THE APPLICATION OF THE CONSTANT PRICE METHOD FOR EVALUATING THE TRANSFER RELATED TO INFLATION: THE CASE OF FRENCH HOUSEHOLDS

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The constant price method is used here to evaluate transfers related to inflation either between households and other economic agents (essentially enterprises) or among groups of households defined by occupation, age class and so on. The results obtained are only fragmentary due to a lack of many pieces of information. The method requires in fact the splitting up of every value variation into a price component and a size component.

Nevertheless, some interesting results are shown. In recent years, if the total productivity surplus has always been positive, the wealth surplus of households is sometimes positive, sometimes negative. Concerning the distribution of the productivity surplus among household groups, it has not been possible to find significant distortions, other than those which are related to differences in the propensity to save. On the contrary, marked distortions appear in the distribution of the wealth surplus due to wide differences in estate composition and indebtedness level.

The aim of this study is to explore the redistributional effects of inflation either between households and other economic agents, or between different household groups defined by occupation, level of income, etc. These effects of inflation can be observed both in income and expenditure distributions and in wealth holding.

Although it is very difficult to establish a clear cut distinction between the causes of inflation and its consequences, this paper is more an attempt to emphasize certain *effects* of inflation, rather than an exploration of a *causal system*. In other words, the main concern is the consequences of inflation in flow and stock accounts and not the economic behaviour induced by inflation. However it is obvious that reactions against inflation can be registered in accounts and inversely results appearing in accounts can and do often constitute stimuli leading to new behaviour.

An attempt will be made to show:

—first, the constant price method is a good way to evaluate gains and losses in households' purchasing power owing to price variations;

—secondly, the redistributional effects of inflation between households and other economic agents are at least as important in wealth accounts as in flow accounts, and it is therefore convenient to deal simultaneously with both kinds of effects;

—thirdly, the consequences of inflation are unevenly distributed between households, but more pronounced distortions are observed in wealth holding than in income and expenditure distributions.

1. INFLATION AND THE CONSTANT PRICE METHOD

Before giving a summary of the constant price method, it is useful to define accurately the various aspects of inflation.

1.1. *Inflation: Rise in the General Price Index and Variations in the Relative Price System*

Inflation is often defined as a rise in a general price index such as the consumer price index or the G.N.P. deflator. But the *distortions observed in the relative price system* are another component of inflation. In fact, as far as the redistributional effects of inflation between national economic agents are concerned, they would be nil, were the rise in the general price index not associated with variations in the relative price system.

However, even without any rise in the general price index (that is without inflation), definite variations would appear in the relative price system due to the productivity gains or more generally to supply and demand conditions. In this sense, the effects of inflation on the relative price system correspond only to the *gap* between these variations which have been effectively observed and those which would have occurred anyway even without a rise in the general price index.

But such a distinction is much too subtle for our project: during a rise in the general price index the relative price system which would have prevailed without inflation remains unknown. Therefore, the constant price method which is used in this study is simply a comparison between the *current price system* and *the one of the previous period*.

1.2. *The Constant Price Method*

This method evaluates all kinds of price variations rather than the effects of inflation strictly speaking. In this way, the method shows the effects of the rise of the general price index on particular prices (of goods or factors of production) and the results of these effects on flow and stock accounts.

1.2.1. Surplus in Flow Accounts ([9], [15], [23])

The constant price method has already been applied many times to the accounts of French firms. It provides a total productivity surplus resulting from the difference between *the amount of goods produced and the amount of factors of production used*. This surplus is positive only if the quantity variation of the *output* is greater than the variation of all kinds of *factors*.

The surplus in production accounts can be given as follows. In period t, the production account of a particular firm or sector is written in equilibrium:

$$(1) \qquad p_t Y_t - f_t F_t = 0$$

where p_t is the price vector of products; Y_t, the quantity vector of output; f_t, the price vector for all factors of production including inputs of raw material, goods still in production, etc.; F_t, the quantity vector for all factors of production and inputs.

Factors are broadly defined here: for instance taxes are the payments to the government for providing public utilities; net profit after tax and distribution of dividends are considered to be a part of the returns of capital.

At the period $t+1$ the equilibrium relation of the production account is:

$$(2) \qquad p_{t+1} Y_{t+1} - f_{t+1} F_{t+1} = 0.$$

The constant price method's main originality is to draw up the production account of period $t+1$ using prices of period t:

$$(3) \qquad p_t Y_{t+1} - f_t F_{t+1} = \text{TSP}.$$

This relationship is not in equilibrium and we have to introduce a balance term which we interpret as a Total Surplus of Productivity. The economic meaning of this balance term is not difficult to find. Subtracting (1) from (3) we get:

$$(4) \qquad \text{TSP} = p_t \, \Delta Y - f_t \, \Delta F$$

that is, the Total Surplus of Productivity is positive only if, from the first to the second period, the additional amount of goods produced exceeds the additional amount of factors used in the production. Here we are not very far from the total productivity index of Kendrick. The authors who explored the method in France are Masse [15] and Vincent [23].

Relationship (4) shows how the Total Surplus of Productivity can produce a positive gap between the variation of output and the quantity variation of factors. This surplus is transferred from enterprises to households [2] either by means of a price decrease of the output, or by means of a price increase of factors. This can easily be shown by subtracting (2) from (3):

$$(5) \qquad \text{TSP} = -p Y_{t+1} + f F_{t+1}$$

As long as productivity increases, the total surplus is positive and is transferred from non-financial enterprises to other economic agents. We will only investigate here the part of surplus transferred from enterprises to households. This part can be found in the household Income and Expenditure account. This account has to be written supposing that all the resources or uses can be split into a price component and a quantity component.

Proceeding much the same way as for the Productivity surplus, we get the following relations.

$$(6) \qquad S = \Delta r \, R_{t+1} - \Delta c \, C_{t+1} - \Delta e \, E_{t+1}$$

$$(7) \qquad S = -r_t \, \Delta R + c_t \, \Delta C + e_t \, \Delta E$$

where r is the price of factors (for instance, hourly wage rate); R, the quantity of factors (for instance, annual worktime in hours); c, the price of consumption items bought by households; C, the quantities consumed by households; e, the price of investment or uses of saving by households (for instance, price of residential building); E, the "quantity" of investment or uses of savings.

Relation (6) explains the origin of the surplus transferred to households: the more the price of income components increases and the price of consumption and saving components decreases, the bigger the surplus will be. But it is clear that:

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—first, not all factors are in the hands of households; therefore only a part of the productivity surplus is transferred to households;

—secondly, not all household resources or income uses depend on production (for instance, social security payments and medical care); so, a part of the surplus in the household Income and Expenditure account may find its cause outside the production system.

Relation (7) gives the use of the surplus. Households use this surplus:

—either by decreasing the quantities of factors employed (ΔR);

—or by increasing the size of consumption or saving (ΔC, ΔE).

Relations (6) and (7) can be computed either totally for all households, or separately for groups of households defined by occupation, age of head of household, level of income, etc.

1.2.2. Surplus in Stock Accounts

The surplus appearing in wealth accounts differs from the preceding flow surplus in at least two ways:

—first, it has no direct relationship with the productivity gains of firms;

—secondly, this surplus is only a potential one; in order to realize it, assets have to be sold and debts repaid.

The surplus in the wealth accounts results from the *variation of asset prices* and from the *diminishing real value of liabilities*. If prices are expressed in their *absolute value*—that is with *nominal prices*—the surplus stems only from the variations of asset prices since the nominal price of non-indexed liabilities is *constant* by definition.

But if we evaluate this surplus using *relative prices* of assets and liabilities, we obtain a *relative surplus* which results from the relative price variation of assets and from the decrease of the relative price of liabilities.

We can express the gross wealth account of households at time t as following:

$$(8) \qquad a_t A_t = d_t D_t + \mathrm{NW}_t$$

where a represents the price vector of assets; A, the quantity vector of assets; d, the price vector of debts (which is always equal to one with nominal prices, but not with relative prices); D, the quantity vector of debts.

The balance term NW_t is the traditional measure of net wealth.

The Wealth Surplus is obtained in much the same way as for the surplus in flow accounts. We get finally

$$(9) \qquad \mathrm{WS} = \Delta a \, A_{t+1} - \Delta d \, D_{t+1}.$$

So, the more the price of assets increases and the (relative) price of debts decreases, the bigger is the Wealth Surplus.

Theoretically, it could be demonstrated that a link can be established between the constant price method on one side, and, on the other side, either the Hicksian compensating variation (see [13], chapter VIII), or the consumer surplus of Dupuit (see for instance [11]).

This general theoretical framework prompts to total computation of Productivity and Wealth Surplus. But unfortunately, this broad synthesis was not possible due to the lack of many pieces of information necessary to split the value into

volume and price components. Therefore, the second part of this contribution will be devoted to the presentation of only very fragmentary results.

2. PRODUCTIVITY SURPLUS AND WEALTH SURPLUS IN FRANCE BETWEEN 1965 AND 1974

I would like to give now some results of computations which were made along the line of what was described in the first part. The period, mainly but not exclusively, is 1965–1974. During it, for productivity and wealth surplus two points of view could successively be developed: first, the calculation of the productivity and wealth surplus in the household flow and stock accounts; secondly, the study of the distribution of surpluses between household groups defined by different criteria.

2.1. *The Transfer of the Productivity Surplus to Households and its Distribution between Household Groups*

2.1.1. The Total Productivity Surplus Transferred to Households

Recent studies were made at the Institut de la Statistique et des Etudes Economiques (INSEE) to evaluate the total amount of the productivity surplus transferred to households by means of an increase in payment per unit of factors of production [20].

We shall focus our attention on the two principal factors of production: labour and capital, leaving aside the role of the government.

Concerning labour, only two kinds of labour have been separately studied: salaried labour and non-salaried labour. As far as the transfer to households of the surplus which is due to labour is concerned, there is no serious difficulty of computation since the entire surplus attributed to labour is received by households.

The capital factor is more difficult to analyze since capital is only partly owned by households. Institutional investors are the owners of an important proportion of equities and bonds and this proportion is known only for quoted companies. Moreover it is impossible to determine the equity value of unquoted companies and the distribution of this equity between households and other economic agents (banks, public institutions, ...). Public enterprises raise some problems: in this sector, the surplus gained in capital is transferred to the government, but the computation of this transfer would require a study at a level of the firm and not only at the level of different sectors of activity as was done by INSEE.

Therefore, rather than applying distribution coefficients, we have preferred to provide in Table 1 the share of total surplus due only to labour.

As it can be seen the share of the total surplus attributed to labour was most of the time over 80 percent between 1965 and 1974, with the exception of the year 1968, when, for very understandable reasons, the share was much higher (more than 100 percent of the surplus), and 1969, when it was lower, in reaction to the preceding year (less than 60 percent). As far as 1968 is concerned, the explanation of the share of 116 percent lies in the observation that not only did labour receive the entire disposable productivity surplus, but payments per unit of other factor

owners decreased: there was, in fact, a decrease of the relative amount of taxes.

Compared to the disposable income of households, the surplus going to labour amounts to 2 or 3 percent of this income, with the exception of the year 1968 when it amounts to more than 4 percent.

2.1.2. The Distribution of the Productivity Surplus between Occupation Groups

Hereafter we choose to classify households by occupation, but most of the observations would be relevant for other classifications as well (for instance, by region, age of head of the household, level of income and wealth, etc).

A certain lack of information explains why we have obtained only partial results until now in the application of the constant price method.

—First, the method requires the yearly computing of accounts by occupation groups: Income and Expenditure accounts have to distinguish between all kinds of incomes and their uses by each household group. Such accounts do not exist in the French national accounts.

—As far as income is concerned, it is necessary not only to distinguish between wages and capital income, but also to evaluate all kinds of social security benefits received by any given group: these benefits can bring about a surplus if their "price" increase is greater than the price increase of consumption expenses.

—A distinction has to be made between quantity and price increases for all kinds of income, consumption and saving:

In total wage increases for instance, it is necessary to find out what is caused by a quantity increase of labour (because of more work hours or better qualification) and what is related to an increase in payments per unit. Such a distinction is rather easy for workers who are paid on an hourly basis, but much more difficult for managerial or professional levels.

As far as consumption is concerned, a general price index is not sufficient: *price indices by occupation groups* have to be computed; this has not been done in France until very recently.

To give an illustration of the numerous difficulties in the calculation of the surplus in Income and Expenditure accounts by occupation groups, the case of the workers between 1956 and 1965 has been developed.

2.1.2.1. The Surplus in the Income and Expenditure Account of Workers (1956–1965)

This case has been selected because:

—labour income constitutes the overwhelming part of workers' resources;
—as already noted, the distinction for workers paid on an hourly basis between the quantity component and the price component of the labour income is easier than for other occupation groups.

Using the income surveys and a study of the household savings rate by occupation groups, it was possible to establish the Income and Expenditure account for workers in 1956 and 1965 in current prices.

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TABLE 1

PROPORTION OF THE TOTAL PRODUCTIVITY SURPLUS (TSP) TRANSFERRED TO HOUSEHOLDS
BY INCREASING LABOUR UNITARY PAYMENTS (IN MILLIONS OF CURRENT FRANCS)

	1965	1966	1967	1968	1969	1970	1971	1972	1973
(1) Total productivity surplus	10,033	12,173	12,425	16,596	15,398	15,630	18,494	19,381	21,511
(2) Amount of surplus transferred to households	9,803	7,665	11,418	19,250	9,140	14,361	16,035	16,555	10,086
(3) 3 = 2/1 in percent	97.7	63.0	91.9	116.5	59.4	91.9	86.70	85.4	93.4
(4) Surplus transferred compared with disposable income (in percent)	2.9	2.1	2.9	4.4	1.9	2.6	2.6	2.4	2.5

Source: Philippe Templé [18]

TABLE 2

INCOME AND EXPENDITURE ACCOUNT OF WORKERS
(MEAN AMOUNT PER HOUSEHOLD IN FRANCS)

Uses		Resources	
a) 1956 (current prices)			
Direct taxes	111	Net wages	4,467
Consumption	5,990	Social benefits	1,588
Financial saving	279	Interest and dividends	53
Net investment	228	Rents	—
		Income of unicorporated business	325
		Other	175
Total	6,608		6,608
b) 1965 (current prices)			
Direct taxes	527	Net wages	13,031
Consumption	17,757	Social benefits	5,252
Financial saving	828	Interest and dividends	124
Net investment	674	Rents	56
		Income of unincorporated business	903
		Other	420
Total	19,786		19,786
c) 1965 (using 1956 prices)			
Direct taxes	253	Net wages	6,499
Consumption	12,137	Social benefits	2,904
Financial saving	790	Interest and dividends	112
Net investment	199	Rents	51
		Income of unincorporated business	451
		Other	420
		Surplus	2,942
Total	13,379		13,379

Table 2 gives these two accounts per household (i.e. mean account for a household whose head is a worker). The 1965 account established with 1956 prices is presented below in the same table.

The computation of this last account was disproportionately difficult following the item concerned. It was not too difficult for consumption and wages; much more difficult for social benefits, rents, direct taxes, financial saving, investment, interest and dividends and income of unincorporated businesses.

Consumption: a consumer price index by occupation group calculated by INSEE between 1956 and 1964 was available[1].

Wages: different surveys present the evolution of hourly wages by qualification or by activity; we used a weighted index of these hourly wages.

Social Benefits: the difficulty stems inter alia from the great diversity of these benefits; we were forced to use a large variety of partial information.

Rents: in this item, land rent plays a major role; therefore we took as a price indicator the administered price evolution of the corn metric quintal.

Direct Taxes: the hypothesis made here was that the volume of these taxes should vary as does the taxable income. Knowing the quantity variation of the latter, it was possible to calculate the price variation of the taxes.

Financial savings: the distribution of workers' financial savings in currency, demand deposits, time deposits, bonds and shares was approximately known. For currency and all kinds of deposits, the price index was set by definition equal to one. For bonds and shares we referred to the bond price index and the share price index of the Compagnie des Agents de Change.

Investment: this investment is composed predominantly of the purchase of dwellings; the price indicator was the mean for the evolution of the price of dwellings per square meter.

Interest and Dividends: the respective shares of interest and dividends in workers' financial income were approximately known. We used a weighted index of two indicators. For interest we took as a price indicator the evolution of the nominal interest rate. For dividends, the price development was obtained as the product of a mean yield rate index by the mean index of share prices.

Income of Unincorporated Businesses: this is obviously the weakest point of our illustration, but the role played by this item in workers' resources is only marginal. The crude hypothesis made was that the price development was the same as that observed for hourly wages.

Dividing each amount of the 1965 account (Table 2b) by the corresponding price index gives the 1965 account established in 1956 prices (Table 2c). Following the relation (6) in the first part of this contribution, the balance term of this constant price account is the surplus, equal to 2942 F. This surplus is expressed using 1956 prices. It represents approximately 45 percent of the total resources in 1956 and 22 percent of those of 1965 measured with 1956 prices. In annual mean, this surplus ranges from 2 to 4 percent of annual disposable income[2].

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[1]See below Table 5.

During this period, it would have been very interesting to compare the situation of labour workers with those on another level.

2.1.2.2. *Fragmentary Results on Income and Expenditure Accounts of Different Occupation Groups*

For the following period 1966–74, our results are more extensive but less detailed. The main reason is that we did not have at our disposal complete Income and Expenditure accounts for the end of the period. It was not worth while to make refined computations with very unprecise data, and therefore only general results are mentioned below.

Concerning Income "price", Table 3 provides the mean "price" increase of four income categories during the period 1966–74.

For the *hourly rate of worker wages*, the *price of social security benefits* and the *price of capital income* (interest, dividends and rents), the information used is much the same as for the previous period.

For the *price of income of unincorporated business*, some unsatisfactory hypotheses were made here. It was necessary to introduce a distinction between the part of income corresponding to *capital income* and the part corresponding to *labour income*. The part of income used to finance investment was considered as *capital income* (hypothesis of total reinvestment of gross profit). The other part of income was considered as *labour income*. For capital income, the price index was that for unincorporated business investment. For labour income, a distinction was made between agricultural and non-agricultural enterprises. The quantity variation of labour was assumed to be equal to the variation in the number of hours worked yearly by salaried workers. The changes of the owner's labour price in agricultural enterprises were found to be much more erratic than that in non-agricultural enterprises; it is also less important (+9.2 percent against +11.3 percent).

In Table 3, three kinds of income have approximately the same rate of changes during the period 1966–74: the hourly rate of workers' wages, the

TABLE 3

CHANGES OF PRICE INDICES BY TYPE OF INCOME (1966–74)
(ANNUAL MEAN)

Hourly Rate of Workers' Wages	Price of Capital Income	Price of Social Security Transfers	Income Price of Unincorporated Business
11%	8.4%	11%	10.5%*

*among which: price of gross profit: 6.0%
               owner labour price in agricultural enterprises: 9.2%
               owner labour price in non-agricultural enterprises: 11.3%

[2]This result cannot be directly compared to the line 4 of Table 1: the periods are not the same, but overall the surplus definitions are different.

"price" of social security transfers and the income price of unincorporated business. On the contrary, the "price" of capital income seems to manifest a slower progression. This observation concerns dividends paid on equities, the rate of interest of bonds and rents.

Table 4 contains income price indices by occupation groups. These indices are very roughly computed by weighting index of Table 3 with the proportion of the different income types in the global income of any given occupation group in 1970. The major weakness of this computation is not being able to distinguish between different rates of increase by qualification for wages and salaries.

TABLE 4

EVOLUTION OF INCOME PRICE INDICES BY OCCUPATION:
1966–1974
(ANNUAL MEAN IN PERCENT)

Farmers	9.0
Unskilled workers in farming	10.6
Professional	10.3
Higher managerial or administrative	10.6
Intermediate managerial or administrative	10.6
Clerical	10.7
Workers	10.7
Retired, housewives, etc.	10.4
All households	10.5

Except for farmers whose change is far below the mean (9 percent against 10.5 percent), the "price" variations of other groups are only slightly above (workers, clerical, managerial) or below the mean (professional, retired people). For the latter groups, the situation is due to the relatively high share of capital income in total income (respectively 11 and 21 percent against 9 percent for all households). It appears that these rough computations do not indicate a large dispersion in the "price" increases of incomes received by the different occupation groups. The question is: would more refined computations (and especially better price indices for each income category) have led to a greater spread of results?

Discrepancies in the expenditure price variations could be another source of inequality in periods of inflation. However, Table 5 suggests that the dispersion between mean increases of consumption prices is also very small; data are given for two different periods: 1956–65 and 1970–75. These indices were computed by INSEE. For both periods, higher occupation groups seem to be slightly discriminated against by inflation: the reason lies in the expenditures on services which constitute a rather large proportion of their total expenditures, since the price of services has increased faster than other prices.

Obviously a much wider spread in expenditure price variations is obtained if the price index is computed at an individual level rather than at the level of a group. Such results are presented for instance by R. Michael for a sample of 11,000 American households ([16], p. 3).

The "price" of saving cannot be disregarded: Inflation can introduce marked differences among occupation groups because of discrepancies in the rate of

TABLE 5
CHANGES OF CONSUMER PRICE INDICES OF THE DIFFERENT OCCUPATION GROUPS
(ANNUAL MEAN IN PERCENT)

1956–65		1970–75	
Farmers	4.3	Unincorporated business	9.1
Unskilled workers in farming	4.2	Higher managerial or	
Craftsmen and small size trade		administrative	9.1
business	4.4	Intermediate managerial	9.0
Higher managerial or		Clerical	9.0
administrative		Workers	9.0
and professional	4.8	Retired, etc.	8.9
Intermediate managerial or			
administrative	4.5	All households	9.0
Clerical	4.5		
Foremen	4.3		
Workers (skilled and semi-skilled)	4.3		
Unskilled workers	4.2		
Retired, housewives, etc.	4.4		
All households	4.4		

saving, even with approximately the same income price increase and the same expenditure price increase. Table 6 provides savings rates by occupation group in France for the year 1967: it appears, for instance, that the savings rate of the Professional or Higher managerial groups is seven times higher than the savings rate of Retired people, Housewives, etc. . .

The difficulty of computation aside, the concept of saving "price" calls for a more profound theoretical reflection. This concept is satisfactory in the case of an investment (housing for instance), but much less clear in the case of purchases of shares. Some people may also argue that the saving uses have not the same compulsory strength as most of consumption expenditures. However, a rough total calculation of a household saving price index between 1966 and 1974 leads to the conclusion that this price increase was notably less than the consumer price

TABLE 6
SAVINGS RATE BY OCCUPATION GROUP IN 1967
(GROSS SAVING DIVIDEND BY NET INCOME
WITHOUT INCLUDING THE FINANCING OF CAPITAL
FORMATION IN UNINCORPORATED BUSINESS)

Farmers	15.3
Unskilled workers in farming	8.3
Professional	20.1
Higher managerial	20.4
Intermediate managerial	11.1
Clerical	8.4
Workers	7.8
Retired, housewives, etc	2.8
All households	12.3

increase. This result is due to the fact that the variation of cash assets (the nominal price increase of which is null by definition) represents a relatively high share in household saving uses.

Therefore we can assume that occupation groups with a higher propensity to save are in a better position to resist inflation because they are not so heavily exposed to the rise of the consumer price level.

Finally, it appears that if higher occupation groups are in a better position in times of inflation, it is not due to a more rapid growth of their income or to a lesser increase of their consumption prices, but rather to higher savings rates. At the opposite end, retired persons who don't save much are heavily exposed to inflation, even if their pensions are correctly re-evaluated.

It was not possible to give in this paper full results concerning the application of the constant price method. The computation of surplus in the income and expenditure accounts came up against the difficulty of establishing these accounts by occupation group and finding appropriate deflators for each item.

This study can later be pursued in two directions:

—first, in the next years, it will be perhaps possible to take advantage of the periodic establishment of accounts by occupation group and the progress of price indices in order to make an easier application of the constant price method;
—at a less ambitious but perhaps more operational level, one can think of exploring the situation of some small household groups comparing the price variations of their income and consumption expenditures.

2.2. *Surplus in Wealth Accounts*

We shall study the total wealth surplus of households before analyzing its distribution among households.

2.2.1. The Total Wealth Surplus

The total value of French household wealth, including real estate and all kinds of financial assets, amounts approximately to 3,800 billion francs in 1974. The corresponding liabilities were for this year a little above 250 billion. There are no official statistics on the various components of household wealth, and even less on the price variations of these components.

However one can guess that wealth surplus is marked by more erratic changes than those appearing in the income and consumption accounts. This irregularity can be attributed to:

—the differences, from year to year, in the rate of inflation and the influences of these differences on the loss of purchasing power due to the *net creditor status* of households;
—the sudden fluctuation of certain assets prices such as those of shares.

2.2.1.1. Nominal Capital Gains or Losses

These suppositions are confirmed by studies on nominal capital gains or losses. On this point it is worth while to compare the results obtained for the

United States by Bhatia (period 1949–64) [6] and for France (period 1949–67) [1]. American figures concern the wealth of all households. French figures concern only the wealth of salaried and retired people. Moreover computation methods are not the same: for France a simulation model of wealth accumulation was used and it may be that some assumptions which were made caused a smoothing of the peaks.

Nevertheless charts 1 and 2 are interesting: they present the annual shares respectively of saving and capital gains or losses in the value increase of wealth. In the United States, stock and share portfolio plays a major role in the capital gains or losses, the evolution of which is rather abrupt. In France, capital gains related to real estate (building or land properties) play a more important role and have a more regular development than share portfolio. However the 1962–63 stock exchange collapse can be seen easily on chart 2, even if it is less apparent than on chart 1.

2.2.1.2. Relative Capital Gains or Losses

The wealth surpluses shown in charts 1 and 2 are nominal. It is interesting to compare the wealth price variation with the variation of a very general price index. We obtain in this way a relative surplus which indicates if wealth prices have been greater or smaller than inflation measured by the general price index.

The computation of *relative* prices underlines the influence of the net creditor status of households, which must be decomposed into:

—a negative influence of non-indexed claims;
—a positive influence of non-indexed indebtedness.

A calculation in relative terms can be applied to non-indexed financial assets (other than shares) owned by French households. We have at our disposal a complete series from 1965 to 1974 for bonds, monetary and liquid assets owned by households and short and long term indebtedness. The general price index was the consumer price index. The index variation of the current year was applied to the amount of claims or debts at the end of the preceding year. Table 7 provides the *net negative transfer* relative to the net creditor status of households in percent of their disposable income. In spite of a marked increase in indebtedness the ratio of the net negative transfer to disposable income rose significantly from 1970 to 1974 due partly to an increase of claims but above all to the acceleration of inflation.

It has not been possible to compute relative gains or losses in real estate and share portfolio for the full period because information on these assets is lacking. But it was possible from special inquiries made by INSEE and CREP to make the computations for the quite contrasting years of 1972 and 1974.

In 1972, the *relative* wealth surplus was positive and amounted to nearly 30 billion francs (see Table 8). This resulted, first, from a moderate inflation rate which contributed to limit the losses of households due to their net creditor status; second, from a favourable development of the Stock Exchange, and third from a substantial increase in the relative price of real estate.

On the other hand, the wealth surplus in 1974 was largely negative and amounted approximately to 70 billion francs due to a high inflation rate, a fall in

billion of
current dollars

Saving + capital
gains or losses

100

50

Saving

1949   1951   1953   1955   1957   1959   1961   1963
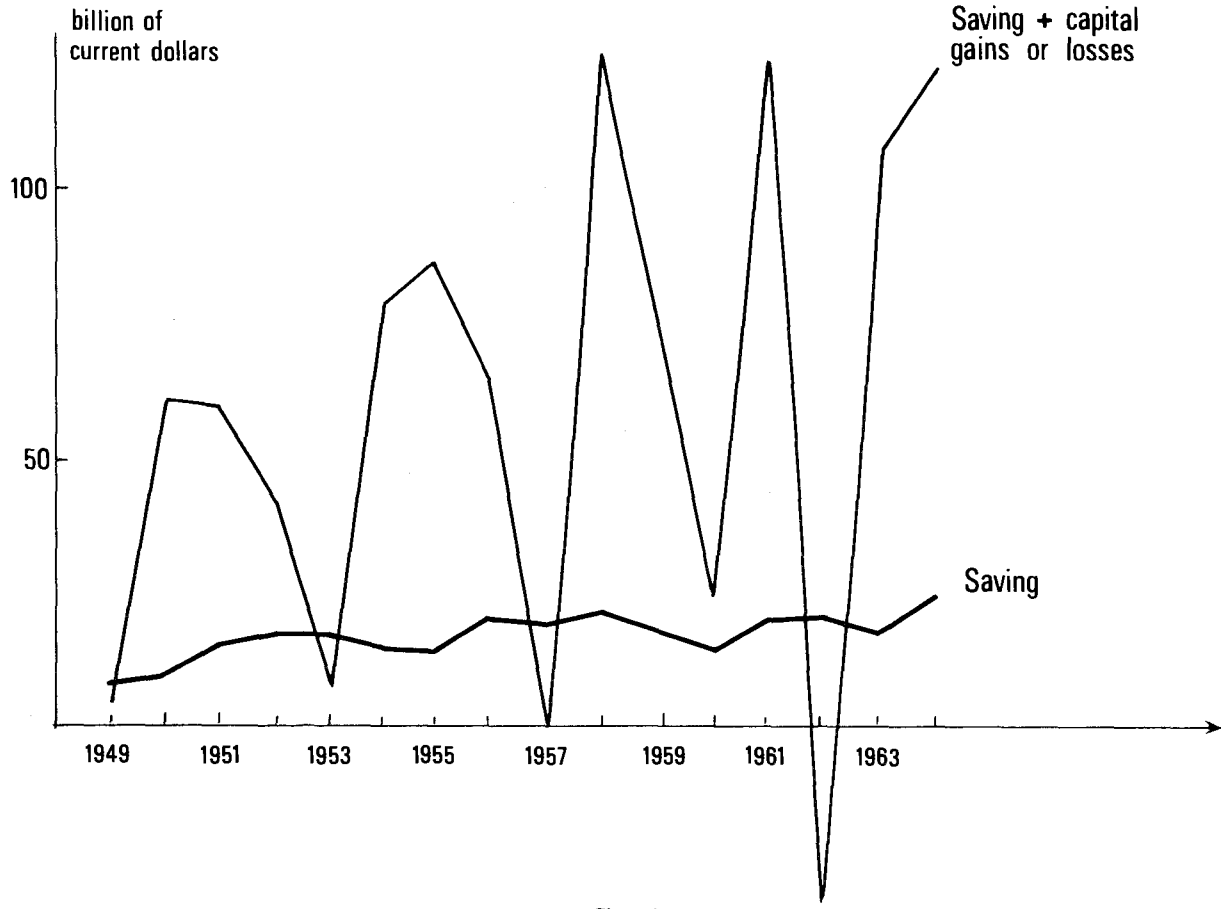
Chart 1.
United States: 1949–64: Saving and Capital Gains or Losses

billion of
current francs

60

40

20

1949 1951 1953 1955 1957 1959 1961 1963 1965

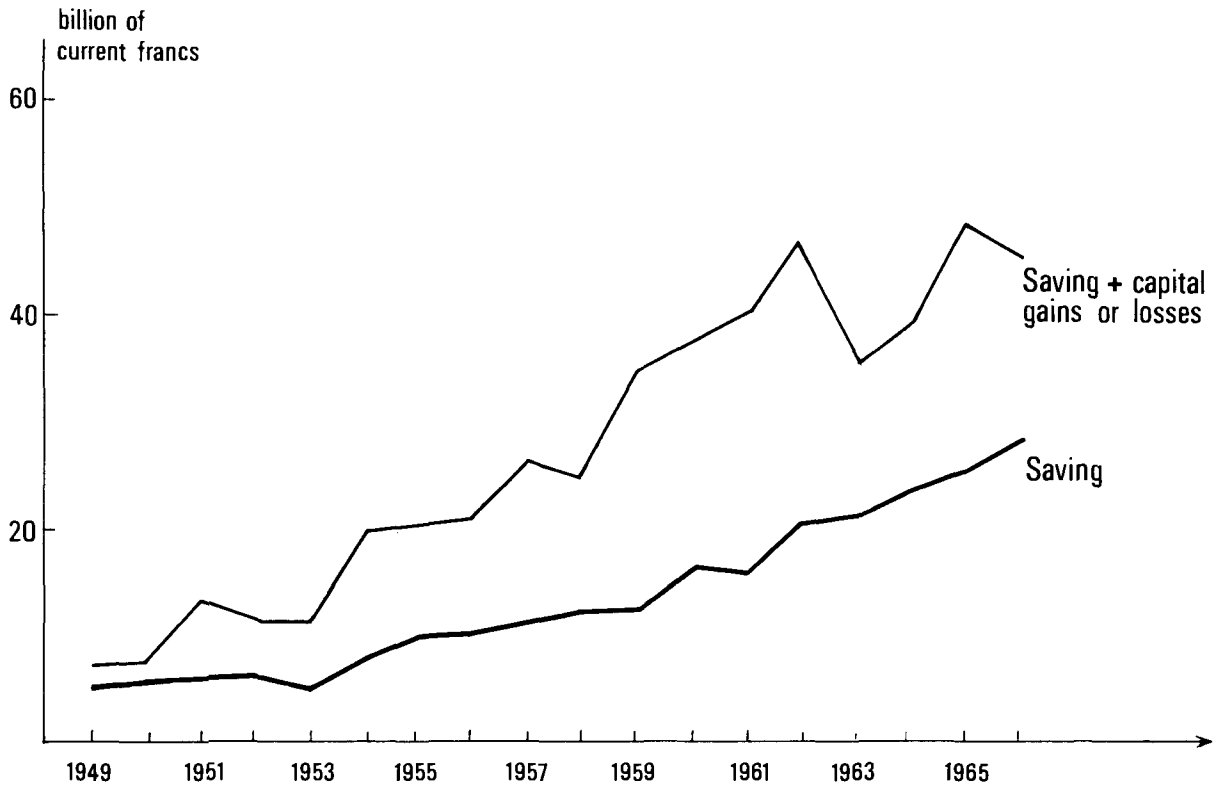Saving + capital
gains or losses

Saving

Chart 2.
France: 1949–67: Saving and Capital Gains or Losses.

TABLE 7

RELATIVE SURPLUS RELATED TO HOUSEHOLD CLAIMS AND LIABILITIES

(In millions of current francs)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Losses due to claims	−6,383	−8,557	−9,443	−17,935	−26,406	−21,392	−28,386	−34,667	−48,441	−102,789
Gains due to indebtedness	1,950	1,766	1,515	3,560	6,255	6,020	6,505	8,220	16,190	35,120
Net transfer	−4,433	−6,791	−7,928	−14,375	−20,151	−15,372	−21,881	−26,447	−32,251	−67,669
In percent of disposable income	1.3	1.8	2.0	3.3	4.1	2.8	3.5	3.8	4.1	7.3

TABLE 8

WEALTH RELATIVE SURPLUS DUE TO PRICE VARIATIONS
(IN BILLION FRANCS)

1972			
Negative surplus		Positive surplus	
Claims	35	Indebtedness	8
Net positive surplus	28	Real estate	50
		Share portfolios	5
	63		63
1974			
Claims	103	Indebtedness	35
Share portfolios	25	Real estate	20
		Net negative surplus	73
	128		128

the share index and a less favourable increase in the relative price of buildings and properties.

2.2.2. The Distribution of Wealth Surplus among Households

It is interesting to try to determine more precisely the distribution of the potential wealth surplus among households. Although calculating complete series of wealth surplus was not possible, using price indices for different assets and a constant structure of the household gross wealth during the period 1968–74 a rough idea of the distribution of this surplus among household groups can be given.

2.2.2.1. Price of Assets and Wealth Structure

Table 9 provides the mean annual price variation of the main real and financial assets. The nominal price variation of liquid assets (demand and time deposits, saving deposits, etc...) has been assumed equal to zero. For debentures and shares, stock-exchange price indices are relevant. For gold, the reference is the market price in Paris. The housing price index is a mean result of information

TABLE 9

EVOLUTION OF MAIN ASSET PRICES IN
FRANCE, 1968–74
(ANNUAL MEAN IN PERCENTAGE)

Liquid assets	0.0
Land properties	7.6
Housing	8.3
Unincorporated business	6.5
Fixed yield securities	0.4
Shares	−1.7
Gold	12.9

concerning the markets of new buildings and old residential buildings. As for land properties, the index used is a mean taking into account the price evolution of land and forests. The major weakness of these price indices is that they do not concern the particular price evolution of assets owned by households, but rather the price evolution of different assets by type regardless of owner[3]. The assumption made is that price variations of assets owned by households are roughly the same as the prices of assets owned by other participants.

Table 9 shows that, apart from the huge rise in the gold price, two groups of assets differ markedly: the first one is composed of debentures, stocks and shares, the mean price of which did not rise during the period or even decreased; on the opposite side in the second group of assets, housing and land properties have experienced a very favourable development.

2.2.2.2. Price Changes of Wealth by Occupation Group

Table 10 gives the household wealth structure (in percent) by occupation groups in 1975. In the following computation this structure is assumed to be stable during the period.

It is possible to assume that the same type of assets (for instance housing) owned by different groups (for instance workers and higher managers) has not necessarily an identical price variation: in France, it seems that housing owned by higher managers has shown a greater price increase during recent years than housing owned by workers.

Unfortunately sufficient data were not available to make such a distinction. Therefore to obtain a rough estimation of the price changes of wealth by occupation group, we weighted for each occupation group price indices of Table 9 by the structure given in Table 10[4].

TABLE 10

HOUSEHOLD WEALTH STRUCTURE BY OCCUPATION GROUP
(1975, IN PERCENT)

Occupation Group	Liquid Assets	Land Properties	Housing	Unincorporated Business	Fixed Yield Securities & Shares	Total
Farmers	15	48	35	2	—	100
Self employed	13	3	47	35	2	100
Professional	14	3	48	30	5	100
Higher managerial and administrative	18	4	67	1	10	100
Intermediate managerial and administrative	19	4	67	6	4	100
Clerical	22	2	72	1	3	100
Workers	24	4	70	1	1	100
Retired, housewives, etc,	24	4	57	4	11	100
All households	20	11	54	9	6	100

[3]For instance, has the household share portfolio the same price evolution as the set of all quoted shares?

[4]The price evolution of gold was not taken in account in this computation.

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Table 11, column 2, gives the variation of the *nominal* price of assets. Column 3 gives the *relative* variation computed from the mean variation for global household wealth (5.9 percent).

TABLE 11

RELATIVE CAPITAL GAINS OR LOSSES ON HOUSEHOLD ASSETS
AND LIABILITIES BY OCCUPATION GROUP (1968–74)
(ANNUAL MEAN IN PERCENT OF GROSS WEALTH)

①	②	③	④	⑤	⑥
Occupation Group	Nominal Price Variation of Assets	Relative Price Variation of Assets	Indebtedness Ratio[a]	Relative Price Variation of Liabilities	Total Relative Capital Gains 6 = 3 + 5
Farmers	6.7	0.8	4.8	0.3	1.1
Self employed	6.4	0.5	5.3	0.3	0.8
Professional	6.1	0.2	6.5	0.4	0.6
Higher managerial and administrative	5.8	−0.1	8.9	0.5	0.4
Intermediate managerial and administrative	6.2	0.3	9.5	0.6	0.9
Clerical	6.2	0.3	8.8	0.5	0.8
Workers	6.2	0.3	14.5	0.9	1.2
Retired, housewives, etc.	5.2	−0.7	1.3	0.1	−0.6
All households	5.9		6.0		

[a]Ratio of indebtedness to gross wealth in 1971.

Two groups seem to be in a very favourable situation: farmers due to a relatively high share of real estate in their wealth (land and buildings); self employed in industry and trade because of the value of unincorporated business and buildings.

Four groups are still above the mean: professional, intermediate managerial, clerical and workers.

At the lower level of the hierarchy we find higher managerial and retired people because of a relatively high proportion of debentures and shares in their gross wealth (respectively 10 and 11 percent): higher managerial own mainly shares, and retired, mainly debentures.

The level of liabilities is another important factor to fight inflation as long as liabilities are not indexed on a general price index. Table 11 (column 4) shows that the indebtedness ratio[5] differs widely from one occupation group to the other: for instance it amounts only to a little more than one percent for retired people and to almost 15 percent for workers.

These ratios are estimated for the year 1971. During 1968–74 there was a rather regular upward trend in these ratios. This trend seems to have affected every occupation group in roughly the same way. Therefore, lacking more accurate data, we took the year 1971 for the estimation of the mean indebtedness

[5]Ratio of the volume of total indebtedness to gross wealth.

ratio during the period 1968–74. The relative gain on liabilities was then cal-culated as follows. The general index of reference was the *general price variation of household wealth* during the period (mean increase of 5.9 percent); were the mean indebtedness ratio of a particular occupation group equal to unity, this group would have obtained a mean annual relative gain of 5.9 per cent of its gross wealth; if its indebtedness ratio was less than unity the relative gain amounts to that ratio multiplied by 5.9 percent of its gross wealth. Table 11 shows this result (column 5).

Column 6 provides the total relative gain of each household group obtained by summing up the relative price variation of gross wealth (Table 11, column 3) and the relative price variation of liabilities (Table 11, column 5). It is important to underline that for 6 occupation groups out of 8 the relative gain on liabilities is *more important* than the relative gain on gross wealth.

Farmers and workers are in the most favourable situation (+1.1 and + 1.2 percent), but for opposite reasons: farmers mainly because of a high price variation of their assets, workers because of a very high indebtedness ratio.

Self employed, intermediate managerial and clerical are still in a good position (0.8 percent, 0.9 percent and 0.8 percent) due principally for the last two groups to a rather high indebtedness ratio.

Professional and higher managerial (0.6 and 0.4 percent) are in a less favourable position: professional have important gains neither on the side of assets nor on that of liabilities; higher managerial have a higher indebtedness ratio but they lose on the assets side.

Retired, housewives and so on stand in a very difficult situation (−0.6 percent): the loss on their assets is far from being compensated by the gain brought about by their borrowing.

2.2.2.3. Price Changes of Wealth by Age Class

Using the same method as for occupation groups, the relative capital gains (or losses) by age class for the period 1968–74 has been calculated. Table 12 gives the structure of wealth for each age class. It appears that liquid assets represent a relatively high share in the gross wealth of young people (less than 35 years old) and debentures and shares are a significant part of wealth only after age 55.

Table 13 presents all results concerning the relative capital gains or losses by age class. Young households less than 35 years old are in a favourable position

TABLE 12

STRUCTURE OF HOUSEHOLD WEALTH BY AGE CLASS (1975)
(IN PERCENT)

Age Class	Liquid Assets	Shares and Debentures	Unincorporated Business	Housing	Land Properties	Total
Less than 35	26.6	1.4	14.5	50.2	7.3	100.00
35 to 44	20.0	3.4	10.4	56.0	10.2	100.00
45 to 54	13.4	3.0	10.9	61.4	11.3	100.00
55 to 64	20.4	8.5	12.3	46.2	12.6	100.00
65 and more	20.9	7.3	2.3	60.1	9.4	100.00
All households	19.6	5.6	9.2	55.0	10.6	100.00

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TABLE 13

RELATIVE CAPITAL GAINS OR LOSSES ON HOUSEHOLD ASSETS AND LIABILITIES
BY AGE CLASS (1968–74)
(ANNUAL MEAN IN PERCENT OF GROSS WEALTH)

① Age Class	② Nominal Price Variation of Assets	③ Relative Price Variation of Assets	④ Indebtedness Ratio[a]	⑤ Relative Price Variation of Liabilities	⑥ Total Relative Capital Gains 6 = 3 + 5
Less than 35	5.7	−0.2	17.7	+1.1	+0.9
35 to 44	6.1	+0.2	13.7	+0.8	+1.0
45 to 54	6.6	+0.7	6.6	+0.4	+1.1
55 to 64	5.5	−0.4	2.0	+0.1	−0.3
65 and more	5.8	−0.1	0.6	+0.0	−0.1
All households	5.9		6.0	+0.4	

[a]Ratio of indebtedness to gross wealth in 1971.

(+0.9 percent) in spite of the high share of liquid assets in their wealth, because of a very strong indebtedness ratio. Households between 35 and 55 years old seem to have the best situation either because their indebtedness ratio is still rather high (between 35 and 44 years old) or because they have an important share of dwellings in their wealth (between 45 and 54). The negative performance of people aged more than 54 is essentially due to the amount of debentures and shares they own and their low indebtedness ratio.

2.2.2.4. Price Changes of Wealth by Wealth Amount

Tables 14 and 15 provide the same price changes for household groups defined by wealth amount. The price variation of assets (Table 15, columns 2 and 3) is favourable only above a wealth amount of 100,000 F: below that level people own too large a share of liquid assets. The highest wealth amounts (over 1,000,000 F) do not show the best performance because of the negative price variations of share portfolios.

TABLE 14

STRUCTURE OF HOUSEHOLD WEALTH BY WEALTH AMOUNT (1975)
(IN PERCENT)

Wealth amount (in 10^3 F)	Liquid Assets	Shares and Debentures	Unincorporated Business	Housing	Land Properties	Total
Less than 10	99	1				100
10–50	82	2	1	12	3	100
50–100	41	4	3	45	7	100
100–200	17	1	2	76	4	100
200–300	16	3	5	70	6	100
300–500	15	4	5	68	8	100
500–700	16	3	10	51	20	100
700–1,000	17	6	13	51	13	100
1,000 and above	18	10	17	40	15	100
Total	19	6	9	55	11	100

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TABLE 15

RELATIVE CAPITAL GAINS OR LOSSES ON HOUSEHOLD ASSETS AND LIABILITIES
BY WEALTH AMOUNT (1968–74)
(ANNUAL MEAN IN PERCENT OF GROSS WEALTH)

①	②	③	④	⑤	⑥
					Total
	Nominal	Relative		Relative	Relative
	Price	Price		Price	Capital
Wealth amount	Variation	Variation	Indebtedness	Variation of	Gains
(in 10^3 F)	of Assets	of Assets	Ratio[a]	Liabilities	$6 = 3 + 5$
Less than 10	0	−5.9	4.7	0.3	−5.6
10–50	1.3	−4.6	5.7	0.3	−4.3
50–100	4.4	−1.5	6.3	0.4	−1.1
100–200	6.7	+0.8	10.2	0.6	+1.4
200–300	6.5	+0.6	7.8	0.5	+1.1
300–500	6.5	+0.6	5.5	0.3	+0.9
500–700	6.4	+0.5	5.9	0.4	+0.9
700–1,000	6.0	+0.1	4.2	0.3	+0.4
1,000 and above	5.4	−0.3	3.0	0.2	−0.1
All households	5.9		6.0	0.4	

[a]Ratio of indebtedness to gross wealth in 1971.

These results differ a little from those obtained by Sandford for the United Kingdom during the period 1949–67 ([19], p. 258–259). For British households the property price index applied to estates of various sizes increases in line with the size of estate from an annual mean of approximately 5 percent to almost 12 percent. This could have been the case for French household estates had the Paris Stock-Exchange price index registered a more favourable development.

Taking into account the debtor status of French households the situation does not change markedly. Estates from 100,000 to 700,000 F are in a favourable situation because of a relative price increase of assets and an indebtedness ratio especially high for estates between 100,000 and 300,000 F. Above 700,000 F the relative capital gains are either less important or even negative: the indebtedness ratio is too low to offset the feeble performance of asset prices.

Thus, neither the highest wealthholders nor the lowest had the optimum estate composition to resist inflation during this period in France. The *middle wealthholders* fared better because they own a large proportion of real estate and have a high indebtedness ratio.

CONCLUSION

I am aware of the great discrepancy between the ambitious goals of this research and the fragmentary results obtained. It is clear that the constant price method was only very partially applied. Nevertheless I would like to underline a few points which are perhaps more original than others.

1. The *total surplus of productivity* appearing in the flow accounts and transferred from non financial enterprises to households is steadily positive during

the period 1965–74 due to the progress in factor productivity. Taking into account only the part of surplus which is transferred to labour, the surplus amounts to 2 or 3 percent of household disposable income.

2. It has not yet been possible to compute for the period 1965–74 a complete series of *wealth surplus* because of the lack of a series concerning household estates.[6] But we believe that the time pattern of wealth relative surplus is much more irregular than that of the productivity surplus: at the end of the period (1974) with an annual general price rise above 10 percent, the relative surplus seems to become negative and its absolute value appears to be much greater than the value of the *productivity surplus*. So, if we try to sum up both kinds of surplus, households could be globally net losers in a "two-digit" inflation.

3. As far as the *distribution of the productivity surplus among households* is concerned, we have failed to show significant distortions other than those which are related to differences in the propensity to save according to occupation group. For household groups defined by occupation all "prices" of income seem to increase approximately at the same pace except the price of capital income whose increase appears to be slower.[7]

The assumption of an implicit indexation could be made for all other incomes. But this assumption—reasonable in the middle and long term—is probably not relevant both in the short term and for more precisely defined household groups. In the same way on the side of consumer prices, the apparent consistency among all occupation groups in the middle and long term might hide marked distortions both in the short term and for smaller groups multidimensionally defined.

4. Larger differences appear in the *distribution of wealth surplus* among household groups defined by occupation, age class or size of estate. These discrepancies are closely related to the structure of wealth and the amount of liabilities. In the low and middle range of estates, people who had the opportunity and the capacity during the period to become owners of their housing and to borrow a large amount have been in a better situation than households holding mainly liquid assets.[8] In the upper range of estates, households having mainly real estate (residential and land properties) were certainly net winners in the recent inflation; households with a high proportion of shares in their estates were net losers.

If inflation does not seem to introduce much inequality among households through the Income and Expenditure accounts, the inequality between households appears more in Wealth accounts. It is dubious that the recent law (1976) on taxation of capital gains will remove all sources of inequality in this field.

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[6]Such a series might be available in a few months.

[7]Another important exception is the price of farmers' labour income which remains behind the income prices of other occupation groups.

[8]It is important to point out that, in France, mortgage debt has a fixed interest.

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