declining, but rising less strongly than the official index in the first part of the year 2000.

The limited money outlays index (MO1) is simply the official index less the replacement cost index, so it shows a slightly stronger movement when dwelling prices rise faster than other owned accommodation costs in the official index, or it shows the same or a weaker movement otherwise. It is most different from the official index in 1998, when it falls by 0.4% relative to an upward movement of 0.1% for the official series. This is largely because, with no depreciation component in the index, the strong decline in the mortgage interest component has an even more dominant impact on the movement of the overall owned accommodation index.

[11] *Annual movements for the house price and interest rate series are reported based on a year that starts in December and ends in November to match the one-month lag in the incorporation of these data in the CPI.*

The broadly-defined money outlays index (MO2) shows a quite different movement from all of the other indexes in 1996 and 2000, when it increases by 0.5% and 5.8% respectively. It should be remembered that its sale of home component has a negative basket share in the index, so that the important decline in house prices in 1996 and 2000 tends to make the index increase rather than decrease.

5. International comparisons

To provide a better basis for international comparisons, the Fourteenth International Conference of Labour Statistics adopted a resolution that asked countries to disseminate at the international level an index that excludes shelter, in addition to the All-items index. This resolution was stemming from the fact that the treatment of owned accommodation is the most controversial issue regarding the construction of the Consumer Price Index. Different concepts for the treatment of owned accommodation in the CPI have come under attack because they do not answer all the questions that we might want them to. Therefore, statistical agencies made different choices by compiling a price index that consists of many choices among imperfect alternatives. Consequently, one might ask, how can we compare measured rates of inflation of different countries that have made different choices?

One of the objectives of calculating these analytical series was to permit such a comparison between Canada and other countries. Ideally, such a comparison would be based on the methodology best suited to the measurement of the current rate of inflation, which, as argued above, is the net purchase concept excluding interest (NP1). Unfortunately, it is beyond the scope of the present paper to produce comparable series on this basis. No country uses this concept for their official CPI. The New Zealand CPI for All-items less mortgage interest would reflect this concept, and the CPIs for several other countries (e.g. the United Kingdom, South Africa and Sweden) for All-items less mortgage interest, would nearly do so. (The difference is that their indexes would incorporate a depreciation component for owner-occupied houses rather than a net purchase component.) Since it is not possible, or at any rate would be quite difficult, to construct CPIs for all countries based on the NP1 concept, the best alternative is to take the foreign country's CPI as a given and try to construct an analytical CPI that matches it.

For example, the Canadian All-items CPI based on the rental equivalence approach will be compared to the All-items CPIs of the U.S., Japan and Germany. (The U.S. CPI-U, the CPI for all urban consumers, which is the official measure of consumer price inflation for the U.S., has only been based on the rental equivalence approach since 1983, so Chart 4a only shows the U.S. CPI from this month forward.) The UK Retail Price Index (RPI) used the limited money outlays concept from 1982 to 1994, which excluded the replacement cost, and from 1995 forward adopted the user cost approach incorporating replacement cost, the same as the official concept used by Statistics Canada. Therefore, Chart 4b, showing the movement of both the UK and the Canadian All-items CPIs, shows an analytical series for Canada based on two different concepts. Until January 1995, it is based on the limited money outlays concept, and from January 1995 forward on the official concept.

In analysing price movements in Canada relative to other countries, indexes for other countries have been rebased, where necessary, and referenced to a base period of 1992=100. The estimation period of these analytical series runs from January 1982 to August 2000. The three largest G8 economies, the U.S., Japan and Germany, all use the rental equivalence concept for owned accommodation, and they are contrasted with Canada in Chart 4a.

The U.S. CPI-U adopted the rental equivalence concept in 1983. Therefore, the rate of increase of the American CPI should be compared to the analytical series based on the rental equivalence. From January 1984 to July 1987, the rate of inflation in Canada was higher than in the U.S. except for the late months of 1984, specifically, from August to December. From August 1987 forward, the U.S. All-items CPI posted higher inflation rates, except from July 1989 to November 1989 and the entire year of 1991. (In 1991, the CPI inflation rate was influenced by the introduction of the GST.) Based on the official CPI, the picture is somewhat different, with Canada having a higher inflation rate from January 1988 to May 1988, and the first part of 1990. From January 1992 forward the U.S. inflation rate is consistently higher.

Unlike the Canada–British and Canada–U.S. comparisons, where Canada did not perform uniformly better or worse than the other country, Japan shows a lower rate of inflation over almost the entire period of comparison. The only periods where Japan experienced higher rates of inflation than Canada were from January 1992 to September 1992, in most of 1994, and from September 1997 to March 1998.

If the comparisons had been based on the official Canadian CPI rather than the CPI adjusted to a rental equivalence concept the same conclusions would apply, except that Canada would have a lower rate of inflation from April 1997 right through March 1998. However, the gap is sometimes substantially different between the two comparisons. For example in December 1984, the gap based on the official CPI is 0.1 percentage points, that is almost negligible, while it is 1.0 percentage points based on the CPI adjusted to a rental equivalence concept.

The lower rates of inflation in Germany should be compared to the analytical series based on the rental equivalence concept. Similar to the comparison of the inflation rates with Japan, the rates of inflation in Canada were higher for most of the observation period except for the periods from January 1992 to January 1995 and from August 1997 to August 1998. Germany's inferior performance in the first of these periods was connected with German reunification, which had an inflationary impact on the German economy, with inflation peaking for the entire estimation period in March–April 1992 at 4.9%. For the second of these periods, both countries had low inflation rates but Canada's was lower. Based on comparisons with the official Canadian CPI rather than the CPI adjusted to a rental equivalence concept, the accelerating German inflation rate first exceeds the Canadian rate in May 1997 rather than August.

The UK's price movements are compared with Canada's in Chart 4b. Until 1995, the rate of increase of the British RPI should be compared to the analytical series based on limited money outlays. For the first seven months of 1983, when a tight monetary policy was operative in Britain and Canada was recovering from the 1981–82 recession, Canada had the higher inflation rate. But for most of the period thereafter, through 1994, Britain's inflation rate is higher, specifically, from September 1983 to March 1986, in most of 1987, from May 1988 to March 1991, and in 1992 and 1994. From 1995 forward, when the official Canadian CPI and the British

RPI are directly comparable, the UK also registers higher rates of inflation, except for about a year starting in April 1999. From 1992 forward, the higher rates of inflation posted by the UK may be partly because from then on both the Bank of Canada and the Bank of England had monetary policies based on inflation targeting, but the Bank of Canada had the more stringent target range. (Also in 1994, the federal government and most provincial governments slashed tobacco taxes, something which had an important impact on comparisons not only with Britain, but all other countries over 1994–95.)

A comparison of the two inflation rates based on the official CPI rather than on the analytical CPI for the period before 1995 gives broadly the same picture as the more correct comparison based on the analytical MO1 series, but with some significant differences. The largest difference between inflation rates in favour of the UK is in the opening month, January 1987, when the RPI's increase is lower than the CPI's by 3.5%; in the comparison based on the official CPI, this shrinks to 3.0%. Canada's run of lower inflation rates ends in February 1986, not March 1986, based on the official CPI comparisons. The lower rates of inflation in 1987 disappear. For the first half of 1991, when both Canada and the UK were in a recession, the comparisons based on the official CPI invariably show about a 0.5% difference in favour of the British RPI (i.e. the British inflation premium is reduced by about 0.5%, or its discount increased, because of a higher recorded inflation rate for Canada).

The amplitude of the differences may seem somewhat surprising considering that the official and analytical measures differ by only a single component, the replacement cost of depreciation. But they are reasonable if one considers that this is a basic grouping with a relatively large basket share and unusually volatile price movements.

The movement of the All-items CPI in these countries could be explained by the movement of other components in the CPI such as food, rent and energy prices. However, this study does not attempt to provide a detailed contribution analysis of the rate of inflation in different countries. It only wishes to show that any international comparisons of inflation performance must pay attention to the problem of the treatment of owned accommodation, to avoid comparing apples with oranges.

6. Conclusion

This research has shown that the Consumer Price Index is indeed sensitive to the choice of the concept of homeownership that is used in the CPI. Although there is no single correct concept, there is an appropriate one depending on the concept of the CPI one is attempting to measure. Of all the analytical series that Statistics Canada has calculated relating to the CPI, the analytical owned accommodation series are potentially the most interesting and useful to policymakers, analysts and the general public. Ideally, these series would be updated every month, along with the official CPI.

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APPENDIX I

Linking of the 1992=100 series

The unlinked 1992=100 series with a 1992 basket calculated from January 1992 to December 1994 were linked to these rebased series for the period 1995 to 1997:

$$P^{ch}_{t/92} = P^{ch}_{Dec94/92} \times P^{(92)}_{t/Dec94}; t = Jan95, ..., Dec97 \qquad (1)$$

where $P^{(92)}_{t/Dec94}$ denotes a series with a 1992 basket for which December 1994=1.0 * Formula (1) was calculated as:

$$P^{ch}_{t/92} = P^{ch}_{Dec94/92} \times \left(P^{(92)}_{t/92} / P^{(92)}_{dec94/92} \right) \qquad (2)$$

where $P^{(92)}_{t/92}$ is the unlinked index for month t with 1992=100. Therefore, the index would be calculated from the unlinked indexes for the month t and link period December 1994. This is similar to the way linking actually takes place in the official CPI, and the differences need not concern us here.

It could also have been calculated directly from component series rebased to December 1994=1.0 aggregated with weights representing a 1992 basket at December 1994 prices:

$$P^{ch}_{t/92} = P^{ch}_{Dec94/92} \times \sum_i W^{(92)i}_{Dec94} P^i_{t/Dec94} \qquad (3)$$

where $W^{(92)i}_{Dec94} = W^{(92)i}_{92} P^i_{Dec94/92} / \sum_j W^{(92)j}_{92} P^j_{Dec94/92}$

The weights for 1986 at December 1994 prices are:

$$W^{(86)i}_{Dec94} = W^{(86)i}_{86} P^i_{Dec94/86} / \sum_j W^{(86)j}_{86} P^j_{Dec94/86}$$

Linking of the 1996=100 series

The unlinked 1996=100 series with a 1996 basket calculated from January 1996 forward were then linked to the chain series for the period from 1998 forward:

$$P^{ch}_{t/92} = P^{ch}_{Dec97/92} \times P^{(96)}_{t/Dec97}; t = Jan98, ...$$

The method of calculation is analogous to that shown in Formula (2) for the linking of the 1992 series:

$$P_{t/92}^{ch} = P_{Dec97/92}^{ch} \times \left(P_{t/96}^{(96)} / P_{dec97/96}^{(96)} \right)$$

As before, a set of hybrid weights were calculated for the 1992 and 1996 baskets at December 1997 prices.

Calculation of special aggregates for the analytical series for owned accommodation (1992 basket)

Besides the owned accommodation indexes themselves, the analytical series require higher level aggregates for shelter, housing and the All-items. There is no longer an aggregate for principal accommodation or housing, so these are two aggregates less to be calculated. (They had been calculated in earlier rounds for the analytical owned accommodation indexes.) In order to calculate these special aggregates, it is first necessary to derive unlinked aggregate series based on the official concept that represent each shelter, housing and All-items excluding owned accommodation. These series are building blocks for the special aggregates of all of the different concepts—rental equivalence, money outlays and net purchase. (Hereafter, the discussion will refer exclusively to the calculation of the special aggregate for the All-items, since the calculation for the other aggregates follows exactly the same set of steps.) Calculate the All-items CPI excluding owned accommodation.

$$P_{t/92}^{(92)AI-OA} = (P_{t/92}^{(92)AI} - W_{92}^{92OA} \cdot P_{t/92}^{(92)OA}) / (1 - W_{92}^{92OA}) \qquad (4)$$

where

AI refers to All-items,

OA refers to owned accommodation,

t refers to the observed period,

$P_{t/92}^{(92)AI-OA}$ is the unlinked price index for All-items excluding owned accommodation based on a 1992 basket (1992 is the base period),

$P_{t/92}^{(92)AI}$ is the unlinked All-items index based on a 1992 basket (1992 is the base period),

W_{92}^{92OA} is the basket share of owned accommodation in the 1992 basket at 1992 prices,

$P_{t/92}^{(92)OA}$ is the unlinked owned accommodation price index based on the official concept based on a 1992 basket.

To calculate the All-items index based on the rental equivalence, the money outlays and the net purchase concepts, we add the unlinked series based on each of these concepts to the unlinked price index for All-items excluding owned accommodation calculated in Formula (4):

$$P_{t/92}^{(92)AI(RE)} = (W_{92}^{92AI-OA} \cdot P_{t/92}^{(92)AI-OA} + W_{92}^{92AO(RE)} \cdot P_{t/92}^{(92)OA(RE)}) / (W_{92}^{92AI-OA} + W_{92}^{92OA(RE)}) \quad (5)$$

where $W_{92}^{92AI-OA} = W_{92}^{92AI} - W_{92}^{92OA}$

Also, the hybrid value-weight for shelter or housing based on the 1992 basket at December 1994 prices was calculated. (The same steps were followed when producing special aggregates for 1996, with the obvious substitutions of 92 for 96.)

APPENDIX II

Consumer price index series for owned accommodation (1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 82	61.7	67.3	59.8	58.2	63.3	72.5	72.0
Feb 82	62.2	67.8	60.3	58.5	63.8	73.3	72.8
Mar 82	62.4	68.1	60.6	59.0	63.8	74.1	73.6
Apr 82	62.6	68.5	61.0	59.4	63.6	74.3	73.7
May 82	63.0	68.9	61.6	59.9	63.5	74.0	73.6
Jun 82	63.2	69.4	62.0	60.4	63.1	73.3	73.0
Jul 82	63.9	69.8	62.7	61.0	63.1	73.3	73.1
Aug 82	64.2	70.9	63.1	61.5	62.7	72.8	72.7
Sep 82	64.5	71.4	63.5	61.9	62.6	71.9	72.0
Oct 82	66.1	72.0	65.5	63.5	64.3	71.9	72.9
Nov 82	66.2	72.4	65.7	63.7	64.1	69.8	71.0
Dec 82	66.3	72.6	65.9	64.0	64.1	68.4	70.0
Year	***63.9***	***69.9***	***62.6***	***60.9***	***63.5***	***72.5***	***72.5***
Jan 83	66.3	72.7	65.9	64.1	64.1	67.8	69.4
Feb 83	66.3	73.0	65.9	64.2	64.1	67.2	68.9
Mar 83	66.5	73.1	66.1	64.4	64.3	66.9	68.8
Apr 83	66.4	73.4	66.1	64.6	64.4	66.7	68.6
May 83	66.5	73.5	66.2	64.6	64.5	66.6	68.6
Jun 83	66.6	73.7	66.3	64.8	64.7	66.7	68.7
Jul 83	66.6	73.8	66.3	64.9	64.8	66.7	68.8
Aug 83	66.9	74.7	66.7	65.2	65.2	67.1	69.4
Sep 83	67.0	75.1	66.6	65.2	65.3	67.7	69.8
Oct 83	67.8	75.4	67.5	65.9	66.3	68.7	71.1
Nov 83	67.8	75.7	67.6	66.0	66.3	68.1	70.6
Dec 83	67.9	75.9	67.7	66.2	66.6	67.9	70.5
Year	***66.9***	***74.2***	***66.6***	***65.0***	***65.0***	***67.3***	***69.4***
Jan 84	68.0	76.1	67.7	66.3	66.6	67.6	70.3
Feb 84	68.1	76.4	67.8	66.4	66.6	67.6	70.3
Mar 84	68.4	76.5	68.1	66.7	66.8	67.8	70.5
Apr 84	68.6	76.7	68.3	66.9	66.9	68.4	71.0
May 84	68.8	76.8	68.5	67.2	66.9	69.5	71.9
Jun 84	69.0	77.1	68.8	67.4	66.9	70.3	72.5
Jul 84	69.3	77.2	69.1	67.7	66.9	70.6	72.8
Aug 84	69.5	77.7	69.4	68.0	66.9	71.0	73.1
Sep 84	69.8	78.0	69.8	68.4	66.9	70.5	72.8
Oct 84	70.8	78.2	71.0	69.4	68.0	70.9	73.6
Nov 84	71.1	78.5	71.4	69.7	68.1	70.7	73.5
Dec 84	71.1	78.7	71.5	69.8	68.0	69.9	72.9
Year	***69.4***	***77.3***	***69.3***	***67.8***	***67.1***	***69.6***	***72.1***

APPENDIX II

Consumer price index series for owned accommodation (1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 85	71.3	78.8	71.7	70.0	68.1	69.4	72.5
Feb 85	71.5	79.0	71.7	70.2	68.3	69.2	72.3
Mar 85	71.6	79.2	71.9	70.3	68.3	69.3	72.5
Apr 85	71.8	79.4	72.0	70.5	68.5	70.4	73.4
May 85	71.8	79.6	72.1	70.6	68.5	69.7	72.8
Jun 85	71.9	79.8	72.2	70.8	68.7	69.3	72.5
Jul 85	72.0	80.0	72.2	70.8	68.8	69.0	72.4
Aug 85	72.0	80.6	72.2	70.8	69.0	69.1	72.5
Sep 85	72.2	80.8	72.4	70.9	69.3	69.4	72.8
Oct 85	72.9	81.0	73.1	71.6	70.4	70.4	74.1
Nov 85	73.0	81.3	73.1	71.6	70.6	70.7	74.3
Dec 85	73.2	81.6	73.3	71.7	70.9	70.8	74.4
Year	***72.1***	***80.1***	***72.3***	***70.8***	***69.1***	***69.7***	***73.1***
Jan 86	73.2	81.8	73.2	71.7	71.0	70.8	74.4
Feb 86	73.4	81.9	73.3	71.8	71.5	71.5	75.0
Mar 86	73.8	82.1	73.6	72.0	71.7	72.5	75.9
Apr 86	74.0	82.2	73.6	72.1	72.1	72.6	76.1
May 86	74.3	82.3	73.9	72.2	72.7	72.5	76.1
Jun 86	74.4	82.5	73.8	72.2	72.9	72.1	75.7
Jul 86	74.5	82.8	73.9	72.3	73.1	72.5	76.0
Aug 86	74.6	83.3	73.9	72.4	73.3	72.8	76.3
Sep 86	74.9	83.6	74.0	72.5	73.7	73.2	76.7
Oct 86	76.4	83.7	75.5	73.5	75.8	75.2	79.0
Nov 86	76.6	83.9	75.6	73.6	76.1	75.7	79.4
Dec 86	77.1	84.0	75.8	73.7	76.7	76.4	80.0
Year	***74.8***	***82.8***	***74.2***	***72.5***	***73.4***	***73.2***	***76.7***
Jan 87	77.3	84.2	76.0	73.8	77.0	76.6	80.2
Feb 87	77.7	84.5	76.2	74.1	77.3	76.7	80.3
Mar 87	78.0	84.6	76.2	74.1	77.9	76.9	80.5
Apr 87	78.8	84.8	76.6	74.2	79.1	78.0	81.4
May 87	78.9	84.8	76.5	74.1	79.4	78.5	81.8
Jun 87	79.2	85.1	76.7	74.3	79.8	79.6	82.7
Jul 87	79.4	85.3	76.9	74.5	80.1	80.2	83.3
Aug 87	79.7	85.7	77.1	74.8	80.4	80.6	83.6
Sep 87	80.0	85.9	77.3	75.0	80.7	81.3	84.3
Oct 87	81.3	86.2	78.9	76.3	82.7	83.4	86.7
Nov 87	81.5	86.3	79.1	76.6	83.0	84.1	87.2
Dec 87	81.7	86.5	79.2	76.8	83.1	83.6	86.8
Year	***79.5***	***85.3***	***77.2***	***74.9***	***80.0***	***79.9***	***83.2***

APPENDIX II

Consumer price index series for owned accommodation (1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 88	81.9	86.6	79.5	77.1	83.2	83.7	87.0
Feb 88	81.9	86.8	79.3	77.1	83.4	84.2	87.3
Mar 88	82.4	86.9	79.8	77.5	83.8	84.3	87.4
Apr 88	82.7	87.1	80.0	77.7	84.3	84.3	87.5
May 88	83.0	87.3	80.0	77.7	84.8	84.9	87.9
Jun 88	83.3	87.5	80.1	77.8	85.2	85.8	88.6
Jul 88	83.7	87.6	80.5	78.1	85.7	86.8	89.5
Aug 88	84.0	88.3	80.7	78.5	86.0	87.2	89.8
Sep 88	84.4	88.7	81.1	78.8	86.6	88.4	90.9
Oct 88	86.0	89.3	82.7	80.0	88.7	90.9	93.6
Nov 88	86.2	89.5	82.9	80.3	89.0	90.8	93.5
Dec 88	86.6	89.9	83.2	80.5	89.6	91.4	94.1
Year	***83.8***	***88.0***	***80.8***	***78.4***	***85.8***	***86.9***	***89.8***
Jan 89	87.0	90.2	83.7	80.9	90.3	90.3	95.6
Feb 89	87.4	90.6	84.2	81.3	90.8	90.8	96.5
Mar 89	88.2	91.1	84.8	81.6	92.0	92.1	98.1
Apr 89	89.2	91.5	85.8	82.4	93.3	93.3	100.1
May 89	89.4	91.6	86.0	82.6	93.4	93.5	101.1
Jun 89	89.9	92.1	86.5	83.1	93.7	93.7	100.6
Jul 89	90.5	92.6	87.1	83.7	94.1	94.1	100.4
Aug 89	90.9	93.1	87.5	84.2	94.3	94.3	100.4
Sep 89	91.0	93.3	87.6	84.5	94.1	94.1	100.0
Oct 89	92.7	93.6	89.7	86.2	96.0	96.0	102.0
Nov 89	92.9	93.8	89.8	86.5	95.9	96.0	102.0
Dec 89	93.4	93.9	90.3	86.9	96.4	96.5	102.5
Year	***90.2***	***92.3***	***86.9***	***83.7***	***93.7***	***93.7***	***99.9***
Jan 90	94.1	94.1	91.1	87.7	96.5	96.6	103.2
Feb 90	94.6	94.3	91.5	88.1	97.0	97.0	103.6
Mar 90	95.0	94.5	91.9	88.6	97.2	97.2	104.4
Apr 90	95.5	94.8	92.5	89.2	97.5	97.5	105.6
May 90	95.8	95.0	93.0	89.9	97.5	97.5	106.9
Jun 90	96.0	95.2	93.4	90.4	97.1	97.2	107.8
Jul 90	96.0	95.4	93.8	91.2	96.5	96.6	107.0
Aug 90	96.2	95.8	94.4	91.9	96.3	96.3	106.6
Sep 90	96.5	96.1	95.0	92.7	96.0	96.0	105.6
Oct 90	98.1	96.4	97.4	95.0	97.4	97.4	106.3
Nov 90	98.1	96.7	97.7	95.4	97.0	97.0	105.3
Dec 90	98.0	96.9	97.8	95.8	96.3	96.3	104.4
Year	***96.2***	***95.4***	***94.1***	***91.3***	***96.9***	***96.9***	***105.6***

APPENDIX II

Consumer price index series for owned accommodation (1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 91	98.8	97.1	98.9	96.9	97.0	97.0	104.0
Feb 91	98.9	97.3	99.2	97.3	96.9	96.9	103.2
Mar 91	98.5	97.5	99.0	97.5	95.9	95.9	100.8
Apr 91	98.9	97.5	99.2	97.7	96.4	96.4	100.9
May 91	98.9	97.7	99.1	97.6	96.6	96.6	100.7
Jun 91	99.4	97.8	99.3	97.8	97.3	97.3	100.8
Jul 91	99.5	98.0	99.4	98.0	97.5	97.5	100.9
Aug 91	99.7	98.3	99.6	98.2	98.0	98.0	101.5
Sep 91	99.6	98.5	99.4	98.3	97.9	97.9	101.5
Oct 91	100.7	98.7	100.7	99.4	99.3	99.3	102.6
Nov 91	100.6	98.9	100.6	99.5	99.3	99.3	101.9
Dec 91	100.4	99.0	100.5	99.6	99.2	99.2	100.7
Year	***99.5***	***98.0***	***99.6***	***98.2***	***97.6***	***97.6***	***101.6***
Jan 92	100.2	99.1	100.3	99.6	99.3	99.3	100.1
Feb 92	100.1	99.3	100.2	99.6	99.3	99.3	99.8
Mar 92	99.8	99.4	99.9	99.5	99.1	99.1	99.4
Apr 92	99.7	99.5	99.6	99.5	99.0	99.0	100.3
May 92	99.8	99.6	99.8	99.7	99.3	99.3	100.9
Jun 92	99.6	99.8	99.5	99.6	99.1	99.1	100.1
Jul 92	99.8	100.0	99.6	99.7	99.6	99.6	99.7
Aug 92	99.7	100.3	99.6	99.8	99.9	99.9	98.9
Sep 92	99.3	100.5	99.1	99.6	99.7	99.7	97.7
Oct 92	100.6	100.7	100.8	101.0	101.7	101.7	99.3
Nov 92	100.6	100.8	100.7	101.1	101.9	101.9	101.5
Dec 92	100.8	101.0	100.9	101.3	102.1	102.1	102.3
Year	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***
Jan 93	100.8	101.0	100.8	101.4	102.1	102.1	102.3
Feb 93	100.4	101.2	100.5	101.3	101.8	101.8	101.4
Mar 93	100.5	101.2	100.6	101.4	102.1	102.1	101.7
Apr 93	100.4	101.3	100.3	101.2	102.2	102.2	101.0
May 93	100.1	101.4	99.7	100.9	102.1	102.1	100.8
Jun 93	100.1	101.5	99.8	101.1	102.2	102.3	101.0
Jul 93	99.9	101.6	99.5	101.0	102.3	102.3	101.0
Aug 93	99.9	101.8	99.6	101.2	102.6	102.6	100.6
Sep 93	99.9	102.0	99.5	101.2	102.7	102.7	100.6
Oct 93	100.7	102.1	100.5	102.0	103.8	103.8	101.8
Nov 93	100.3	102.4	100.1	101.9	103.5	103.5	101.5
Dec 93	100.3	102.5	100.0	102.0	103.8	103.8	100.8
Year	***100.3***	***101.7***	***100.1***	***101.4***	***102.6***	***102.6***	***101.2***

APPENDIX II

Consumer price index series for owned accommodation (1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 94	99.8	102.5	99.4	101.6	103.6	103.6	100.3
Feb 94	99.5	102.6	99.1	101.5	103.6	103.6	99.7
Mar 94	99.3	102.7	98.9	101.5	103.6	103.6	99.5
Apr 94	98.6	102.7	98.0	100.9	103.0	103.0	100.0
May 94	98.8	102.8	98.3	101.2	103.3	103.3	103.0
Jun 94	99.0	102.9	98.5	101.5	103.5	103.5	103.4
Jul 94	99.0	103.0	98.4	101.5	103.4	103.4	103.9
Aug 94	99.2	103.2	98.7	101.9	103.4	103.4	105.5
Sep 94	99.5	103.3	99.0	102.2	103.5	103.5	104.8
Oct 94	99.8	103.3	99.4	102.6	103.8	103.8	104.6
Nov 94	99.7	103.7	99.3	102.6	103.6	103.6	104.0
Dec 94	99.9	103.8	99.6	103.0	103.6	103.7	104.1
Year	***99.4***	***103.1***	***98.9***	***101.8***	***103.5***	***103.5***	***102.7***
Jan 95	100.3	103.9	100.1	103.5	103.6		104.8
Feb 95	100.4	104.0	100.1	103.6	103.4		106.2
Mar 95	100.7	104.0	100.6	104.0	103.6		106.1
Apr 95	100.7	104.0	100.7	104.2	103.4		104.9
May 95	101.2	104.3	101.4	104.8	103.9		104.9
Jun 95	101.1	104.3	101.4	104.9	103.6		103.4
Jul 95	101.0	104.5	101.5	105.0	103.7		102.7
Aug 95	101.0	104.6	101.4	105.0	103.7		102.2
Sep 95	100.9	104.7	101.2	104.9	103.5		102.8
Oct 95	101.0	104.7	101.4	105.2	103.5		102.9
Nov 95	101.0	104.8	101.3	105.3	103.2		102.3
Dec 95	100.8	104.8	101.3	105.3	103.3		101.9
Year	***100.8***	***104.4***	***101.0***	***104.6***	***103.5***		***103.8***
Jan 96	100.7	104.9	101.1	105.2	103.2		101.4
Feb 96	100.6	105.0	101.0	105.2	103.1		100.6
Mar 96	100.4	105.0	100.9	105.2	103.1		100.0
Apr 96	100.4	105.2	100.9	105.3	103.1		100.8
May 96	100.4	105.3	101.0	105.4	103.2		101.4
Jun 96	100.1	105.4	100.7	105.3	103.1		101.0
Jul 96	100.1	105.5	100.7	105.3	103.2		101.1
Aug 96	99.8	105.6	100.3	105.0	103.0		100.9
Sep 96	99.8	105.8	100.3	105.1	103.2		100.3
Oct 96	99.9	105.7	100.4	105.2	103.5		100.4
Nov 96	99.6	105.8	100.0	105.0	103.5		99.4
Dec 96	99.6	105.8	99.8	104.9	103.6		98.7
Year	***100.1***	***105.4***	***100.6***	***105.2***	***103.2***		***100.5***

APPENDIX II

Consumer price index series for owned accommodation (1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 97	99.5	105.8	99.7	104.9	103.9		98.9
Feb 97	99.3	105.8	99.4	104.7	103.9		99.1
Mar 97	99.4	105.8	99.5	104.8	104.1		99.3
Apr 97	99.6	106.1	99.6	104.9	104.7		99.9
May 97	99.3	106.1	99.2	104.6	104.6		100.7
Jun 97	99.3	106.2	99.2	104.6	104.9		100.8
Jul 97	99.1	106.3	99.0	104.5	105.0		100.6
Aug 97	98.9	106.3	98.6	104.3	104.9		100.2
Sep 97	98.7	106.5	98.4	104.2	104.9		100.4
Oct 97	98.8	106.5	98.4	104.3	105.2		100.7
Nov 97	98.5	106.5	97.9	104.0	105.1		100.3
Dec 97	98.6	106.6	97.9	104.0	105.4		100.5
Year	***99.1***	***106.2***	***98.9***	***104.5***	***104.7***		***100.1***
Jan 98	98.7	106.7	97.9	104.9	105.4		101.3
Feb 98	98.8	106.7	98.0	105.3	105.4		101.6
Mar 98	98.9	106.8	98.1	105.3	105.5		101.5
Apr 98	99.3	107.0	98.6	105.7	105.7		101.7
May 98	99.1	107.1	98.3	105.3	105.4		101.3
Jun 98	99.0	107.2	98.2	105.6	105.2		101.4
Jul 98	99.2	107.3	98.4	105.7	105.4		101.5
Aug 98	99.0	107.4	98.2	105.6	105.2		101.4
Sep 98	99.4	107.6	98.7	106.4	105.5		102.0
Oct 98	99.9	107.6	99.2	107.7	105.8		102.9
Nov 98	99.8	107.6	99.1	105.9	105.8		101.5
Dec 98	99.8	107.7	99.1	106.2	105.8		101.8
Year	***99.2***	***107.2***	***98.5***	***105.8***	***105.5***		***101.7***
Jan 99	99.9	107.8	99.1	105.7	105.8		101.4
Feb 99	99.8	107.8	99.0	105.7	105.7		101.3
Mar 99	99.9	107.9	99.0	106.0	105.7		101.5
Apr 99	100.3	108.1	99.6	107.0	106.2		102.3
May 99	100.1	108.0	99.2	105.9	105.8		101.4
Jun 99	100.1	108.1	99.3	106.5	106.0		101.9
Jul 99	100.2	108.2	99.4	107.7	106.1		102.8
Aug 99	100.3	108.2	99.4	107.9	106.1		103.0
Sep 99	100.8	108.4	100.1	109.7	106.6		104.4
Oct 99	100.6	108.4	99.8	109.2	106.3		103.8
Nov 99	100.8	108.6	100.0	109.8	106.4		104.2
Dec 99	100.9	108.6	100.0	110.7	106.3		104.8
Year	***100.3***	***108.2***	***99.5***	***107.7***	***106.1***		***102.7***

APPENDIX II

Consumer price index series for owned accommodation (1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 00	101.2	108.7	100.2	110.9	106.4		104.9
Feb 00	101.5	108.7	100.6	111.8	106.7		105.5
Mar 00	101.9	108.9	101.0	112.4	106.8		105.9
Apr 00	102.3	109.1	101.5	112.5	107.1		105.8
May 00	102.5	109.1	101.7	112.8	107.2		106.0
Jun 00	102.8	109.2	102.0	114.0	107.2		106.7
Jul 00	103.1	109.4	102.3	114.0	107.4		106.6
Aug 00	103.4	109.5	102.5	113.7	107.5		106.4

APPENDIX II

Linked series for shelter (Analytical owned accommodation indexes, 1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 82	59.9	63.6	59.7	58.9	60.3	64.9	64.1
Feb 82	60.4	64.1	60.2	59.2	60.8	65.6	64.8
Mar 82	61.0	64.8	60.9	60.0	61.3	66.5	65.7
Apr 82	61.3	65.3	61.4	60.4	61.5	66.8	66.0
May 82	61.7	65.6	61.8	60.8	61.6	66.9	66.1
Jun 82	61.9	66.0	62.1	61.2	61.6	66.7	66.1
Jul 82	62.6	66.6	62.9	62.0	62.1	67.1	66.6
Aug 82	63.3	67.7	63.6	62.6	62.4	67.3	67.0
Sep 82	63.8	68.3	64.3	63.3	62.9	67.3	67.2
Oct 82	64.8	68.8	65.4	64.3	63.8	67.5	67.8
Nov 82	64.9	69.1	65.6	64.6	63.9	66.6	67.2
Dec 82	65.1	69.3	65.8	64.7	64.0	66.1	66.9
Year	***62.6***	***66.6***	***62.8***	***61.8***	***62.2***	***66.6***	***66.3***
Jan 83	65.3	69.6	66.0	65.1	64.3	65.9	67.0
Feb 83	65.4	69.9	66.1	65.2	64.4	65.8	66.9
Mar 83	65.8	70.2	66.6	65.6	64.7	65.9	67.2
Apr 83	65.9	70.5	66.8	65.8	65.0	66.1	67.4
May 83	66.0	70.6	66.8	65.9	65.1	66.1	67.4
Jun 83	66.2	70.8	67.0	66.0	65.2	66.1	67.5
Jul 83	66.4	71.2	67.3	66.4	65.6	66.5	67.9
Aug 83	67.0	72.0	67.8	66.8	66.2	67.0	68.6
Sep 83	67.1	72.3	68.0	67.0	66.4	67.4	68.8
Oct 83	67.5	72.5	68.3	67.3	66.8	67.9	69.4
Nov 83	67.6	72.6	68.5	67.5	66.9	67.7	69.3
Dec 83	67.7	72.8	68.6	67.7	67.0	67.7	69.3
Year	***66.5***	***71.2***	***67.3***	***66.4***	***65.6***	***66.7***	***68.0***
Jan 84	68.0	73.1	68.9	68.0	67.4	67.8	69.5
Feb 84	68.3	73.5	69.2	68.2	67.6	68.0	69.8
Mar 84	68.5	73.7	69.4	68.4	67.7	68.1	69.9
Apr 84	68.7	73.9	69.6	68.6	67.9	68.6	70.3
May 84	68.8	74.0	69.7	68.8	68.0	69.1	70.7
Jun 84	69.0	74.1	69.9	69.0	68.1	69.6	71.0
Jul 84	69.5	74.5	70.4	69.5	68.4	70.0	71.5
Aug 84	69.8	75.0	70.8	69.8	68.6	70.4	71.9
Sep 84	70.0	75.3	71.1	70.1	68.8	70.4	72.3
Oct 84	70.5	75.4	71.7	70.7	69.3	70.5	72.3
Nov 84	70.9	75.8	72.1	71.1	69.6	70.7	72.5
Dec 84	71.0	75.9	72.1	71.1	69.5	70.3	72.2
Year	***69.4***	***74.5***	***70.4***	***69.5***	***68.4***	***69.5***	***71.1***

APPENDIX II

Linked series for shelter (Analytical owned accommodation indexes, 1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 85	71.3	76.3	72.6	71.5	69.9	70.4	72.4
Feb 85	71.5	76.5	72.7	71.7	70.1	70.3	72.5
Mar 85	71.6	76.6	72.8	71.8	70.2	70.5	72.6
Apr 85	71.8	76.8	73.0	72.0	70.4	71.1	73.1
May 85	72.1	77.1	73.3	72.3	70.7	71.0	73.1
Jun 85	71.3	76.4	72.5	71.6	69.8	70.0	72.1
Jul 85	71.5	76.6	72.6	71.7	70.0	69.9	72.1
Aug 85	72.6	78.1	73.9	72.9	71.5	71.3	73.6
Sep 85	72.8	78.3	74.1	73.0	71.7	71.5	73.8
Oct 85	75.6	80.5	76.3	75.1	75.2	75.0	77.1
Nov 85	75.5	80.3	76.0	74.9	75.1	75.0	77.1
Dec 85	75.8	80.5	76.1	74.9	75.3	75.3	77.3
Year	***72.8***	***77.8***	***73.8***	***72.8***	***71.6***	***71.8***	***73.9***
Jan 86	76.0	80.7	76.4	75.2	75.6	75.6	77.6
Feb 86	76.2	80.8	76.5	75.3	75.9	76.0	77.9
Mar 86	76.4	80.8	76.6	75.4	75.9	76.4	78.2
Apr 86	76.3	80.7	76.4	75.2	75.9	76.3	78.0
May 86	76.7	81.1	76.8	75.6	76.5	76.6	78.4
Jun 86	76.7	81.1	76.7	75.5	76.5	76.3	78.2
Jul 86	77.0	81.5	77.0	75.8	76.9	76.7	78.6
Aug 86	77.3	82.0	77.3	76.1	77.3	77.1	79.0
Sep 86	77.3	82.0	77.2	76.0	77.3	77.3	79.0
Oct 86	78.1	82.1	78.0	76.6	78.3	78.3	80.0
Nov 86	78.0	82.0	77.7	76.4	78.2	78.3	79.9
Dec 86	78.3	82.1	77.9	76.5	78.4	78.6	80.2
Year	***77.0***	***81.4***	***77.0***	***75.8***	***76.9***	***77.0***	***78.8***
Jan 87	78.6	82.3	78.1	76.8	78.7	78.9	80.5
Feb 87	79.0	82.7	78.4	77.1	79.1	79.2	80.8
Mar 87	79.2	82.8	78.6	77.1	79.5	79.4	80.9
Apr 87	79.7	83.0	78.8	77.3	80.1	80.0	81.5
May 87	79.9	83.1	78.9	77.4	80.4	80.4	81.7
Jun 87	80.1	83.3	79.1	77.5	80.6	81.0	82.2
Jul 87	80.5	83.7	79.5	77.9	81.1	81.6	82.8
Aug 87	80.9	84.2	79.8	78.3	81.5	82.0	83.2
Sep 87	81.1	84.4	80.1	78.5	81.8	82.5	83.6
Oct 87	81.9	84.6	80.9	79.2	82.7	83.6	84.7
Nov 87	82.1	84.8	81.1	79.5	83.0	84.1	85.0
Dec 87	82.2	84.9	81.2	79.6	83.0	83.8	84.9
Year	***80.4***	***83.6***	***79.5***	***78.0***	***81.0***	***81.4***	***82.6***

APPENDIX II

Linked series for shelter (Analytical owned accommodation indexes, 1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 88	82.6	85.1	81.5	80.0	83.3	84.2	85.2
Feb 88	82.6	85.3	81.5	80.1	83.5	84.5	85.5
Mar 88	82.9	85.5	81.8	80.4	83.8	84.6	85.6
Apr 88	83.2	85.6	82.0	80.5	84.0	84.6	85.7
May 88	83.5	85.8	82.1	80.7	84.4	85.1	86.0
Jun 88	83.7	86.0	82.2	80.7	84.6	85.6	86.4
Jul 88	84.1	86.3	82.7	81.2	85.2	86.4	87.0
Aug 88	84.6	87.0	83.2	81.7	85.7	86.9	87.6
Sep 88	84.9	87.3	83.4	82.0	86.0	87.6	88.1
Oct 88	85.7	87.6	84.2	82.6	87.0	88.9	89.3
Nov 88	86.0	87.9	84.4	82.9	87.3	88.9	89.4
Dec 88	86.1	88.0	84.6	83.0	87.5	89.2	89.6
Year	***84.2***	***86.5***	***82.8***	***81.3***	***85.2***	***86.4***	***87.1***
Jan 89	86.7	88.5	85.1	83.5	88.2	88.2	90.6
Feb 89	87.1	88.9	85.5	83.9	88.6	88.6	91.2
Mar 89	87.6	89.2	85.9	84.1	89.3	89.3	92.1
Apr 89	88.1	89.5	86.5	84.6	90.0	90.0	93.1
May 89	88.5	89.8	86.8	85.0	90.3	90.4	93.8
Jun 89	88.9	90.2	87.2	85.4	90.6	90.6	93.8
Jul 89	89.4	90.6	87.7	85.9	91.0	91.0	93.9
Aug 89	89.8	91.1	88.1	86.3	91.3	91.3	94.1
Sep 89	90.0	91.4	88.3	86.6	91.3	91.3	94.1
Oct 89	90.8	91.4	89.2	87.4	92.1	92.1	94.9
Nov 89	91.0	91.7	89.4	87.7	92.3	92.3	95.0
Dec 89	91.3	91.7	89.6	87.9	92.5	92.5	95.3
Year	***89.1***	***90.3***	***87.4***	***85.7***	***90.6***	***90.6***	***93.5***
Jan 90	92.1	92.2	90.4	88.8	93.0	93.0	96.1
Feb 90	92.5	92.5	90.8	89.1	93.4	93.4	96.5
Mar 90	92.7	92.7	91.1	89.5	93.6	93.6	96.9
Apr 90	93.1	93.0	91.5	89.9	93.9	93.9	97.6
May 90	93.6	93.3	92.1	90.6	94.2	94.2	98.6
Jun 90	93.8	93.5	92.3	90.9	94.2	94.2	99.1
Jul 90	94.0	93.8	92.8	91.5	94.1	94.1	98.9
Aug 90	94.3	94.2	93.2	92.1	94.2	94.2	99.0
Sep 90	94.6	94.5	93.7	92.6	94.2	94.2	98.6
Oct 90	95.5	94.7	94.8	93.8	94.9	94.9	99.0
Nov 90	95.8	95.3	95.4	94.5	95.1	95.1	98.9
Dec 90	95.9	95.4	95.5	94.8	94.9	94.9	98.6
Year	***94.0***	***93.8***	***92.8***	***91.5***	***94.1***	***94.1***	***98.1***

APPENDIX II

Linked series for shelter (Analytical owned accommodation indexes, 1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 91	97.8	96.9	97.7	96.8	96.8	96.8	100.1
Feb 91	97.7	96.9	97.6	96.8	96.6	96.6	99.5
Mar 91	97.4	96.9	97.4	96.9	96.1	96.1	98.3
Apr 91	97.5	96.8	97.5	96.9	96.2	96.2	98.3
May 91	97.8	97.2	97.7	97.2	96.6	96.6	98.5
Jun 91	98.0	97.3	97.8	97.3	96.9	96.9	98.6
Jul 91	98.4	97.7	98.3	97.7	97.4	97.4	99.0
Aug 91	98.8	98.1	98.6	98.0	97.9	97.9	99.5
Sep 91	98.7	98.2	98.5	98.0	97.9	97.9	99.5
Oct 91	99.2	98.3	99.1	98.6	98.5	98.5	100.0
Nov 91	99.3	98.5	99.1	98.7	98.6	98.6	99.8
Dec 91	99.2	98.5	99.0	98.7	98.5	98.5	99.2
Year	***98.3***	***97.6***	***98.2***	***97.6***	***97.3***	***97.3***	***99.2***
Jan 92	99.5	99.0	99.5	99.2	99.0	99.0	99.4
Feb 92	99.5	99.1	99.5	99.3	99.1	99.1	99.3
Mar 92	99.5	99.3	99.4	99.3	99.1	99.1	99.2
Apr 92	99.4	99.3	99.3	99.3	99.0	99.0	99.6
May 92	99.8	99.7	99.8	99.7	99.5	99.5	100.3
Jun 92	99.7	99.8	99.7	99.7	99.5	99.5	100.0
Jul 92	100.1	100.2	100.1	100.1	100.1	100.1	100.1
Aug 92	100.2	100.5	100.2	100.3	100.3	100.3	99.9
Sep 92	100.0	100.7	100.0	100.2	100.3	100.3	99.4
Oct 92	100.7	100.7	100.8	100.9	101.2	101.2	100.1
Nov 92	100.8	100.9	100.9	101.0	101.4	101.4	101.2
Dec 92	100.8	100.9	100.8	101.1	101.4	101.4	101.5
Year	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***
Jan 93	101.1	101.2	101.2	101.4	101.8	101.8	101.9
Feb 93	101.0	101.4	101.1	101.4	101.7	101.7	101.5
Mar 93	101.1	101.4	101.2	101.6	101.9	101.9	101.7
Apr 93	101.1	101.6	101.2	101.6	102.1	102.0	101.5
May 93	101.1	101.7	101.0	101.5	102.1	102.1	101.5
Jun 93	101.1	101.8	101.2	101.7	102.2	102.3	101.7
Jul 93	101.4	102.2	101.4	102.0	102.7	102.7	102.1
Aug 93	101.5	102.4	101.6	102.1	102.9	102.9	102.0
Sep 93	101.5	102.5	101.6	102.2	103.0	103.0	102.1
Oct 93	101.9	102.6	102.0	102.6	103.5	103.5	102.5
Nov 93	101.9	102.9	102.0	102.7	103.6	103.6	102.6
Dec 93	101.9	103.0	102.0	102.7	103.7	103.7	102.3
Year	***101.4***	***102.1***	***101.4***	***102.0***	***102.6***	***102.6***	***101.9***

APPENDIX II

Linked series for shelter (Analytical owned accommodation indexes, 1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 94	101.8	103.1	101.8	102.7	103.7	103.7	102.2
Feb 94	101.8	103.3	101.9	102.8	103.9	103.9	102.1
Mar 94	101.7	103.4	101.8	102.8	104.0	104.0	102.1
Apr 94	101.1	103.2	101.2	102.3	103.4	103.4	102.0
May 94	101.4	103.4	101.4	102.6	103.7	103.7	103.6
Jun 94	101.5	103.4	101.6	102.7	103.8	103.8	103.8
Jul 94	101.9	103.8	101.9	103.1	104.2	104.2	104.4
Aug 94	102.1	104.0	102.2	103.4	104.3	104.3	105.2
Sep 94	102.2	104.1	102.3	103.6	104.4	104.4	105.0
Oct 94	102.2	104.0	102.3	103.6	104.3	104.3	104.7
Nov 94	102.3	104.3	102.5	103.8	104.4	104.4	104.6
Dec 94	102.5	104.4	102.6	104.0	104.4	104.4	104.6
Year	***101.9***	***103.7***	***102.0***	***103.1***	***104.0***	***104.0***	***103.7***
Jan 95	102.7	104.5	102.9	104.3	104.4		105.1
Feb 95	102.7	104.4	102.9	104.4	104.3		105.8
Mar 95	102.9	104.5	103.2	104.7	104.4		105.8
Apr 95	102.5	104.0	102.7	104.3	103.8		104.6
May 95	102.9	104.2	103.2	104.8	104.2		104.7
Jun 95	102.9	104.4	103.4	105.0	104.2		104.0
Jul 95	102.9	104.6	103.5	105.1	104.3		103.7
Aug 95	102.9	104.6	103.4	105.1	104.3		103.4
Sep 95	102.9	104.8	103.4	105.1	104.2		103.8
Oct 95	102.9	104.7	103.4	105.3	104.2		103.8
Nov 95	103.0	104.9	103.6	105.4	104.2		103.6
Dec 95	103.1	105.1	103.7	105.6	104.4		103.6
Year	***102.9***	***104.6***	***103.3***	***104.9***	***104.3***		***104.3***
Jan 96	103.1	105.2	103.7	105.6	104.4		103.3
Feb 96	103.1	105.3	103.7	105.7	104.4		102.9
Mar 96	103.0	105.4	103.7	105.7	104.5		102.7
Apr 96	102.9	105.3	103.6	105.6	104.3		102.9
May 96	103.0	105.6	103.8	105.9	104.6		103.4
Jun 96	102.9	105.6	103.7	105.8	104.5		103.2
Jul 96	102.9	105.8	103.7	105.8	104.6		103.4
Aug 96	102.9	105.9	103.6	105.8	104.6		103.3
Sep 96	102.9	106.0	103.6	105.8	104.8		103.0
Oct 96	103.4	106.5	104.2	106.3	105.4		103.5
Nov 96	103.1	106.4	103.8	106.1	105.3		102.8
Dec 96	103.2	106.6	103.9	106.2	105.5		102.6
Year	***103.1***	***105.8***	***103.7***	***105.9***	***104.7***		***103.1***

APPENDIX II

Linked series for shelter (Analytical owned accommodation indexes, 1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 97	103.4	106.9	104.1	106.4	105.9		102.9
Feb 97	103.4	107.1	104.1	106.4	106.0		103.2
Mar 97	103.5	107.1	104.2	106.4	106.2		103.3
Apr 97	103.3	106.9	103.9	106.2	106.2		103.3
May 97	103.2	107.0	103.7	106.1	106.2		103.9
Jun 97	103.2	107.0	103.8	106.2	106.4		104.0
Jul 97	103.3	107.3	103.9	106.3	106.7		104.0
Aug 97	103.1	107.2	103.6	106.1	106.5		103.7
Sep 97	103.0	107.3	103.5	106.0	106.5		103.9
Oct 97	103.2	107.5	103.6	106.2	106.9		104.2
Nov 97	103.1	107.6	103.5	106.1	106.9		104.0
Dec 97	103.3	107.9	103.7	106.3	107.2		104.4
Year	***103.3***	***107.2***	***103.8***	***106.2***	***106.5***		***103.7***
Jan 98	103.4	108.0	103.8	106.4	107.3		104.8
Feb 98	103.2	107.9	103.7	106.3	107.2		104.8
Mar 98	103.4	108.0	103.9	106.5	107.4		104.9
Apr 98	103.5	108.2	104.1	106.7	107.5		105.0
May 98	103.5	108.2	104.0	106.7	107.4		104.8
Jun 98	103.5	108.2	103.9	106.6	107.3		104.9
Jul 98	103.6	108.3	104.1	106.8	107.4		105.0
Aug 98	103.7	108.4	104.1	106.8	107.4		105.0
Sep 98	103.6	108.4	104.2	106.9	107.5		105.3
Oct 98	104.3	108.9	104.8	107.5	108.0		106.0
Nov 98	104.3	108.8	104.7	107.4	108.0		105.4
Dec 98	104.5	109.0	104.9	107.6	108.1		105.6
Year	***103.7***	***108.4***	***104.2***	***106.8***	***107.5***		***105.1***
Jan 99	104.6	109.1	105.0	107.7	108.2		105.5
Feb 99	104.6	109.1	104.9	107.6	108.1		105.4
Mar 99	104.6	109.1	104.9	107.7	108.1		105.5
Apr 99	104.9	109.4	105.3	108.1	108.5		106.1
May 99	104.7	109.3	105.1	107.9	108.2		105.5
Jun 99	104.8	109.4	105.2	108.0	108.3		105.8
Jul 99	104.9	109.5	105.3	108.1	108.4		106.3
Aug 99	105.1	109.6	105.4	108.2	108.6		106.5
Sep 99	105.7	110.1	106.0	108.8	109.2		107.5
Oct 99	105.9	110.2	106.0	108.8	109.1		107.3
Nov 99	106.0	110.4	106.2	108.9	109.2		107.6
Dec 99	106.4	110.7	106.4	109.2	109.4		108.1
Year	***105.2***	***109.7***	***105.5***	***108.2***	***108.6***		***106.4***

APPENDIX II

Linked series for shelter (Analytical owned accommodation indexes, 1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 00	106.7	110.9	106.7	109.5	109.6		108.3
Feb 00	107.5	111.4	107.4	110.1	110.2		109.0
Mar 00	107.6	111.6	107.6	110.3	110.3		109.3
Apr 00	107.6	111.7	107.8	110.5	110.5		109.3
May 00	107.8	111.8	108.0	110.7	110.6		109.4
Jun 00	108.2	112.1	108.4	111.0	110.9		110.0
Jul 00	108.9	112.6	108.9	111.5	111.3		110.3
Aug 00	109.1	112.7	109.1	111.7	111.5		110.3

APPENDIX II

Linked series for all-items (Analytical owned accommodation indexes, 1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 82	62.4	63.2	62.2	61.9	62.6	64.0	63.5
Feb 82	63.1	64.0	62.9	62.6	63.3	64.8	64.3
Mar 82	63.8	64.7	63.6	63.3	64.0	65.6	65.0
Apr 82	64.1	65.1	64.0	63.7	64.3	65.9	65.4
May 82	64.9	65.9	64.9	64.6	65.1	66.6	66.2
Jun 82	65.6	66.5	65.5	65.2	65.7	67.2	66.8
Jul 82	65.9	66.8	65.9	65.5	66.1	67.5	67.0
Aug 82	66.2	67.2	66.2	65.9	66.2	67.7	67.3
Sep 82	66.6	67.6	66.6	66.3	66.5	67.9	67.6
Oct 82	67.0	68.0	67.0	66.7	66.9	68.1	67.9
Nov 82	67.5	68.4	67.5	67.2	67.3	68.2	68.2
Dec 82	67.5	68.4	67.5	67.2	67.3	68.0	68.0
Year	***65.4***	***66.3***	***65.3***	***65.0***	***65.5***	***66.8***	***66.4***
Jan 83	67.4	68.3	67.4	67.1	67.2	67.8	67.8
Feb 83	67.7	68.6	67.7	67.4	67.5	68.0	68.1
Mar 83	68.3	69.2	68.3	68.0	68.1	68.5	68.7
Apr 83	68.3	69.4	68.3	68.1	68.1	68.6	68.7
May 83	68.5	69.6	68.5	68.3	68.4	68.8	68.9
Jun 83	69.2	70.2	69.3	68.9	69.0	69.5	69.6
Jul 83	69.4	70.5	69.5	69.2	69.4	69.7	69.9
Aug 83	69.8	71.0	69.9	69.6	69.7	70.1	70.3
Sep 83	69.8	71.0	69.9	70.0	69.7	70.1	70.3
Oct 83	70.2	71.4	70.3	70.0	70.2	70.6	70.8
Nov 83	70.2	71.4	70.3	70.0	70.2	70.5	70.8
Dec 83	70.4	71.6	70.5	70.2	70.4	70.7	71.0
Year	***69.1***	***70.2***	***69.2***	***68.9***	***69.0***	***69.4***	***69.6***
Jan 84	70.6	72.0	70.7	70.3	70.2	68.9	70.0
Feb 84	70.9	72.4	71.0	70.7	70.4	69.2	70.3
Mar 84	71.0	72.6	71.2	70.9	70.6	69.3	70.4
Apr 84	71.4	72.8	71.6	71.2	70.9	69.8	70.8
May 84	71.5	72.9	71.7	71.3	71.1	70.1	71.2
Jun 84	71.7	73.2	71.8	71.5	71.1	70.4	71.4
Jul 84	72.0	73.6	72.2	71.8	71.4	70.8	71.8
Aug 84	72.1	73.6	72.3	72.0	71.3	70.8	71.8
Sep 84	72.3	73.7	72.6	72.2	71.5	70.7	71.8
Oct 84	72.1	73.9	72.5	72.1	71.3	70.3	71.5
Nov 84	72.3	74.3	72.7	72.4	71.4	70.3	71.6
Dec 84	72.4	74.3	72.7	72.4	71.3	70.1	71.5
Year	***71.7***	***73.3***	***71.9***	***71.6***	***71.0***	***70.1***	***71.2***

APPENDIX II

Linked series for all-items (Analytical owned accommodation indexes, 1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 85	73.5	74.6	73.6	73.4	73.2	73.5	73.8
Feb 85	74.0	75.1	74.1	73.8	73.7	73.9	74.3
Mar 85	74.1	75.3	74.3	74.0	73.9	74.1	74.5
Apr 85	74.4	75.5	74.6	74.3	74.1	74.5	74.8
May 85	74.6	75.7	74.8	74.5	74.3	74.6	74.9
Jun 85	74.8	76.0	75.0	74.7	74.6	74.8	75.3
Jul 85	75.0	76.2	75.1	74.9	74.8	74.9	75.3
Aug 85	75.3	76.7	75.5	75.2	75.2	75.3	75.7
Sep 85	75.5	76.8	75.7	75.4	75.3	75.4	75.8
Oct 85	75.7	76.9	75.9	75.5	75.6	75.7	76.1
Nov 85	76.0	77.3	76.2	75.9	75.9	76.0	76.4
Dec 85	76.3	77.6	76.5	76.2	76.2	76.3	76.7
Year	***74.9***	***76.1***	***75.1***	***74.8***	***74.7***	***74.9***	***75.3***
Jan 86	76.7	78.0	76.8	76.5	76.6	76.7	77.1
Feb 86	77.0	78.3	77.1	76.8	77.0	77.0	77.5
Mar 86	77.2	78.4	77.3	77.0	77.1	77.3	77.7
Apr 86	77.3	78.5	77.4	77.1	77.3	77.4	77.8
May 86	77.7	78.9	77.8	77.4	77.7	77.7	78.2
Jun 86	77.8	79.0	77.9	77.5	77.8	77.8	78.2
Jul 86	78.4	79.6	78.4	78.1	78.4	78.4	78.8
Aug 86	78.6	79.9	78.7	78.3	78.6	78.7	79.1
Sep 86	78.6	79.9	78.7	78.3	78.7	78.7	79.1
Oct 86	79.0	80.1	79.0	78.6	79.1	79.1	79.5
Nov 86	79.4	80.5	79.4	79.0	79.5	79.6	80.0
Dec 86	79.6	80.6	79.5	79.1	79.6	79.7	80.1
Year	***78.1***	***79.3***	***78.2***	***77.8***	***78.1***	***78.2***	***78.6***
Jan 87	79.7	80.8	79.7	79.3	79.8	79.9	80.3
Feb 87	80.1	81.1	80.0	79.6	80.2	80.3	80.6
Mar 87	80.4	81.4	80.3	79.9	80.5	80.6	80.9
Apr 87	80.8	81.7	80.6	80.1	80.9	81.0	81.3
May 87	81.2	82.2	81.1	80.6	81.4	81.5	81.8
Jun 87	81.5	82.4	81.3	80.8	81.7	81.9	82.1
Jul 87	82.1	83.0	81.9	81.4	82.3	82.5	82.8
Aug 87	82.2	83.1	82.0	81.5	82.4	82.6	82.8
Sep 87	82.2	83.1	81.9	81.5	82.4	82.6	82.8
Oct 87	82.5	83.2	82.2	81.8	82.7	83.0	83.2
Nov 87	82.8	83.6	82.6	82.1	83.1	83.4	83.6
Dec 87	82.8	83.6	82.6	82.1	83.1	83.3	83.5
Year	***81.5***	***82.4***	***81.4***	***80.9***	***81.7***	***81.9***	***82.1***

APPENDIX II

Linked series for all-items (Analytical owned accommodation indexes, 1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 88	83.0	83.8	82.8	82.4	83.2	83.5	83.7
Feb 88	83.3	84.1	83.1	82.7	83.6	83.9	84.1
Mar 88	83.7	84.5	83.5	83.1	84.0	84.3	84.4
Apr 88	84.1	84.8	83.8	83.4	84.3	84.5	84.7
May 88	84.6	85.2	84.3	83.8	84.9	85.1	85.3
Jun 88	84.7	85.4	84.4	83.9	85.0	85.3	85.4
Jul 88	85.2	85.8	84.9	84.4	85.5	85.9	86.0
Aug 88	85.4	86.1	85.1	84.7	85.8	86.2	86.2
Sep 88	85.5	86.2	85.2	84.7	85.8	86.3	86.3
Oct 88	85.9	86.4	85.5	85.1	86.2	86.8	86.8
Nov 88	86.2	86.7	85.8	85.3	86.5	87.0	87.0
Dec 88	86.2	86.7	85.8	85.3	86.5	87.1	87.0
Year	***84.8***	***85.5***	***84.5***	***84.1***	***85.1***	***85.5***	***85.6***
Jan 89	86.6	87.1	86.2	85.7	86.9	87.0	87.5
Feb 89	87.2	87.7	86.8	86.3	87.6	87.6	88.2
Mar 89	87.6	88.0	87.2	86.7	88.0	88.0	88.7
Apr 89	87.9	88.3	87.5	86.9	88.3	88.3	89.1
May 89	88.8	89.1	88.4	87.8	89.2	89.2	90.1
Jun 89	89.2	89.6	88.8	88.3	89.6	89.6	90.4
Jul 89	89.8	90.1	89.4	88.9	90.2	90.2	90.9
Aug 89	89.9	90.3	89.5	89.0	90.3	90.3	90.9
Sep 89	90.0	90.4	89.6	89.1	90.3	90.3	91.0
Oct 89	90.3	90.5	89.9	89.5	90.7	90.7	91.3
Nov 89	90.7	90.9	90.3	89.8	91.0	91.0	91.6
Dec 89	90.6	90.8	90.2	89.7	90.9	90.9	91.6
Year	***89.0***	***89.4***	***88.6***	***88.1***	***89.4***	***89.4***	***90.1***
Jan 90	91.3	91.4	90.9	90.5	91.6	91.6	92.3
Feb 90	91.9	91.9	91.5	91.0	92.1	92.1	92.8
Mar 90	92.2	92.2	91.8	91.3	92.4	92.4	93.2
Apr 90	92.3	92.2	91.8	91.4	92.4	92.4	93.3
May 90	92.7	92.6	92.3	91.9	92.8	92.8	93.9
Jun 90	93.1	93.1	92.7	92.3	93.2	93.2	94.4
Jul 90	93.5	93.5	93.2	92.9	93.6	93.6	94.7
Aug 90	93.6	93.6	93.4	93.1	93.6	93.6	94.8
Sep 90	93.9	93.9	93.6	93.4	93.8	93.8	94.8
Oct 90	94.6	94.4	94.5	94.2	94.5	94.5	95.5
Nov 90	94.6	94.5	94.5	94.2	94.4	94.4	95.3
Dec 90	94.5	94.4	94.4	94.2	94.2	94.2	95.1
Year	***93.2***	***93.2***	***92.9***	***92.5***	***93.2***	***93.2***	***94.2***

APPENDIX II

Linked series for all-items (Analytical owned accommodation indexes, 1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 91	97.6	97.4	97.6	97.4	97.4	97.4	98.2
Feb 91	97.6	97.3	97.6	97.3	97.3	97.3	98.0
Mar 91	98.0	97.8	98.0	97.8	97.7	97.7	98.2
Apr 91	98.0	97.8	98.0	97.9	97.7	97.7	98.2
May 91	98.5	98.3	98.5	98.3	98.2	98.2	98.7
Jun 91	98.9	98.7	98.9	98.7	98.7	98.7	99.1
Jul 91	99.0	98.8	99.0	98.9	98.8	98.8	99.2
Aug 91	99.1	98.9	99.0	98.9	98.9	98.9	99.3
Sep 91	99.0	98.8	98.9	98.8	98.7	98.7	99.1
Oct 91	98.8	98.5	98.8	98.6	98.6	98.6	99.0
Nov 91	99.1	98.9	99.1	99.0	99.0	99.0	99.3
Dec 91	98.7	98.5	98.6	98.6	98.5	98.5	98.7
Year	***98.5***	***98.3***	***98.5***	***98.3***	***98.3***	***98.3***	***98.7***
Jan 92	99.1	99.0	99.1	99.0	99.0	99.0	99.1
Feb 92	99.2	99.1	99.2	99.2	99.1	99.1	99.2
Mar 92	99.5	99.5	99.5	99.5	99.5	99.5	99.5
Apr 92	99.6	99.6	99.6	99.6	99.6	99.6	99.7
May 92	99.8	99.7	99.8	99.8	99.7	99.7	99.9
Jun 92	100.0	100.0	100.0	100.0	100.0	100.0	100.1
Jul 92	100.3	100.3	100.3	100.3	100.3	100.3	100.3
Aug 92	100.3	100.4	100.3	100.3	100.3	100.3	100.2
Sep 92	100.2	100.3	100.2	100.2	100.2	100.2	100.0
Oct 92	100.3	100.3	100.3	100.4	100.4	100.4	100.2
Nov 92	100.8	100.8	100.8	100.9	101.0	101.0	100.9
Dec 92	100.8	100.8	100.8	100.8	100.9	100.9	100.9
Year	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***
Jan 93	101.2	101.2	101.2	101.3	101.4	101.4	101.4
Feb 93	101.5	101.6	101.5	101.6	101.7	101.7	101.6
Mar 93	101.5	101.5	101.5	101.6	101.7	101.7	101.6
Apr 93	101.4	101.6	101.5	101.6	101.7	101.7	101.5
May 93	101.6	101.7	101.6	101.7	101.8	101.8	101.7
Jun 93	101.7	101.9	101.7	101.8	102.0	102.0	101.8
Jul 93	101.9	102.1	101.9	102.1	102.2	102.3	102.1
Aug 93	101.9	102.2	102.0	102.1	102.3	102.3	102.1
Sep 93	102.1	102.4	102.1	102.3	102.5	102.5	102.2
Oct 93	102.2	102.4	102.2	102.4	102.6	102.6	102.3
Nov 93	102.7	102.9	102.7	102.9	103.1	103.1	102.9
Dec 93	102.6	102.9	102.6	102.8	103.0	103.0	102.7
Year	***101.9***	***102.0***	***101.9***	***102.0***	***102.2***	***102.2***	***102.0***

APPENDIX II

Linked series for all-items (Analytical owned accommodation indexes, 1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 94	102.5	102.9	102.6	102.8	103.0	103.0	102.7
Feb 94	101.7	102.2	101.8	102.0	102.3	102.3	101.8
Mar 94	101.6	102.1	101.6	101.9	102.2	102.2	101.7
Apr 94	101.6	102.2	101.7	101.9	102.2	102.2	101.9
May 94	101.4	102.0	101.5	101.8	102.0	102.0	102.0
Jun 94	101.7	102.2	101.7	102.0	102.3	102.3	102.3
Jul 94	102.1	102.6	102.1	102.4	102.6	102.6	102.7
Aug 94	102.2	102.7	102.2	102.5	102.7	102.7	102.9
Sep 94	102.2	102.8	102.2	102.6	102.7	102.7	102.9
Oct 94	102.1	102.6	102.1	102.5	102.6	102.6	102.7
Nov 94	102.6	103.1	102.6	103.0	103.1	103.1	103.1
Dec 94	102.8	103.3	102.8	103.2	103.3	103.3	103.3
Year	***102.0***	***102.6***	***102.1***	***102.4***	***102.6***	***102.6***	***102.5***
Jan 95	103.3	103.9	103.4	103.7	103.7		103.9
Feb 95	103.7	104.3	103.8	104.1	104.1		104.5
Mar 95	103.9	104.5	104.0	104.4	104.3		104.7
Apr 95	104.2	104.8	104.3	104.6	104.5		104.7
May 95	104.5	105.1	104.6	105.0	104.8		104.9
Jun 95	104.5	105.1	104.6	105.0	104.8		104.7
Jul 95	104.7	105.4	104.9	105.2	105.0		104.8
Aug 95	104.5	105.1	104.7	105.1	104.8		104.5
Sep 95	104.7	105.4	104.8	105.3	105.0		104.8
Oct 95	104.6	105.3	104.8	105.2	104.8		104.7
Nov 95	104.8	105.5	105.0	105.4	105.0		104.8
Dec 95	104.6	105.3	104.8	105.3	104.8		104.6
Year	***104.3***	***105.0***	***104.5***	***104.9***	***104.6***		***104.6***
Jan 96	104.8	105.6	105.0	105.4	105.0		104.7
Feb 96	105.1	105.9	105.3	105.7	105.3		104.8
Mar 96	105.4	106.3	105.6	106.1	105.7		105.1
Apr 96	105.8	106.8	106.0	106.4	106.1		105.6
May 96	106.1	107.2	106.3	106.8	106.4		106.0
Jun 96	106.0	107.1	106.2	106.7	106.3		105.8
Jul 96	106.0	107.1	106.2	106.7	106.3		105.9
Aug 96	106.1	107.3	106.3	106.8	106.4		106.0
Sep 96	106.2	107.4	106.4	106.9	106.6		106.0
Oct 96	106.5	107.7	106.7	107.2	106.9		106.3
Nov 96	107.0	108.4	107.2	107.6	107.4		106.6
Dec 96	106.9	108.3	107.1	107.5	107.4		106.4
Year	***106.0***	***107.1***	***106.2***	***106.7***	***106.3***		***105.8***

APPENDIX II

Linked series for all-items (Analytical owned accommodation indexes, 1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 97	107.2	108.7	107.4	107.8	107.7		106.7
Feb 97	107.3	108.8	107.4	107.9	107.9		106.9
Mar 97	107.6	109.2	107.7	108.2	108.2		107.2
Apr 97	107.5	109.0	107.6	108.1	108.2		107.2
May 97	107.6	109.2	107.7	108.2	108.3		107.5
Jun 97	107.9	109.5	108.0	108.5	108.6		107.8
Jul 97	107.8	109.5	107.9	108.4	108.6		107.7
Aug 97	108.0	109.7	108.1	108.6	108.8		107.9
Sep 97	107.9	109.6	108.0	108.5	108.7		107.8
Oct 97	108.0	109.7	108.1	108.6	108.8		108.0
Nov 97	107.9	109.7	108.0	108.5	108.8		107.8
Dec 97	107.7	109.4	107.7	108.3	108.6		107.7
Year	***107.7***	***109.3***	***107.8***	***108.3***	***108.4***		***107.5***
Jan 98	108.2	109.6	107.8	108.4	108.7		107.9
Feb 98	108.3	109.7	107.9	108.5	108.8		108.1
Mar 98	108.4	109.8	108.1	108.6	108.9		108.1
Apr 98	108.3	110.2	108.5	109.0	109.3		108.5
May 98	108.7	110.0	108.3	108.8	109.1		108.3
Jun 98	108.8	109.9	108.2	108.7	109.0		108.2
Jul 98	108.8	110.1	108.4	108.9	109.2		108.4
Aug 98	108.8	109.9	108.2	108.7	109.0		108.2
Sep 98	108.6	110.3	108.6	109.2	109.4		108.7
Oct 98	109.0	110.8	109.1	109.7	109.9		109.3
Nov 98	109.0	110.7	109.0	109.6	109.8		108.9
Dec 98	108.7	110.7	109.0	109.6	109.8		109.0
Year	***108.7***	***110.1***	***108.4***	***109.0***	***109.2***		***108.5***
Jan 99	108.9	110.8	109.1	109.7	109.9		109.0
Feb 99	109.0	110.8	109.0	109.6	109.8		108.9
Mar 99	109.6	110.9	109.1	109.7	109.9		109.0
Apr 99	110.1	111.4	109.7	110.2	110.4		109.6
May 99	110.4	111.1	109.3	109.9	110.1		109.2
Jun 99	110.5	111.1	109.3	110.0	110.1		109.3
Jul 99	110.8	111.2	109.5	110.1	110.2		109.5
Aug 99	111.2	111.3	109.5	110.2	110.3		109.7
Sep 99	111.5	111.9	110.2	110.8	110.9		110.5
Oct 99	111.5	111.7	110.0	110.6	110.7		110.2
Nov 99	111.4	111.9	110.2	110.8	110.9		110.4
Dec 99	111.6	112.0	110.3	110.9	111.0		110.6
Year	***110.5***	***111.3***	***109.6***	***110.2***	***110.3***		***109.7***

APPENDIX II

Linked series for all-items (Analytical owned accommodation indexes, 1992=100)

Date	Official concept	Rental equivalence concept	Money outlays concept		Net purchase concept		
			Excluding equity payments	Including equity payments	Excluding interest	Including interest	Based on downpayment and discounted mortgage payments
Jan 00	111.4	112.3	110.6	111.2	111.2		110.9
Feb 00	112.0	112.6	110.9	111.5	111.6		111.3
Mar 00	112.9	113.0	111.4	111.9	111.9		111.7
Apr 00	112.4	113.4	111.8	112.4	112.4		112.1
May 00	113.1	113.6	112.0	112.6	112.6		112.3
Jun 00	113.7	113.9	112.3	112.9	112.8		112.7
Jul 00	114.1	114.2	112.7	113.2	113.1		112.9
Aug 00	113.9	114.5	113.0	113.5	113.4		113.1

APPENDIX II

Annual percentage change of the analytical consumer price index series, 1995–2000

Years	OFFICIAL	RE	MO1	MO2	NP1	NP3
Owned accommodation						
2000/1999	2.3	1.0	2.2	5.8	1.0	3.9
1999/1998	1.1	0.9	1.0	1.8	0.5	1.1
1998/1997	0.1	1.0	–0.4	1.3	0.8	1.5
1997/1996	–1.0	0.8	–1.7	–0.7	1.4	–0.4
1996/1995	–0.7	1.0	–0.4	0.5	–0.3	–3.1
Shelter						
2000/1999	0.0	0.0	0.0	0.0	0.0	3.5
1999/1998	1.4	1.2	1.2	1.3	1.0	1.2
1998/1997	0.4	1.1	0.4	0.6	1.0	1.3
1997/1996	0.2	1.3	0.0	0.3	1.7	0.6
1996/1995	0.2	1.2	0.5	0.9	0.5	–1.2
All-items						
2000/1999	2.6	2.2	2.3	2.3	2.1	2.6
1999/1998	1.7	1.1	1.1	1.1	1.0	1.1
1998/1997	0.9	0.7	0.6	0.6	0.7	0.9
1997/1996	1.6	2.1	1.5	1.5	2.0	1.7
1996/1995	1.6	2.0	1.6	1.7	1.6	1.1

RE Rental equivalence
MO Money outlays
NP Net purchase

APPENDIX III

Chart 1a: Analytical consumer price index series for owned accommodation (1992=100)

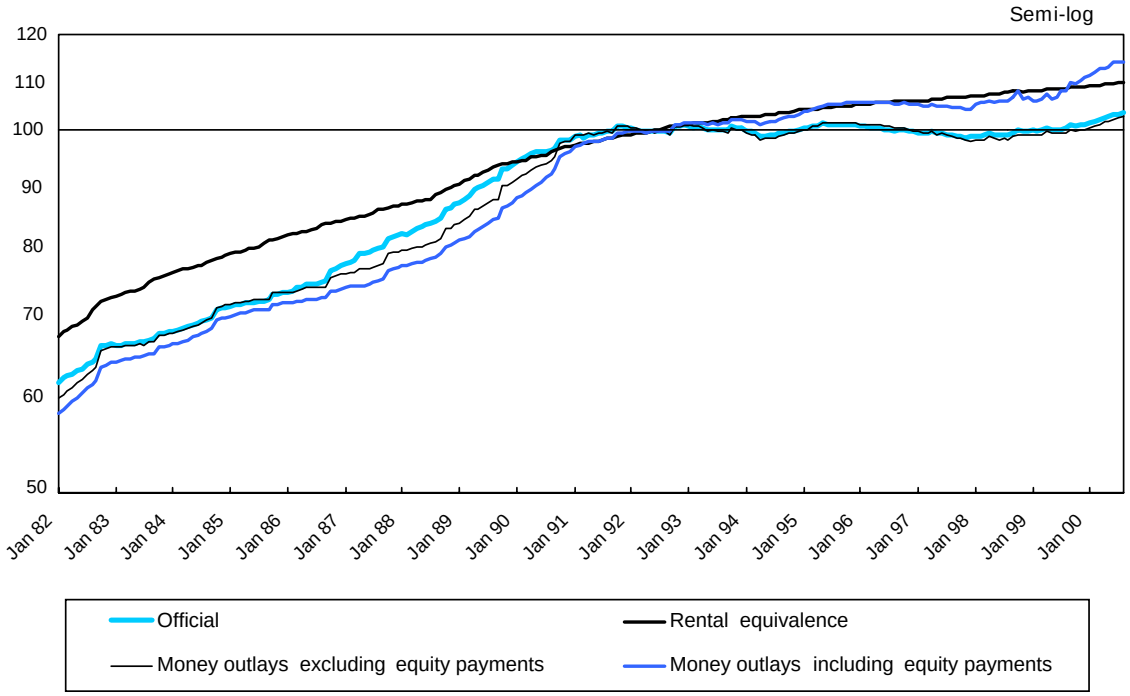
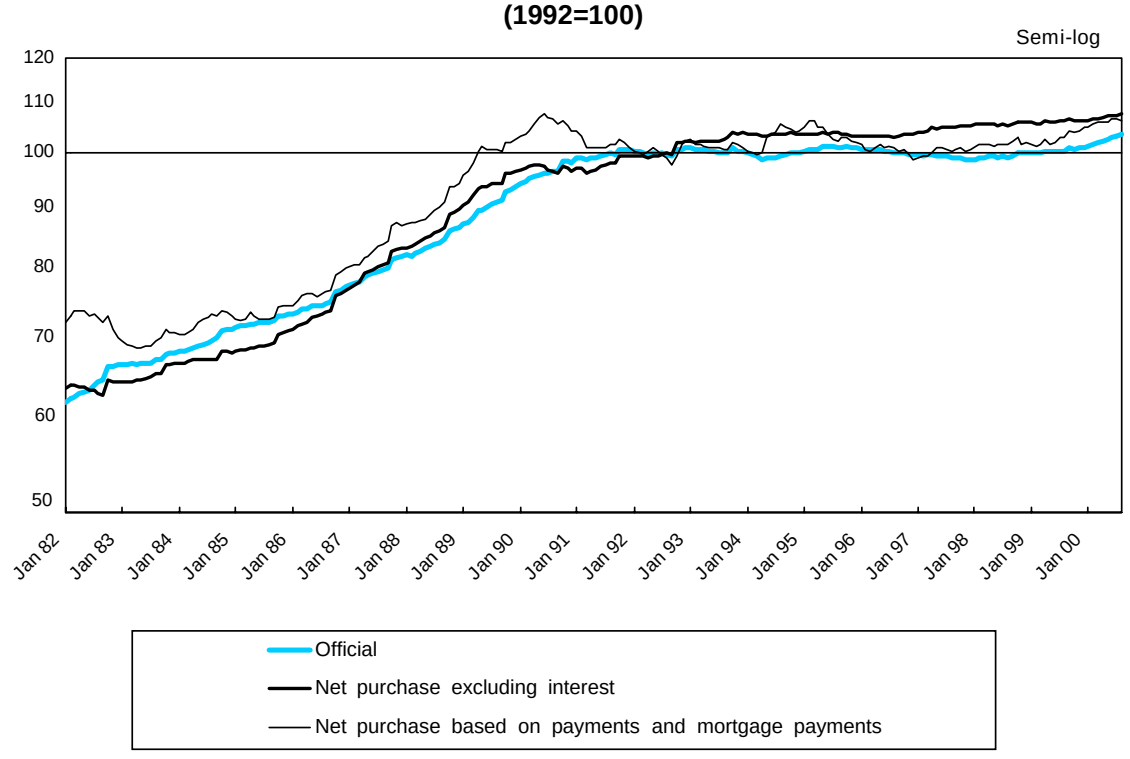


Chart 1b: Analytical consumer price index series for owned accommodation (1992=100)



APPENDIX III

Chart 2a: Analytical consumer price index series for shelter (1992=100)

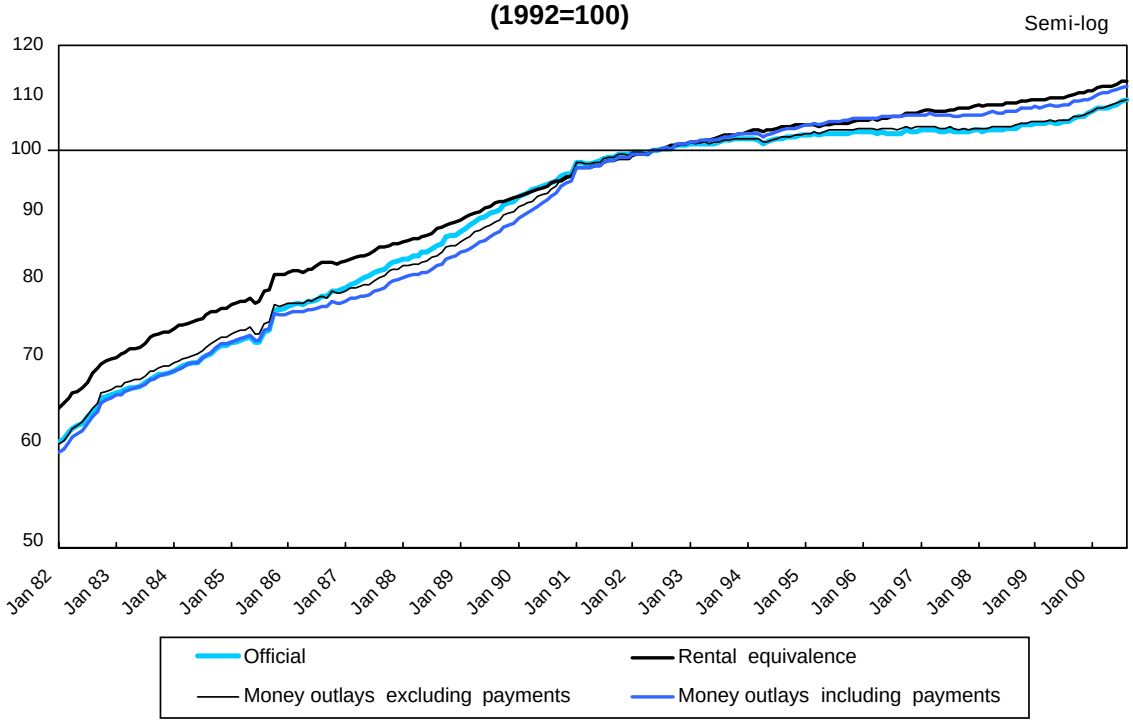
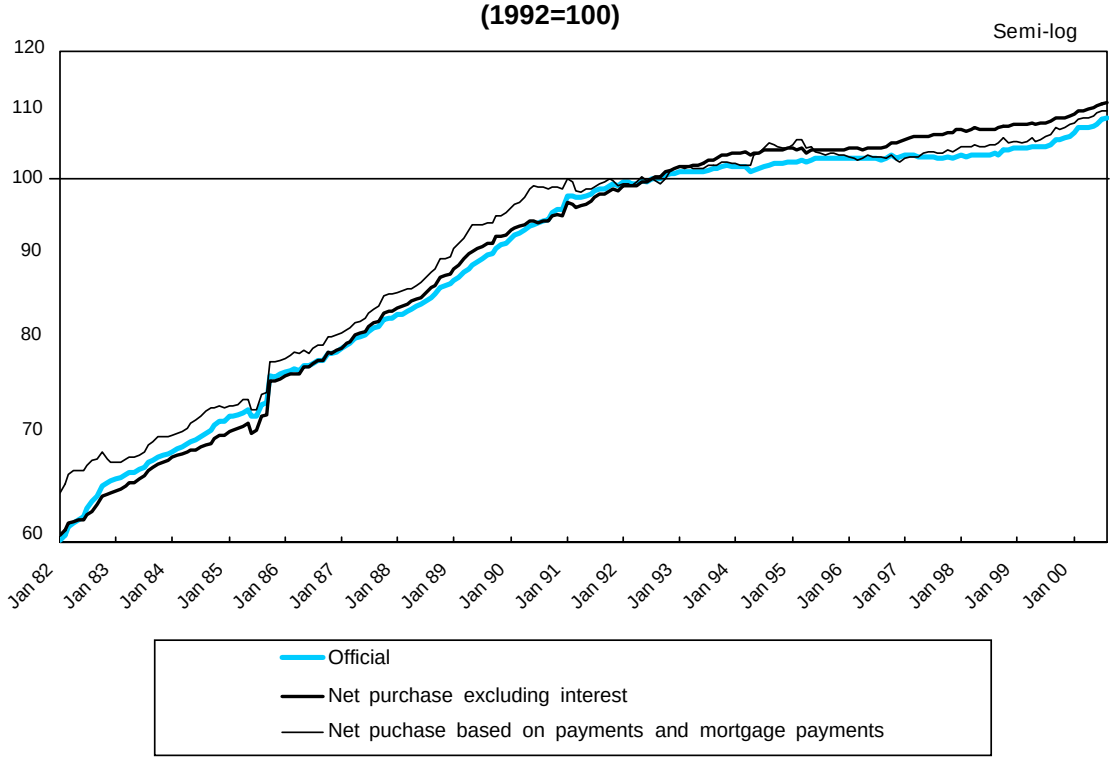


Chart 2b: Analytical consumer price series for shelter (1992=100)



APPENDIX III

Chart 3a: Analytical consumer price index series for all-items (1992=100)

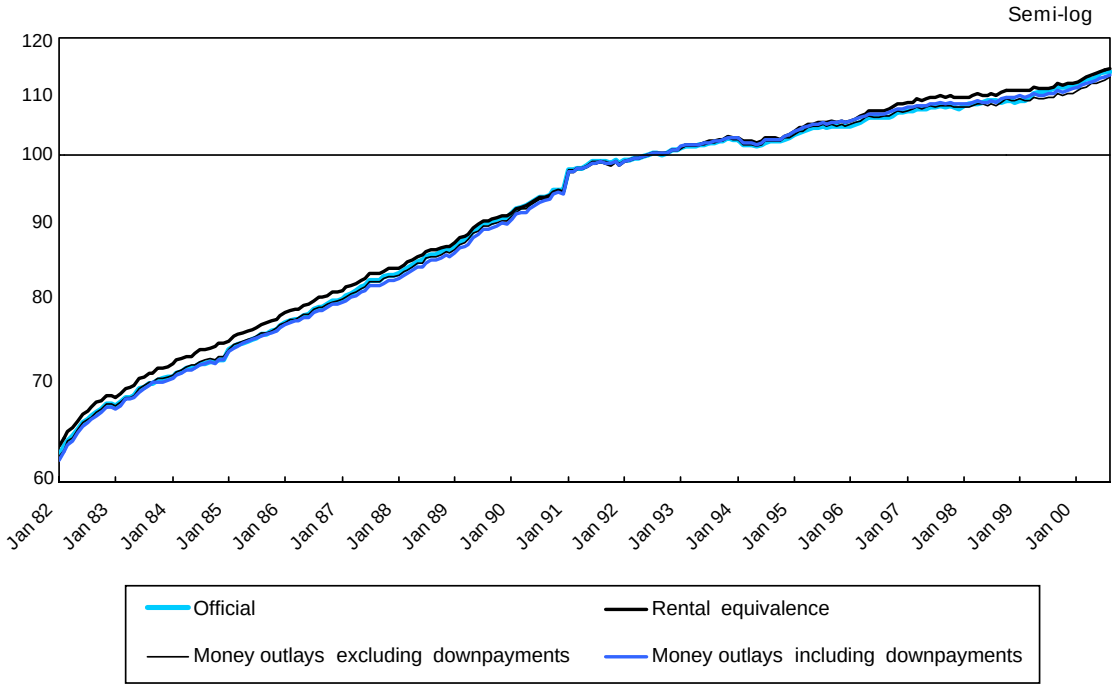
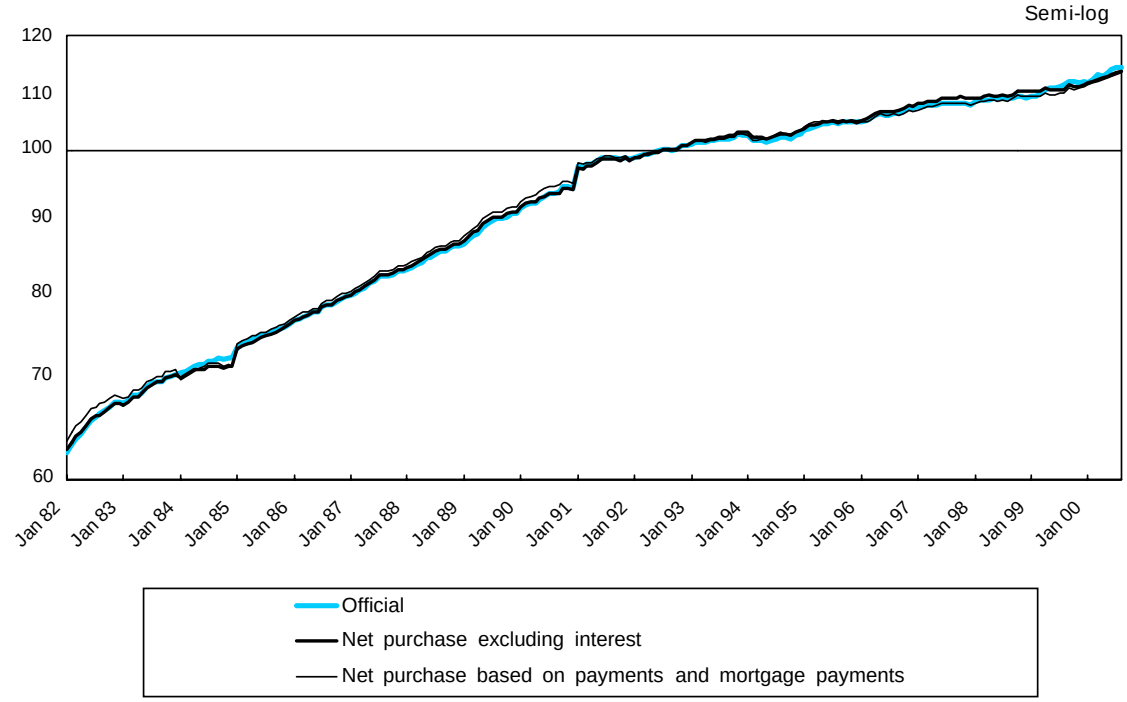


Chart 3b: Analytical consumer price index series for all-items (1992=100)



APPENDIX III

Chart 4a: Analytical consumer price series for all-items (1992=100) based on the rental equivalence concept

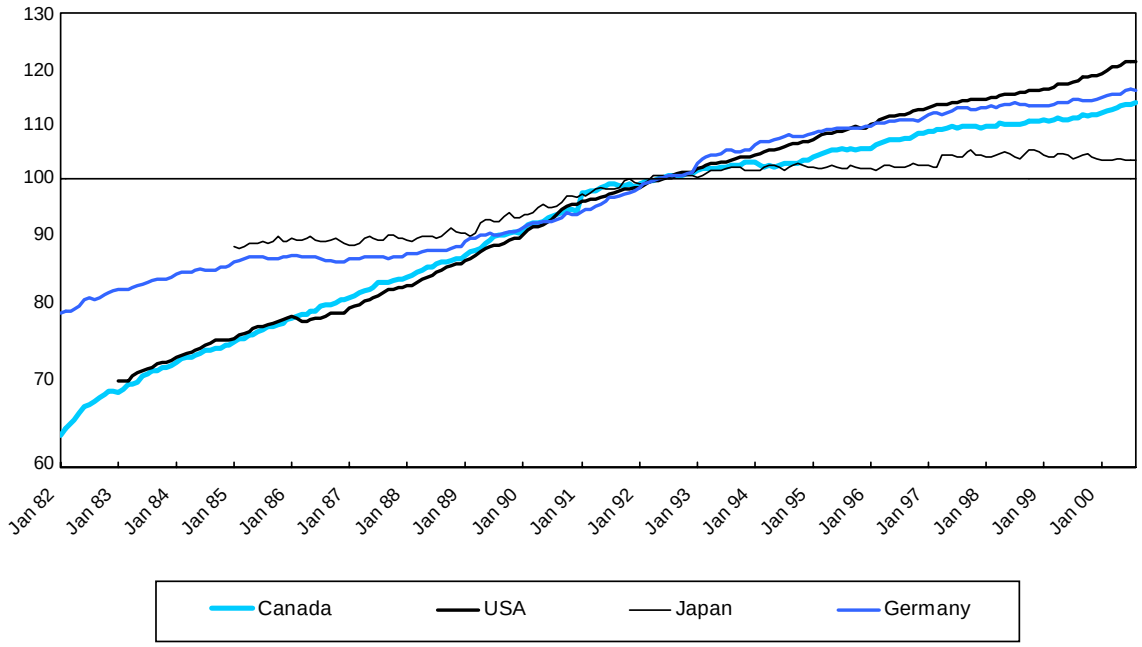


Chart 4b: Analytical consumer price series for all-items (1992=100) based on the official concept