

THE CONCEPT OF MACROECONOMIC COST AND ITS UTILITY

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The proposed "Variable Domestic Cost" includes all net payments by sectors belonging to the productive system (enterprises, credit institutions and government) to all other sectors (households, private non-profit organizations and the rest of the world). Compared with the rate of growth of demand, represented by Gross Domestic Marketable Product at current prices, the rate of growth of VDC per unit produced forms the "profitability function of the nation." Profitability is positively related to the rate of economic growth and to the price/cost relation. A relative deceleration of unit VDC stimulates economic growth, which enlarges the positive difference between price and cost, and that, in turn, accelerates economic growth. Inversely, a relative acceleration of unit VDC brakes economic growth, while a slowdown in production raises unit costs and depresses prices. The resulting fall in profitability stops economic growth.

The main explanatory variables of demand are World trade, monetary and fiscal policy and import prices. The main components of VDC are enterprises' wage costs, social benefits minus social contributions and the government wage bill minus direct taxes payable by households. The fact that in West Germany all these unit costs were increasing more slowly than in France explains why German economic growth, much slower than French before 1975, outpaced it after that year, achieving a lower rate of inflation, a larger positive balance of trade and a higher appreciation of the national currency.

The concept of VDC is a useful contribution to the theories of inflation and of economic fluctuations and provides a possible explanation of structural unemployment. Maintaining VDC at a lowest possible level should be considered a major object of economic policy.

As far as I know, economic theory until now has not elaborated any concept of macroeconomic cost. The national accounting aggregates are concerned with wealth, production, income, expenditure, consumption, capital formation, implicit prices and so on. But there is no one aggregate representing the costs of production to the entirety of a nation.

This regrettable omission is probably due to the fact that a cost to buyers is a price to sellers. As all active citizens are at the same time buyers and sellers, it may seem unnecessary to differentiate between price and cost on the macroeconomic scale. In fact, however, it is essential to distinguish, among the activities of a nation, the function of buying factors of production in order to produce and sell goods, and the function of buying goods and selling factors of production. Considered as a consolidated productive unit, a nation buys factors of production and sells goods. The amounts of money it receives for each unit of goods sold are prices. The amounts paid for each unit of factors bought are costs. There is no reason for these amounts to be identical. And, as for any producer, it is vital for a nation to keep the increase in costs slower than the increase in prices.

In the present paper, I shall try to elaborate a precise definition of the proposed "Variable Domestic Cost," to analyse its role in economic growth, and to show the utility of this concept for economic theory and policy.

This research is based on the actual national accounts data of France and West Germany for the years 1971-81.

I. THE DEFINITION OF VARIABLE DOMESTIC COST

A. *The Definition of a Nation's Saleable Output and of its Price*

The best indicator of the nominal value of *saleable* goods actually produced by a nation is its Gross Domestic Marketable Product (GDMP), equal to the gross value added at current prices of all resident enterprises net of imputed output of bank services, plus taxes linked to imports and the nonredeemable part of the value added tax. The precise way of computing GDMP in the countries which do not explicitly use this aggregate has been described in [11].

The same aggregate expressed in constant prices, or more correctly in prices of the preceding year, and which from now on will be designated by $\overline{\text{GDMP}}$, may be used as an indicator of quantities produced. Table 1 shows the annual growth rates $\bar{r}(t)$ of $\overline{\text{GDMP}}$ and of its components in France and West Germany for the years 1971-81.

Consequently, the implicit price of GDMP will serve as the macroeconomic indicator of a nation's sale prices. The rate of variation of this price for the year t will be defined by:

$$(1) \quad p(t) = \frac{\text{GDMP}(t)}{\text{GDMP}(t-1)[1 + \bar{r}(t)]} - 1.$$

Similar implicit prices may be calculated for all main components of GDMP using for each of them their respective rates of growth at constant prices (Table 2).

B. *The Definition of a Nation's Input and of its Cost*

The productive system of a nation is composed of all economic units which contribute directly or indirectly to the production of GDMP. It includes therefore:

- (i) Non-financial corporate and quasi-corporate enterprises
- (ii) Non-corporate enterprises
- (iii) Insurance enterprises
- (iv) Credit institutions
- (v) Government

The inclusion of the two last sectors is necessary for two reasons:

- (i) Many of their services contribute indirectly to the creation of GDMP,
- (ii) The factors of production they employ have to be paid out of GDMP, thus reducing the share which otherwise would accrue to enterprises and to their own factors of production.

All payments by sectors belonging to the productive system as defined above to all other sectors (households, private non-profit organizations and the rest of the world) have to be considered as compensation for real or fictitious inputs of the system and consequently have to be recorded as costs of production. The common characteristic of all these payments is that they reduce the cash flow of the productive system and therefore diminish its capacity to enlarge production.

The following payments by enterprises, credit institutions and government to households, private non-profit organizations and the rest of the world have therefore to be accounted for as costs:

TABLE 1
ANNUAL GROWTH RATES OF GROSS DOMESTIC MARKETABLE PRODUCT AT CONSTANT PRICES AND ITS MAIN COMPONENTS, FRANCE AND WEST GERMANY, 1971-81 (PERCENT)

| | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
|--|------|-------|-------|-------|-------|-------|------|------|-------|------|-------|
| <i>A. France</i> | | | | | | | | | | | |
| 1. GDMP (\bar{r}) | 5.5 | 6.1 | 5.8 | 3.0 | 0.0 | 4.9 | 3.3 | 3.3 | 3.4 | 1.3 | 0.2 |
| 1.1. Household marketable consumption (\bar{h}) | 6.2 | 6.0 | 5.5 | 3.1 | 3.0 | 5.5 | 3.1 | 4.7 | 3.3 | 1.5 | 1.7 |
| 1.2. Government marketable consumption (\bar{g}) | 2.5 | 3.7 | 7.5 | 0.8 | 6.8 | 1.0 | 0.6 | 6.4 | 2.2 | 4.0 | 3.2 |
| 1.3. Capital formation (\bar{k}) | 2.3 | 9.2 | 7.9 | -0.1 | -13.0 | 10.1 | -1.3 | -1.5 | 6.5 | 2.1 | -10.2 |
| 1.4. Exports (\bar{x}) | 11.2 | 13.2 | 12.3 | 10.3 | -3.0 | 9.6 | 8.6 | 6.0 | 7.1 | 3.0 | 4.6 |
| Minus | | | | | | | | | | | |
| 1.5. Imports (\bar{m}) | -7.8 | -16.3 | -15.0 | -5.5 | 8.8 | -18.7 | -1.5 | -5.2 | -10.5 | -4.6 | 1.5 |
| <i>B. West Germany</i> | | | | | | | | | | | |
| 2. GDMP (\bar{r}) | 2.9 | 4.1 | 4.6 | -0.0 | -2.4 | 6.2 | 3.3 | 3.1 | 4.3 | 1.7 | -0.4 |
| 2.1 Household marketable consumption (\bar{h}) | 5.3 | 4.6 | 2.4 | 0.4 | 3.5 | 3.9 | 3.8 | 3.6 | 3.1 | 1.3 | -1.3 |
| 2.2 Government marketable consumption (\bar{g}) | 6.3 | 3.3 | 5.5 | 3.2 | 5.5 | 2.2 | 0.6 | 5.1 | 3.9 | 3.0 | 0.4 |
| 2.3. Capital formation (\bar{k}) | 0.1 | 2.7 | 3.3 | -13.0 | -10.2 | 14.2 | 2.3 | 3.9 | 13.1 | 0.5 | -9.4 |
| 2.4. Exports (\bar{x}) | 6.0 | 7.0 | 10.6 | 12.2 | -6.1 | 10.7 | 4.0 | 3.4 | 4.7 | 5.4 | 8.1 |
| Minus: | | | | | | | | | | | |
| 2.5. Imports (\bar{m}) | -9.8 | -6.4 | -4.1 | -0.6 | -2.6 | -11.0 | -3.3 | -6.0 | -9.5 | -3.9 | +0.1 |

Source: Lines 1.1 to 1.5: calculated from [2]. Lines 2.1 to 2.5: calculated from [3] and [4].

TABLE 2
ANNUAL GROWTH RATES OF IMPLICIT PRICES OF GROSS DOMESTIC MARKETABLE PRODUCT AND ITS MAIN COMPONENTS, FRANCE AND WEST GERMANY,
1971-81 (PERCENT)

| | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
|---|------|------|------|-------|------|-------|-------|------|-------|-------|-------|
| <i>A. France</i> | | | | | | | | | | | |
| 1. GDMP (<i>p</i>) | 5.5 | 6.1 | 7.3 | 10.8 | 12.7 | 9.9 | 8.4 | 9.8 | 10.4 | 11.3 | 11.5 |
| 1.1. Household marketable consumption (<i>h</i>) | 5.6 | 6.0 | 6.8 | 13.3 | 11.6 | 9.9 | 9.1 | 8.9 | 10.6 | 13.3 | 13.1 |
| 1.2. Government marketable consumption (<i>g</i>) | 5.9 | 5.2 | 5.7 | 14.4 | 10.2 | 9.7 | 7.4 | 8.4 | 10.8 | 13.8 | 13.0 |
| 1.3. Capital formation (<i>k</i>) | 4.7 | 5.2 | 8.0 | 17.0 | 12.5 | 11.6 | 8.8 | 8.7 | 10.4 | 13.2 | 11.9 |
| 1.4. Exports (<i>x</i>) | 4.8 | 0.5 | 7.7 | 23.7 | 5.9 | 8.8 | 9.0 | 6.2 | 10.3 | 11.6 | 13.5 |
| Minus: | | | | | | | | | | | |
| 1.5. Imports (<i>m</i>) | -3.7 | +1.5 | -7.2 | -43.5 | -1.2 | -10.5 | -11.5 | -2.0 | -11.2 | -19.9 | -18.8 |
| <i>B. West Germany</i> | | | | | | | | | | | |
| 1. GDMP (<i>p</i>) | 7.1 | 5.1 | 5.9 | 6.2 | 6.1 | 3.2 | 3.4 | 4.3 | 4.0 | 4.3 | 4.2 |
| 2.1. Household marketable consumption (<i>h</i>) | 5.2 | 5.5 | 6.8 | 7.2 | 6.0 | 4.2 | 3.5 | 2.8 | 4.2 | 5.6 | 6.1 |
| 2.2. Government marketable consumption (<i>g</i>) | 11.9 | 6.3 | 8.8 | 13.7 | 7.8 | 3.2 | 3.2 | 3.5 | 5.3 | 6.6 | 6.7 |
| 2.3. Capital formation (<i>k</i>) | 7.6 | 3.9 | 4.8 | 7.9 | 3.8 | 2.8 | 3.3 | 4.9 | 6.6 | 7.1 | 4.6 |
| 2.4. Exports (<i>x</i>) | 4.2 | 2.1 | 6.4 | 15.2 | 4.3 | 3.5 | 1.8 | 1.7 | 4.4 | 6.7 | 6.0 |
| Minus: | | | | | | | | | | | |
| 2.5. Imports (<i>m</i>) | -1.6 | -1.7 | -8.3 | -24.8 | -1.8 | -5.5 | -2.0 | 1.7 | -8.3 | -12.6 | -9.5 |

Sources: Lines 1.1 to 1.5: calculated from [2]. Lines 2.1 to 2.5: calculated from [3] and [4].

- (i) Compensation of employees, resident and non-resident, by resident employers including social contributions;
- (ii) Property and entrepreneurial income, including withdrawals from non-corporate enterprises;
- (iii) Social benefits and all other current and capital transfers;

minus:

- (iv) Social contributions and all other current and capital transfers from households, private non-profit institutions and the rest of the world to enterprises, credit institutions and government;

minus:

- (v) Taxes on income and wealth payable by households, private non-profit institutions and the rest of the world.

To these five items concerning the relation between the productive system and all other sectors, it is necessary to add, for reasons explained in the next section:

- (vi) Property and entrepreneurial income payable by government and enterprises to credit institutions.

The aggregate formed by the sum of all of those payments may be called “Variable Domestic Cost” (VDC)¹: variable because it does not include any provision for capital consumption; and domestic because imports have already been accounted for as a negative item in GDMP. The way of computing VDC from a classical set of national accounts has been shown in [11].

In order to compare cost variations to the variations of the implicit price of GDMP it is necessary to express costs per unit of $\overline{\text{GDMP}}$. The relevant formula is:

$$(2) \quad c(t) = \frac{\text{VDC}(t)}{\text{VDC}(t-1)[1 + \bar{r}(t)]} - 1$$

where $\text{VDC}(t)$ and $\text{VDC}(t-1)$ are respectively Variable Domestic Costs for the years t and $t-1$ and $\bar{r}(t)$ the rate growth of $\overline{\text{GDMP}}$ for the year t . In the same way, it is possible to calculate variations of all main components of VDC (Table 3).

C. Some possible objections

There are, however, at least three objections which may be raised against the proposed definition of VDC:

- (i) The list of costs does not include any payments between government and enterprises such as subsidies, indirect taxes and taxes on undistributed profits. Is it correct to assume that they are not elements of macroeconomic cost?
- (ii) The inclusion of credit institutions in the productive system normally should involve the exclusion, from the list of costs, of interest paid by enterprises and government to banks. Nevertheless this interest is present in Table 3, lines 1.3 and 2.3. Why?

¹Improperly called in my preceding writings [1] *Net Domestic Cost*. The qualification *net* applied to a cost would rather mean “including all additional charges” which is not the case, since the aggregate proposed does not include capital consumption.

TABLE 3
ANNUAL GROWTH RATES OF VARIABLE DOMESTIC COST AND OF ITS MAIN COMPONENTS PER UNIT OF $\overline{\text{GDMP}}$ —FRANCE AND WEST GERMANY, 1971-81
(PERCENT)

| | Share in VDC(%) 1971 | Annual Percentage Growth | | | | | | | | | | | Share in VDC(%) 1980 |
|---|----------------------------|--------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|----------------------------|
| | | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | |
| <i>A. France</i> | | | | | | | | | | | | | |
| 1. Variable Domestic Cost (c) | 100.0 | 8.1 | 5.5 | 9.4 | 16.2 | 17.0 | 7.6 | 10.2 | 11.0 | 8.4 | 12.6 | 17.8 | 100.0 |
| 1.1. Compensation of employees, total (w): | 84.1 | 7.2 | 5.5 | 9.1 | 15.8 | 17.7 | 10.7 | 10.3 | 9.6 | 9.4 | 13.5 | 13.4 | 87.0 |
| Consisting of | | | | | | | | | | | | | |
| 1.11 Enterprises (we) | 67.4 | 7.3 | 5.6 | 9.4 | 15.8 | 17.0 | 10.3 | 10.1 | 9.1 | 9.6 | 13.6 | 12.9 | 69.1 |
| 1.12 Government (wg) | 16.7 | 6.8 | 5.0 | 7.7 | 15.6 | 20.6 | 12.1 | 11.2 | 11.6 | 8.7 | 13.2 | 15.3 | 17.9 |
| 1.2. Property and entrepreneurial income paid by enterprises and government to households and the rest of the world (peh) | 15.0 | 8.5 | 4.8 | 5.1 | 13.8 | 15.7 | 6.1 | 7.2 | 8.8 | 9.9 | 15.0 | 19.5 | 13.5 |
| 1.3. Property and entrepreneurial income paid by enterprises and government to credit institutions (peb) | 4.1 | 5.9 | 0.6 | 21.8 | 26.4 | 5.8 | 8.3 | 16.5 | 7.6 | 13.3 | 29.0 | 40.2 | 5.2 |
| 1.4. Social benefits and other transfers paid by enterprises and government to households and the rest of the world (sb) | 31.8 | 7.7 | 8.2 | 10.0 | 14.8 | 25.3 | 9.7 | 12.7 | 15.0 | 10.8 | 12.9 | 18.0 | 38.4 |
| Minus: | | | | | | | | | | | | | |
| 1.5. Social contributions and other transfers paid by households and the rest of the world to enterprises and government (sc) | -27.2 | -7.4 | -6.5 | -8.8 | -16.4 | -23.0 | -8.1 | -13.0 | -11.0 | -14.9 | -16.3 | -12.0 | -34.2 |
| Minus: | | | | | | | | | | | | | |
| 1.6. Taxes on income and wealth paid by households and the rest of the world (tx) | -7.8 | -0.7 | -8.1 | -9.1 | -6.4 | -29.7 | -24.3 | -10.7 | -9.1 | -9.6 | -20.5 | -14.1 | -9.9 |

B. West Germany

| | | | | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|-------|
| 2. Variable Domestic Cost (c) | 100.0 | 6.0 | 5.1 | 3.4 | 9.1 | 11.8 | -0.2 | 3.2 | 2.7 | 3.4 | 5.2 | 6.1 | 100.0 |
| 2.1. Compensation of employees, total (w) consisting of | 78.9 | 10.1 | 5.7 | 8.5 | 10.2 | 6.7 | 1.3 | 3.6 | 3.5 | 3.3 | 6.5 | 5.1 | 81.4 |
| 2.11 Enterprises (we) | 64.8 | 8.9 | 5.3 | 7.9 | 8.7 | 5.5 | 1.8 | 3.7 | 3.6 | 3.4 | 6.6 | 4.6 | 64.9 |
| 2.12 Government (wg) | 14.1 | 16.2 | 8.0 | 11.4 | 16.3 | 11.2 | -0.7 | 3.3 | 3.4 | 2.9 | 6.2 | 6.9 | 16.5 |
| 2.2. Property and entrepreneurial income paid by enterprises and government to households and the rest of the world (peh) | 31.8 | 1.8 | 2.9 | -0.5 | 4.6 | 7.5 | 6.1 | 4.3 | 1.6 | 2.2 | 0.6 | 1.3 | 26.0 |
| 2.3. Property and entrepreneurial income paid by enterprises and government to credit institutions (peb) | 4.0 | 6.6 | 12.3 | 21.8 | 18.4 | 8.5 | -5.6 | 4.9 | -0.4 | 5.3 | 20.9 | 22.1 | 8.6 |
| 2.4. Social benefits and other transfers paid by enterprises and government to households and the rest of the world (sb) | 25.4 | 10.1 | 10.2 | 7.8 | 13.8 | 25.0 | 1.8 | 3.6 | 2.5 | 2.5 | 5.0 | 9.1 | 33.2 |
| Minus: | | | | | | | | | | | | | |
| 2.5. Social contributions and other transfers paid by households and the rest of the world to enterprises and government (sc) | -25.4 | -11.0 | -11.6 | -12.5 | -11.7 | -12.5 | -6.5 | -3.4 | -5.3 | -3.5 | -5.7 | -8.4 | -33.7 |
| Minus: | | | | | | | | | | | | | |
| 2.6. Taxes on income and wealth paid by households and the rest of the world (tx) | -14.6 | -18.3 | -3.5 | -20.9 | -13.1 | 6.0 | -7.8 | -8.2 | +4.3 | +0.5 | -7.7 | 1.1 | -15.5 |

Sources: Lines 1.1 to 1.6: calculated from [2]. Lines 2.1 to 2.6: calculated from [3] and [4].

- (iii) The concept of VDC does not include any provision for capital consumption. Is it correct to assume that it does not intervene in decisions on the volume of current production?

1. The Exclusion of Payments between Government and Enterprises

The consolidation of enterprises and government into a single productive system leads to the exclusion from the list of costs of all payments between these two economic agents. The main operations excluded in this way are subsidies and indirect taxes and direct taxes on undistributed profits.

a. *Subsidies and indirect taxes.* Subsidies and indirect taxes are included in the current value of GDMP. When the rate of indirect taxes net of subsidies increases, there is a rise in prices. The purchasing power of households is reduced with a consequent diminution of their current purchases or investments. The purchasing power of government is increased, and this is usually accompanied by an expansion of government spending. The structure of demand and production may be changed, but costs of production are not affected directly. From the macroeconomic viewpoint, indirect taxes net of subsidies do not constitute an element of costs but an element of prices and have to be accounted for in GDMP and not in VDC.

b. *Direct taxes on undistributed profits.* In the proposed system, these taxes do not appear either in prices or in costs. In fact, an increase in direct taxes on undistributed profits does not touch sale prices. However, it reduces the cash flow of corporate enterprises and has a negative impact on productive investment. Instead, government revenue and spending capacity are enlarged. The structure of demand and of production may be changed but the price/cost relation is not affected directly.

2. The Treatment of Credit Institutions

In the proposed approach, credit institutions are included in the productive system. There is no doubt that in a modern economy these institutions are indispensable. Accordingly, their operating costs are a necessary constituent of the nation's cost of production.

One of the main activities of banks, however, cannot be treated in the same fashion as all other banking services. This is lending money to other enterprises and government. Net interest paid to the banks for that service represents for their debtors a non-negligible cost which reduces their cash flow and may restrain their projects of investment and production. The negative effect of this cost is not balanced directly by the positive effect of the corresponding increase in the banks' profits since banks do not produce directly marketable goods. It seems therefore that the lending of money by banks to enterprises and government should be considered as an activity *sui generis*, which is not performed by the productive system itself and which constitutes an input of this system. Consequently, net interest paid by enterprises and government to banks has to be accounted for as a cost.

3. The Exclusion of Provisions for Capital Consumption

Provisions for capital consumption are not included in the proposed concept of VDC. Essential as they are for a right assessment of the past performance of

particular businesses, they do not interfere with the decisions on reinvestment of the cash flow remaining after the payment of all current expenses. Moreover they are the main component of this cash flow and therefore they constitute the most important financial source of new investment. From the viewpoint of price/cost relation, their increase should therefore be considered rather as an incentive to augment production than as an additional cost.

II. VARIABLE DOMESTIC COST AND ECONOMIC GROWTH

A. The Profitability Function of the Nation

The relation between the rate of growth of GDMP at current prices and VDC per unit of GDMP constitutes the *profitability function* of the nation:

$$(3) \quad \pi(t) = \frac{1 + v(t)}{1 + c(t)} - 1$$

where $v(t)$ is the growth rate of GDMP at current prices (Table 4, lines 1.3 and 2.3).

It may be observed at once that in all cases when $\pi(t) - \pi(t-1)$ becomes negative there is a deceleration or a stagnation of economic growth expressed by $\bar{r}(t) - \bar{r}(t-1) \leq 0$ (Table 4, lines 1.4, 1.5 and 2.4, 2.5; France 1971, 73, 74, 75, 77, 80, 81; West Germany 1971, 74, 75, 77, 80, 81). The opposite however is not always true. When $\pi(t) - \pi(t-1)$ is positive, there is generally an acceleration of production (France 1972, 76, 79; West Germany 1972, 73, 76, 79). But that may happen even when production has decelerated: West Germany 1978.

B. Price/Cost Relation and Economic Growth

Given that $[1 + v(t)] = [1 + \bar{r}(t)] \times [1 + p(t)]$, the profitability function may also be written as:

$$(4) \quad \pi(t) = [1 + \bar{r}(t)] \left[\frac{1 + p(t)}{1 + c(t)} \right] - 1.$$

This means that profitability is positively related to the rate of growth $\bar{r}(t)$ and to the price/cost relation p/c .

For $p(t) - c(t) > 0$, profitability increases more than proportionally to the increase in $\bar{r}(t)$; for $p(t) - c(t) = 0$, the growth of profitability is exactly equal to $\bar{r}(t)$ (West Germany 1972: Table 4, line 2.3); for $p(t) - c(t) < 0$, it is slower than the increase in $\bar{r}(t)$.

On the other hand, the quantities of goods which may be sold, under the given conditions of global demand, are negatively related to $p(t)$. A decrease in $p(t)$ combined with an increase in $p(t) - c(t)$, that is with a still deeper decline in $c(t)$, is therefore the most favourable condition for accelerating growth. This requires the slowest possible rise in unit costs of production.

Thus, the links between the price/cost relation and economic growth are bilateral and cumulative. On the one hand, prices rising faster than costs stimulate economic growth; the acceleration of economic growth enlarges the positive difference between prices and costs, and that in turn accelerates economic growth.

TABLE 4
 PROFITABILITY FUNCTION AND ECONOMIC GROWTH, FRANCE AND WEST GERMANY, 1971-81
 (Annual Rates of Growth, percent)

| | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| 1. France | | | | | | | | | | | |
| 1.1. GDMP: $v(t)$ | 11.4 | 12.6 | 13.6 | 14.1 | 12.7 | 15.3 | 11.9 | 13.4 | 14.1 | 12.8 | 11.7 |
| 1.2. VDC per unit: $c(t)$ | 8.1 | 5.5 | 9.4 | 16.2 | 17.0 | 7.6 | 10.2 | 11.0 | 8.4 | 12.6 | 17.8 |
| 1.3. Profitability function: | | | | | | | | | | | |
| $\pi(t) = \frac{1+v(t)}{1+c(t)} - 1$ | 3.4 | 6.7 | 3.8 | -1.8 | -3.7 | 7.2 | 1.5 | 2.2 | 5.3 | 0.2 | -5.2 |
| 1.4. $\pi(t) - \pi(t-1)$ | -1.3 | 3.3 | -2.9 | -5.6 | -1.9 | 10.9 | -5.7 | 0.7 | 3.1 | -5.1 | -5.4 |
| 1.5. $\bar{r}(t) - \bar{r}(t-1)$ | -0.6 | 0.6 | -0.3 | -2.8 | -3.0 | 4.9 | -1.6 | 0.0 | 0.1 | -2.1 | -1.1 |
| 2. West Germany | | | | | | | | | | | |
| 2.1. GDMP: $v(t)$ | 10.2 | 9.4 | 10.7 | 6.2 | 3.6 | 9.6 | 6.8 | 7.6 | 8.5 | 6.1 | 3.7 |
| 2.2. VDC per unit: $c(t)$ | 6.0 | 5.1 | 3.4 | 9.1 | 11.8 | -0.2 | 3.2 | 2.7 | 3.4 | 5.2 | 6.1 |
| 2.3. Profitability function: | | | | | | | | | | | |
| $\pi(t) = \frac{1+v(t)}{1+c(t)} - 1$ | 4.0 | 4.1 | 7.1 | -2.7 | -7.3 | 9.8 | 3.5 | 4.8 | 4.9 | 0.9 | -2.3 |
| 2.4. $\pi(t) - \pi(t-1)$ | -0.6 | 0.1 | 3.0 | -9.8 | -4.6 | 17.1 | -6.3 | 1.3 | 0.1 | -4.0 | -3.2 |
| 2.5. $\bar{r}(t) - \bar{r}(t-1)$ | -2.2 | 1.2 | 0.5 | -4.6 | -2.4 | 8.6 | -2.9 | -0.2 | 1.2 | -2.6 | -2.1 |

Sources: Line 1.1, [2]; line 1.2, Table 3; line 1.5, Table 1; line 2.1, [3] and [4]; line 2.2, Table 3; line 2.5, Table 1.

On the other hand, costs rising faster than prices brake economic growth, while a slowdown in production raises unit costs and depresses prices. The resulting fall in profitability stops economic growth.

The existence of these important bilateral links between the price/cost relation and economic growth does not mean, however, that the latter depends only and entirely on the evolution of domestic prices and costs. The production of marketable goods is determined primarily by the existence of affordable wants² on domestic and foreign markets and by capacity of supplying the demanded goods at a competitive price. Consequently, a favourable price/cost relation is a necessary but not a sufficient condition of economic growth. A slowdown of effective demand, a hardening of foreign competition or a lack of the physical means of production may prevent an acceleration of economic growth even with the most favourable domestic price/cost relation.

A closer examination of Table 5 leads to the following six observations which confirm entirely these theoretical considerations:

- (i) An increase in unit cost faster than the rise in prices coincides in all cases observed with a deceleration of production (lines 1.1, 1.4, and 2.1, 2.4):

$$p(t) - c(t) < 0 \longleftrightarrow \bar{r}(t) - \bar{r}(t-1) < 0$$

Confirmations: France 1971, 73, 74, 75, 77, 78, 80, 81

West Germany 1974, 75, 80, 81

Exceptions: 0

TABLE 5
PRICE/COST RELATIONS AND ECONOMIC GROWTH
(Annual Rates of Growth, Percent)

| | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
|----------------------------------|------|------|------|-------|------|-------|------|------|------|------|------|
| 1. France | | | | | | | | | | | |
| 1.1. $p(t) - c(t)$ | -2.6 | 0.6 | -2.1 | -5.4 | -4.3 | 2.3 | -1.8 | -1.2 | 2.0 | -1.3 | -6.3 |
| 1.2. $p(t) - p(t-1)$ | 0.3 | 0.6 | 1.2 | 3.5 | 1.9 | -2.8 | -1.5 | 1.5 | 0.6 | 0.9 | 0.2 |
| 1.3. $c(t) - c(t-1)$ | 0.5 | -2.6 | 3.9 | 6.8 | 0.8 | -9.4 | 2.6 | 0.8 | -2.6 | 4.2 | 5.2 |
| 1.4. $\bar{r}(t) - \bar{r}(t-1)$ | -0.6 | 0.6 | -0.3 | -2.8 | -3.0 | 4.9 | -1.6 | 0.0 | 0.1 | -2.1 | -1.1 |
| 1.5. $c(t) - p(t-1)$ | 2.9 | 0.0 | 3.3 | 8.9 | 6.2 | -5.1 | 0.3 | 2.6 | -1.4 | 2.2 | 6.5 |
| 1.6. $w(t) - p(t-1)$ | 2.0 | 0.0 | 3.0 | 8.5 | 6.9 | -2.0 | 0.4 | 1.2 | -0.4 | 3.1 | 2.1 |
| 1.7. $c(t) - m(t)$ | 4.4 | 7.0 | 2.2 | -27.3 | 15.8 | -2.9 | -1.3 | 9.0 | -2.8 | -7.3 | -1.0 |
| 2. West Germany | | | | | | | | | | | |
| 2.1. $p(t) - c(t)$ | 1.1 | 0.0 | 2.5 | -2.9 | -5.7 | 3.4 | 0.2 | 1.6 | 0.6 | -0.9 | -1.9 |
| 2.2. $p(t) - p(t-1)$ | -0.2 | -2.0 | 0.8 | 0.3 | -0.1 | -2.9 | 0.2 | 0.9 | -0.3 | 0.3 | -0.1 |
| 2.3. $c(t) - c(t-1)$ | -2.1 | -0.9 | -1.7 | 5.7 | 2.7 | -12.0 | 3.4 | -0.5 | 0.7 | 1.8 | 0.9 |
| 2.4. $\bar{r}(t) - \bar{r}(t-1)$ | -2.2 | 1.2 | 0.5 | -4.6 | -2.4 | 8.6 | -2.9 | -0.2 | 1.2 | -2.6 | -2.1 |
| 2.5. $c(t) - p(t-1)$ | -1.2 | -2.0 | -1.7 | 3.2 | 5.6 | -6.3 | 0.0 | -0.7 | -0.9 | 1.2 | 1.8 |
| 2.6. $w(t) - p(t-1)$ | 2.9 | -1.4 | 3.4 | 4.3 | 0.5 | -4.8 | 0.4 | 0.1 | -1.0 | 2.5 | 0.8 |
| 2.7. $c(t) - m(t)$ | 4.4 | 3.4 | -4.9 | -15.7 | 10.0 | -5.7 | 1.2 | 3.4 | -4.9 | -7.4 | -3.4 |

Sources: Lines 1.1 and 2.1, Tables 2 and 3; lines 1.3 and 2.3, Table 3; lines 1.4 and 2.4, Table 1; lines 1.5 and 2.5, Tables 3 and 2; lines 1.6 and 2.6, Tables 3 and 2; lines 1.7 and 2.7, Tables 3 and 2.

²Wants of goods the consumer can pay for (in French: *besoins solvables*).

- (ii) An increase in unit cost slower than or equal to the rise in prices coincides in almost all cases observed with an acceleration of production (lines 1.1, 1.4 and 2.1, 2.4):

$$p(t) - c(t) \geq 0 \text{ mostly } \longleftrightarrow \bar{r}(t) - \bar{r}(t-1) > 0$$

Confirmations: France 1972, 76, 79

West Germany 1972, 73, 76, 79

Exceptions: West Germany 1971, 77, 78

These three exceptions are probably due to revaluations of the D.M. The rise in domestic costs is slower than that in domestic prices, but both are faster than the increase in prices, payable in D.M., of imports and exports (line 2.7).

A rise in prices faster than the rise in unit costs appears thus as a necessary but not sufficient condition for an accelerated growth of marketable production. This apparently very trivial statement is so much more worth stressing as it is frequently ignored by the most celebrated economists, political parties and governments who try to combat inflation and unemployment by means which, directly or indirectly, contribute to freeze prices and to raise costs [5, pp. 133-136]. However, the condition is insufficient because many exogeneous factors, such as foreign competition, overemployment of productive capacities, natural, social or political events, etc., may prevent any development of production, even with prices rising faster than unit costs.

- (iii) A deceleration of unit costs always coincides with prices rising at least as fast as unit costs (lines 1.3, 1.1 and 2.3, 2.1) and consequently results generally in an acceleration of production (observation ii):

$$c(t) - c(t-1) < 0 \longleftrightarrow p(t) - c(t) \geq 0$$

Confirmations: France 1972, 76, 79

West Germany 1971, 72, 73, 76, 78

Exceptions: 0

- (iv) An acceleration of unit costs which is not balanced by a faster increase in prices always coincides with a deceleration of production (lines 1.3, 1.1 and 2.3, 2.1):

$$c(t) - c(t-1) > 0 \longleftrightarrow \begin{aligned} p(t) - c(t) < 0 \\ \bar{r}(t) - \bar{r}(t-1) < 0 \end{aligned}$$

Confirmations: France 1971, 73, 74, 75, 78, 80, 81

West Germany 1974, 75, 80, 81

Exceptions: 0

- (v) An acceleration of production always coincides with a rise in unit costs slower than or equal to the increase in prices for the preceding year (lines 1.4, 1.5 and 2.4, 2.5):

$$\bar{r}(t) - \bar{r}(t-1) > 0 \longleftrightarrow c(t) - p(t-1) \leq 0$$

Confirmations: France 1972, 76, 79

West Germany 1972, 73, 76, 79

Exceptions: 0

- (vi) A rise in unit costs faster than the increase in prices for the preceding year always coincides with a deceleration of production (lines 1.5, 1.4 and 2.5, 2.4):

$$c(t) - p(t-1) > 0 \longleftrightarrow \bar{r}(t) - \bar{r}(t-1) \leq 0$$

Confirmations: France 1971, 73, 74, 77, 78, 80, 81

West Germany 1974, 75, 80, 81

Exceptions: 0

The six observations above confirm empirically the operational value of the proposed concept of VDC.

However, on the microeconomic scale of enterprises, p and c are pure abstractions. Therefore, it seems necessary to explain the links between them and actual prices and costs as recorded in business accounts.

C. *Domestic Profitability Function and Business Accounts*

The explanation is easy for $p(t)$ which, at least theoretically, is the rate of growth per unit produced of the value added of all domestic enterprises. It is quite understandable that its variations follow the variations in value added per unit produced as they are registered in the accounts of enterprises representing the major part of national value added. The same applies to the elements of VDC which represent the actual expenses of enterprises such as wages and social contributions, distributed profits, interest and so on. But VDC includes also some items, such as wages and social contributions of government employees and direct taxes payable by households, which are not recorded in the actual accounts of enterprises. Would it not create a discontinuity between the behaviour of enterprises guided by their own accounts and the conclusions which may be drawn from the variations of VDC?

Normally, any increase in disposable income of households is generated by an increase in production. In this way, households' income is spent on goods which have already been produced and the cost of which has already been registered in the accounts of sellers. Any rise in sales is balanced by an earlier increase in costs plus positive or negative profits. This is not the case, however, when the income spent has been generated directly by government deficit spending. There are no goods corresponding to that income. It means that the relation between household disposable income and the value of goods available on the market has been changed. The potential price of these goods has been raised relative to their effective cost of production. Business accounts will take this fact into consideration only, then, when prices will effectively rise and they will not record any increase in costs. Accordingly, they will register a gain due to the rise in prices with costs unchanged. This gain will disappear only at the moment when, under the pressure of the increased demand, factor costs will effectively rise and balance the increase in prices. The importance of these reactions will depend on the elasticity of production, that is on the availability of the necessary factors and the degree of social consensus.

The recording of all these operations in national accounts will be quite different. The rise in government spending on wages will be registered as a rise in VDC; the increase in household consumption as an increase in GDMP. At first, there will be no gain for the productive system, since the rise in sales will be covered by an equal or even greater rise in costs.

From the macroeconomic point of view this solution is more accurate than the first one. The gain realized by enterprises through the increase in sales is

obtained thanks to depreciation of money caused by a rise in disposable income of households without any previous growth in production. It does not increase the real value of the cash flow available for developing production.

At the latter stage, deficit spending may, however, become beneficial for the national economy if there are plenty of idle resources (productive capacities, manpower, etc.) and if the growing demand for factors does not trigger off a rapid rise in their price; the increase in quantities produced may so much dilute the unit costs as to absorb any inflationary pressure. In this last case the results registered in national accounts will follow very closely those of businesses.

In conclusion, it may be stated that the domestic profitability function generally represents very faithfully a weighted average of the results obtained by particular businesses. The differences which appear in some cases are due to the fact that the domestic profitability function takes into account potential changes in the value of money at the very moment when they occur, while business accounts register only the results of changes already accomplished. These differences heighten the predictive value of the domestic profitability function.

D. *The Exogeneous Variables Determining the Domestic Profitability Function*

Each of the two variables, $v(t)$ and $c(t)$, comprising the domestic profitability function (3) is determined by several exogeneous variables.

1. The Determination of Nominal Demand

In small and middle-sized, highly industrialized countries, like France and West Germany, the most important exogeneous factor determining the fluctuations of nominal demand is the economic evolution of the World.

This evolution may be characterized by two variables: the rate of real growth of World production or international trade, and the variation in prices in industrialized countries. Their combination forms four types of evolution [1]: Inflationary and Disinflationary Growth (IG and DG), Stagflation (S) and Recession (R). It appears that, for the years 1971-81, France and West Germany followed very closely this evolution (Table 6, compare line 0 with lines 1.8 and 2.8).

All periods of World expansion (DG or IG) incited in the countries concerned a burst of investment and exports (lines 1.2, 1.3 and 2.2, 2.3), the cumulative effects of which contributed to an acceleration of global demand (lines 1.4 and 2.4). All periods of World recession (S or R) provoked a fall in investment and exports and a consequent deceleration of global demand. These externally determined fluctuations were, however, to some extent reinforced or contained by the reactions of domestic agents. As far as a restrictive monetary policy maintained the rate of increase of money supply at a level lower than the rate of increase in unit cost, it contributed to a deceleration of global demand (compare Table 5 lines 1.3 and 2.3 with Table 6 lines 1.1 and 2.1, France 1973, 74, 77, 78, 80, 81; West Germany 1974, 75, 77, 79, 80). The increase in expenditures on non-marketable services (Table 6, lines 1.5 and 2.5) and on imports (Table 6, lines 1.6 and 2.6) augmented the negative difference between global demand and GDMP at current prices which represents the effective demand for domestically produced goods. This difference was particularly large in both countries for the

TABLE 6
FACTORS DETERMINING NOMINAL DEMAND, FRANCE AND WEST GERMANY, 1971-81
(Annual increments in the rates of growth, percent)

| | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
|---|------|------|------|-------|-------|------|-------|------|------|-------|-------|
| 0. World economic evolution | S | DG | IG | S | R | DG | R | DG | S | S | R |
| 1. France | | | | | | | | | | | |
| 1.1. Monetary policy: $M2(t)-M2(t-1)$ | 2.7 | 0.6 | -4.0 | 1.5 | 0.5 | 0.8 | -5.0 | -0.1 | 2.0 | -4.7 | 1.7 |
| 1.2. Capital formation: $\bar{k}(t)-\bar{k}(t-1)$ | -2.1 | 6.9 | -1.3 | -8.0 | -12.9 | 23.1 | -11.4 | -0.2 | 8.0 | -4.4 | -12.3 |
| 1.3. Exports: $\bar{x}(t)-\bar{x}(t-1)$ | -5.1 | 2.0 | -0.9 | -2.0 | -13.3 | 12.6 | -1.0 | -2.6 | 1.1 | -4.1 | 1.6 |
| 1.4. Global demand: $D(t)-D(t-1)$ | -1.0 | 1.2 | 2.1 | 5.2 | -10.2 | 8.1 | -5.4 | 0.0 | 2.9 | -0.2 | -2.1 |
| Out of which: | | | | | | | | | | | |
| 1.5. Non-marketable services $NM(t)-NM(t-1)$ | 0.3 | 1.2 | 2.3 | 5.9 | 1.3 | 3.1 | -2.7 | -0.1 | -2.0 | 2.2 | -0.6 |
| 1.6. Imports: $M(t)-M(t-1)$ | -6.1 | 2.7 | 8.8 | 28.1 | -43.7 | 23.4 | -17.9 | -5.9 | 15.6 | 2.5 | -8.4 |
| 1.7. GDMP: $v(t)-v(t-1)$ | -0.3 | 1.2 | 1.0 | 0.5 | -1.4 | 2.6 | -3.4 | 1.5 | 0.7 | -1.3 | -1.1 |
| 1.8. Economic evolution | S | IG | S | S | S | DG | R | S | IG | S | S |
| 2. Germany | | | | | | | | | | | |
| 2.1. Monetary policy: $M2(t)-M2(t-1)$ | 4.7 | 0.9 | 3.5 | -10.0 | -8.5 | 6.1 | 2.9 | 3.4 | -1.1 | -1.3 | 1.0 |
| 2.2. Capital formation: $\bar{k}(t)-\bar{k}(t-1)$ | -7.0 | 2.6 | 0.6 | -16.3 | 2.8 | 24.4 | -11.9 | 1.6 | 9.2 | -12.6 | -9.9 |
| 2.3. Exports: $\bar{x}(t)-\bar{x}(t-1)$ | -0.3 | 1.0 | 3.6 | 1.6 | -6.1 | 4.6 | -6.7 | -0.6 | 1.3 | 0.7 | 2.7 |
| 2.4. Global demand: $D(t)-D(t-1)$ | -2.6 | -1.2 | 1.9 | -1.6 | -5.7 | 7.4 | -4.7 | 0.3 | 3.7 | -2.0 | -3.4 |
| Out of which: | | | | | | | | | | | |
| 2.5. Non-marketable services $NM(t)-NM(t-1)$ | 2.2 | -7.1 | 4.0 | -0.1 | 7.8 | -3.0 | 1.2 | -0.1 | 0.7 | 0.7 | -1.6 |
| 2.6. Imports: $M(t)-M(t-1)$ | -3.0 | -3.5 | 4.7 | 11.9 | -20.2 | 2.6 | -1.7 | -1.2 | 14.4 | -1.5 | -7.6 |
| 2.7. GDMP: $v(t)-v(t-1)$ | -2.5 | -0.8 | 1.3 | -4.5 | -2.6 | 6.0 | -2.8 | 0.8 | 0.9 | -2.4 | -2.4 |
| 2.8. Economic evolution | R | DG | IG | S | R | DG | S | S | DG | S | R |

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Legend: Lines 0; 1.8 and 2.8: Types of economic development adopted in [1], p. 89, that is:

IG=inflationary growth when $\bar{r}(t)-\bar{r}(t-1)>0$ and $p(t)-p(t-1)>0$

DG=disinflationary growth when $\bar{r}(t)-\bar{r}(t-1)>0$ and $p(t)-p(t-1)<0$

S=stagflation when $\bar{r}(t)-\bar{r}(t-1)<0$ and $p(t)-p(t-1)>0$

R=recession when $\bar{r}(t)-\bar{r}(t-1)<0$ and $p(t)-p(t-1)<0$

Sources: Line 0: [5]; line 1.1: [6]; lines 1.2 to 1.7: calculated from [2]; line 2.1: [7]; lines 2.2 to 2.7: calculated from [3] and [4] lines 1.8 and 2.8: Tables 1 and 2.

years 1974 and 1979 as a consequence of the first and the second oil shocks. It was generally larger in France than in West Germany where the relative cost of imports was noticeably reduced by the appreciation of the DM.

This does not mean, however, that outlays on non-marketable services and imports should be considered as independent variables which determine in all cases the difference between global demand and GDMP at current prices. It means only that, if money supply is limited, an increase in the value of these outlays may reduce the credits available for financing expenditures on domestic production and investment.

After all these transformations, the final fluctuations of GDMP in both countries still resembled those of the World economic evolution (compare lines 0, 1.8 and 2.8). All periods of World expansion (IG or DG) 1972-73, 1976 and 1978 also appeared in France and West Germany, with some minor differences, however. The World expansion of 1972-73 was stopped in France by the introduction in September 1972 of monetary restrictions (line 1.1) designed to break the excessive rise in costs (Table 3, line 1.1). The World expansion born in the United States and Japan in 1978 reached France and West Germany on the eve of 1979. French fluctuations on the whole were more inflationary (IG and S instead of DG and R in 1972, 75, 79, 81) than the West German ones which followed very closely the World pattern.

As a result, the growth of nominal demand was much faster in France than in West Germany (average annual rate of 12.9 percent for the years 1971-75 and 13.2 percent for the years 1976-81 against 8.0 and 7.0 in Germany), but it was accompanied by a rise in prices which also was much faster (8.0 and 10.1 percent against 6.1 and 3.9 percent). This means that the real growth in France sank from an average annual rate of 4.1 percent for the years 1971-75 to 2.8 percent for the years 1976-81, while in West Germany at the same time it rose from 1.8 to 3.0 percent (Table 7, line 1.1). It may be supposed that this contradictory evolution of two countries exposed to the identical influence of the World economy was largely due to a very different behaviour of the respective macroeconomic costs.

2. The Determination of Unit Costs

In France as well as in West Germany wages of enterprise employees are the most important item of VDC (Table 3, lines 1.11 and 2.11). In both countries they are fixed by collective bargaining. But in France the majority of trade unions consider enterprises as an exploiter that is always able to pay more, while in West Germany the necessity of maintaining a minimum profitability is taken into consideration on both sides. Accordingly in France nominal wages per unit produced of enterprise employees increased by the same annual average rate of 10.9 percent for the years 1971-75 and for the years 1976-81, while in West Germany the corresponding rates were 7.2 and 4.0 (Table 7, line 2.2).

Of course, it is always possible to say that in France wages are increasing faster than in West Germany because prices rise faster in France than in West Germany. But a general rise in wages faster than a possible rise in apparent productivity of labour (which on average is 4 percent per year in France and West Germany) is always inflationary [12] and consequently does not contribute

TABLE 7
COMPARATIVE ECONOMIC EVOLUTION, FRANCE AND WEST GERMANY, 1971-81
(Annual Average Rates of Growth, Percent)

| | 1971-75 (5 years) | | 1976-81 (6 years) | |
|---|----------------------|--------------|----------------------|--------------|
| | France | West Germany | France | West Germany |
| 1. <i>Performances</i> | | | | |
| 1.1. GDMP: \bar{r} | 4.1 | 1.8 | 2.8 | 3.0 |
| 1.2. Implicit price of GDMP: p | 8.0 | 6.1 | 10.1 | 3.9 |
| 1.3. Fixed capital formation | 3.6 | -1.3 | 1.3 | 3.2 |
| 1.4. Balance of trade as percent of GDMP (arithmetic mean) | 0.3 | 3.2 | -0.9 | 1.6 |
| 1.5. Appreciation of national currency (percent) | 1.4 | 3.5 | -4.1 | 2.6 |
| 2. <i>Costs</i> | | | | |
| 2.1. VDC per unit produced: c | 11.0 | 7.1 | 11.2 | 3.4 |
| 2.2. Enterprise wage cost: w | 10.9 | 7.2 | 10.9 | 4.0 |
| 2.3. Balance: Social benefits—Social contributions, as percent of GDMP (arithmetic mean) | 3.5 | -0.1 | 3.8 | -0.7 |
| 2.4. Balance: Compensation of government employees—Direct taxes on households, as percent of GDMP (arithmetic mean) | 6.0 | -0.3 | 6.0 | 0.2 |

Sources: Line 1.1, Table 1; line 1.2, Table 2; lines 1.3 and 1.4, [2], [3] and [4]; line 1.5: Appreciation toward the Synthetical Index of the eleven main currencies of the World [2]; lines 2.1 and 2.2: Table 3; lines 2.3 and 2.4: [2], [3] and [4].

to any improvement in the real standard of living of workers. And in all cases when wage cost rises more slowly than prices for the preceding year (Table 5, lines 1.6, 1.4 and 2.6, 2.4) there is an acceleration of economic growth and an increase in employment. Moreover, a moderate increase in nominal wages makes it possible to maintain on a high level the external value of the national currency, improving the country's terms of trade and reducing the cost of imports which in turn facilitates the realization of social consensus. (This is the so-called German "virtuous circle.")

The second most important item of VDC are social benefits and other transfers to households (Table 3, lines 1.4 and 2.4). They are financed by social contributions and other transfers payable by households to government and enterprises (Table 3, lines 1.5 and 2.5). The annual average of differences between these two items, in France, rose from 3.5 percent of GDMP for the years 1971-75 to 3.8 percent for the years 1976-81. In West Germany it sank from -0.1 percent to -0.7 percent.

The third most important item of VDC in France, but not in West Germany, is the compensation of government employees (Table 3, lines 1.12 and 2.12). In West Germany this item is balanced almost exactly by direct taxes on income and wealth of households (Table 3, lines 1.6 and 2.6). In France, the difference between these two items amounts to 6 percent of GDMP. This means that this difference has to be financed by direct taxes on undistributed profits of enterprises,

by indirect taxes on households or by the creation of money. In all three cases, an increase in VDC is implied, with a negative impact on the competitiveness of the country.

Finally, property and entrepreneurial incomes paid by enterprises and governments to households and credit institutions are the only items of VDC which are relatively higher in West Germany than in France. In both countries, as a consequence of the restrictive monetary policy, the share of credit institutions rose considerably; that of households diminished.

As a result, VDC per unit produced increased in France at an annual average rate of 11 percent for the years 1971–75 and of 11.2 percent for the years 1976–81. The corresponding rates in West Germany were 7.1 and 3.4. These differences in rates, and more importantly in their evolution, explain why West German economic growth, much slower than French during the first period, outpaced it after 1975, achieving at the same time a much lower and decreasing rate of inflation, a largely positive balance of trade and a perceptible appreciation of the national currency (Table 7).

E. *The Confrontation of Nominal Demand with VDC per Unit Produced*

Determined as it is by exogeneous variables, the acceleration or deceleration of nominal demand, $v(t)$, meets the variations of domestic unit costs, $c(t)$, which is influenced partly by its own exogeneous factors and partly by the change in quantities produced depending on demand.

The usual, purely mechanical effect of an acceleration of demand is a deceleration of unit costs (Chart 1, path no. 1: France 1972–76, 79; West Germany 1973, 76, 78). Unit costs rise more slowly than demand: $[v(t) - v(t-1)] - [c(t) - c(t-1)] > 0$, which may be designated by the abbreviation: vc (path no. 2). Unit costs also rise more slowly than production: $\bar{r}c$ (path no. 3). At this point, there are two possibilities. If the exogeneous rise in costs is very slight, particularly if wage cost increases less than prices for the preceding year (Table 5, lines 1.6 and 2.6) and if markets are fairly competitive and production is very elastic, production will rise faster than nominal demand: $\bar{r}v$ (path no. 4), the rise in prices will slow down, resulting in *Disinflationary Growth* (DG), characterized by $\bar{r}vc$ (France and West Germany 1976). On the contrary, if these conditions are not fulfilled, production will rise more slowly than demand: $v\bar{r}$ (path no. 5), the rise in prices will accelerate, resulting in *Inflationary Growth* (IG), characterized by $v\bar{r}c$ (France 1972, 79; West Germany 1973). The case of West Germany in 1978 is exceptional. It has all the characteristics of Inflationary Growth, but in fact production decelerated as a consequence of a revaluation of the DM. Despite a strong deceleration of costs (Table 5, line 2.3), the drop in import prices (Table 5, line 2.7) prevented the acceleration of production.

But the exogeneous factors acting on costs may be stronger than the purely mechanical effect of increased production. The acceleration of nominal demand will then be accompanied by an acceleration of unit costs (path no. 6): France 1973, 74, 78; West Germany 1979. If the acceleration of costs is slower than that of demand: vc (path no. 7) and than that of production: $\bar{r}c$ (path no. 8), production will rise faster than demand: $\bar{r}v$ (path no. 9) and prices will decelerate, resulting in disinflationary growth (DG); $\bar{r}vc$ (West Germany 1979).

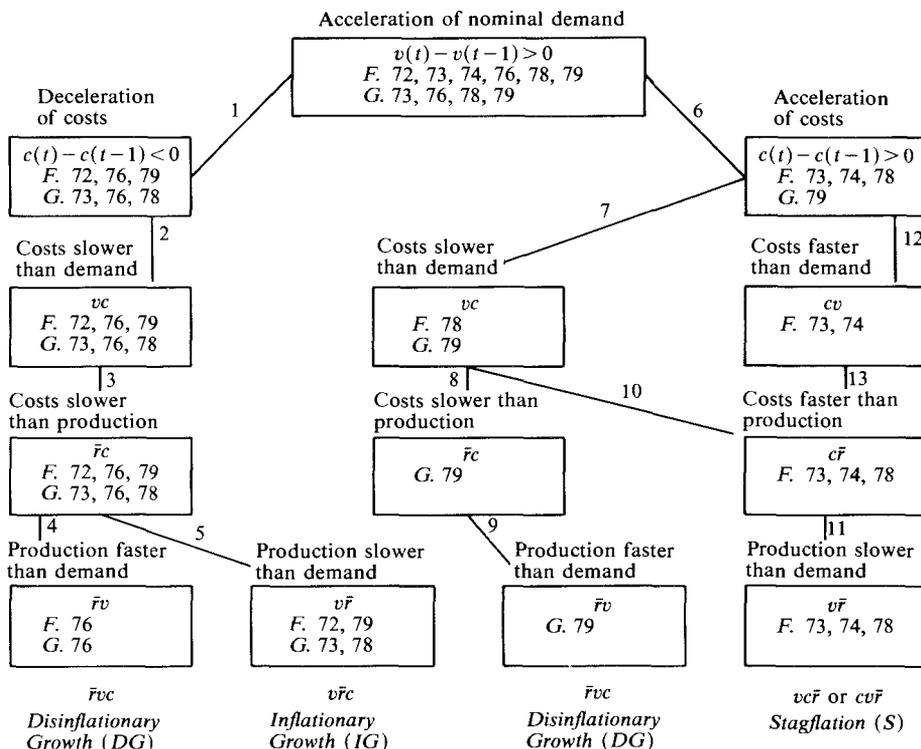


Chart 1. Effects of an Acceleration of Nominal Demand (v) France and West Germany, 1971-81

If, on the contrary, costs are rising faster than demand: cv (path no. 12) and more importantly faster than production: $c\bar{F}$ (path nos. 10 or 13), production will rise more slowly than demand: $v\bar{F}$ (path no. 11) and prices will accelerate resulting in *Stagflation* (S): $vc\bar{F}$ or $cv\bar{F}$ (France 1973, 74, 78).

The purely mechanical effect of a deceleration of nominal demand is an acceleration of unit costs (Chart 2, path no. 1: France 1971, 75, 77, 80, 81; West Germany 1974, 75, 77, 80, 81). Unit costs rise faster than demand: cv (path no. 2), and production: $c\bar{F}$ (path no. 3). But the deceleration of production may be faster than that of demand: $v\bar{F}$ (path no. 4), inducing an acceleration of prices and resulting in stagflation: $cv\bar{F}$ (France 1971, 75, 80, 81; West Germany 1974, 77, 80). Or it may be slower than that of demand: $\bar{F}v$ (path no. 5), inducing a deceleration of prices and resulting in *Recession* (R): $c\bar{F}v$ (France 1977, West Germany 1975, 81).

But the purely mechanical effect on unit costs of a deceleration of nominal demand may be outweighed by an exceptionally strong action of exogenous factors determining a deceleration of costs (path no. 6): West Germany 1971, 72, as a consequence of the revaluation of the DM. This deceleration may be faster than that of demand: vc (path no. 7) and production: $\bar{F}c$ (path no. 8). Production will then rise faster than demand: $\bar{F}v$ (path no. 9), and prices will decelerate resulting in disinflationary growth (DG): $\bar{F}vc$ (West Germany 1972). This deceleration, however, may also be slower than that of demand: cv (path no. 10) and

production $c\bar{r}$ (path no. 11). Production will then decelerate more slowly than demand, inducing a deceleration of prices and resulting in recession (R): $c\bar{r}v$ (West Germany 1971).

It is now possible to summarize the conditions specific to each of the four types of economic evolution:

(i) *Conditions necessary for an acceleration of economic growth:*

$$\bar{r}(t) - \bar{r}(t-1) > 0$$

General

Acceleration of World Trade

Adequate supply of money

Unit costs decelerating or at least rising more slowly than nominal demand and production: vc and $\bar{r}c$.

Unit costs rising more slowly than prices for the current and preceding year.

Particular to:

Disinflationary growth:

$$p(t) - p(t-1) < 0$$

Acceleration or deceleration of nominal demand with unit costs decelerating or accelerating less than nominal demand.

Production rising faster than nominal demand: $\bar{r}v$

That implies:

High elasticity of production

Fairly competitive markets

Wage costs decelerating and rising more slowly than prices of the preceding year. $\bar{r}vc$

Inflationary growth:

$$p(t) - p(t-1) > 0$$

Acceleration of nominal demand.

Deceleration of unit costs.

Production rising more slowly than nominal demand: $v\bar{r}$

That implies:

Low elasticity of production

Lack of competitive markets

$v\bar{r}c$

(ii) *Conditions necessary for a deceleration of economic growth:*

$$\bar{r}(t) - \bar{r}(t-1) < 0$$

General

Deceleration of World trade

or

Restrictive monetary policy

Unit costs rising faster than production: $c\bar{r}$

Particular to:

Recession:

$$p(t) - p(t-1) < 0$$

Deceleration of nominal demand with costs decelerating less than nominal demand or accelerating: cv

Production decelerating more slowly than nominal demand: $\bar{r}v$

Fairly competitive markets

Wage costs decelerating but rising faster than prices of the preceding year. $c\bar{r}v$

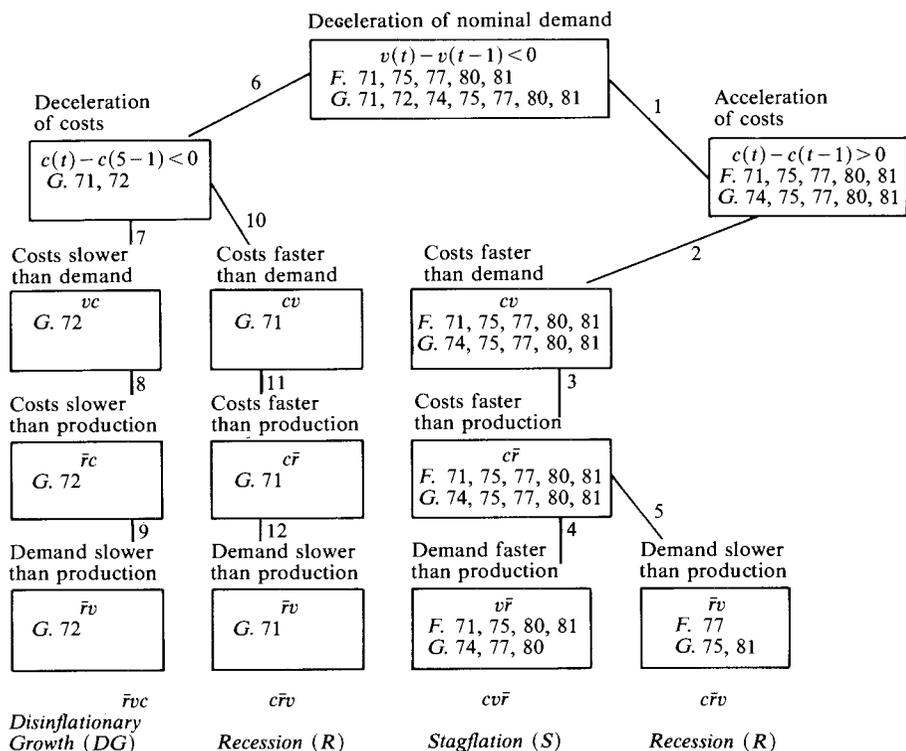
Stagflation:

$$p(t) - p(t-1) > 0$$

Acceleration or deceleration of nominal demand with costs accelerating generally more than nominal demand: cv (exceptionally vc)

Production decelerating faster than nominal demand: $v\bar{r}$

Lack of competitive markets $cv\bar{r}$ (exceptionally $vc\bar{r}$)



Acceleration of costs

$c(t) - c(t-1) > 0$
 F. 71, 75, 77, 80, 81
 G. 74, 75, 77, 80, 81

2

Demand slower than production

\bar{rv}
 F. 77
 G. 75, 81

$c\bar{rv}$

Recession (R)

Chart 2. Effects of a Deceleration of Nominal Demand (v) France and West Germany, 1971-81

III. THE UTILITY OF THE CONCEPT

The example of France and West Germany shows that the concept of macroeconomic cost is significant, insofar as it possesses a number of well determined attributes, and stable enough to be used in economic analysis. Moreover, it is new and has no equivalent substitutes, either in national or in business accounting. In particular, it differs from the concept of variable cost of enterprises to the extent that it takes into account the overhead costs of the nation which in business accounts are recorded only as far as they are financed by taxes and other contributions payable by enterprises.

The concept of Domestic Variable Cost is useful for economic theory as well as for economic policy.

A. Contributions to Economic Theory

It is too early to foresee all possible theoretical applications of the concept. However, let me mention some examples.

1. The Distinction between Demand-Pull and Cost-Push Inflation

This distinction has been generally abandoned, probably for two reasons: (i) a precise definition of costs on the macroeconomic scale was not available;

and (ii) all actual inflations were characterized by a simultaneous or successive rise in prices and costs. In most cases it was very difficult or even impossible to decide which one of them should be considered as the initial cause of inflation.

Now, a precise definition of macroeconomic cost exists and makes it possible to state that the distinction between demand-pull and cost-push inflation should not be based on the priority of price or cost rises, but on their relative importance. When costs rise faster than demand (cv), there is always a deceleration of growth which may be inflationary (stagflation), if demand increases faster than production ($cv\bar{r}$), or deflationary (recession) if demand rises more slowly (or declines faster) than production ($c\bar{r}v$). When costs rise more slowly than demand, there is generally (that is in the absence of any exogeneous obstacles) an acceleration of growth which may be inflationary (inflationary growth), if nominal demand is rising faster than production ($v\bar{r}c$), or disinflationary (disinflationary growth), if nominal demand is rising more slowly than production ($\bar{r}vc$).

Under these circumstances, it may be considered that stagflation ($cv\bar{r}$) is a cost-push inflation, and inflationary growth ($v\bar{r}c$) a demand-pull inflation.

2. The Theory of Economic Fluctuations

It may be admitted [10] that economic development of nations is mainly determined by the availability of natural resources and technical progress under the constraints of profitability, competitiveness, solidarity (or interdependence) and liquidity. The variations in profitability, competitiveness and liquidity of particular nations are transformed under the constraint of solidarity into general, alternative cumulative movements of expansion and recession of the World economy.

The proposed concept of VDC per unit produced is one of two basic elements of the profitability function of a nation and *the* basic element of its competitiveness. It should therefore contribute to the development of an at least partly new theory of economic fluctuations.

3. A Possible Explanation of Structural Unemployment

The absolute amount of VDC per unit produced in a given country depends on four main elements:

- (i) global productivity of factors employed in production;
- (ii) prices of factors employed in enterprises (compensation of enterprise employees, interest rates, distributed profits);
- (iii) net difference between social benefits and social contributions;

and

- (iv) net difference between compensation of government employees and direct taxes payable by households.

The countries which maintain their VDC per unit produced on a relatively low level are able to extend their export shares of highly elaborated goods and to increase their import shares of goods with a low value added content. In this way they maximize the employment of domestic factors of production.

The high rates of unemployment in old industrialized countries are essentially due to the relatively high level of their VDC per unit produced. Compared with

Japan, they are less efficient and their public expenses (particularly military) are much higher. Compared with new industrialized countries, they are charged with several times higher costs of labour, social security, administration, and cultural activities. As a result, the proportion of highly elaborated products they are able to export is diminishing and the proportion of these products they import is increasing. The growth of domestic production is slowing down. In many cases its rate becomes lower than the rate of increase in labour productivity. The rate of structural unemployment grows.

B. *Contribution to Economic Policy*

After all that has been said about the role of VDC in economics, it seems evident that maintaining the macroeconomic cost at a lowest possible level should be considered a major object of economic policy.

The necessary steps are the following:

(i) To convince trade unions that, from a collective point of view, an increase in wages faster than the increase in apparent productivity of labour is by no means beneficial for employees and the country. It raises labour costs and VDC per unit produced, generates inflation which confiscates the increment in nominal pay, reduces the profitability and competitiveness of the nation and contributes to the extension of unemployment;

(ii) To strictly balance any increase in social benefits by an equal increase in social contributions;

(iii) To strictly balance any increase in the wage bill of government employees by an equal increase in direct taxes payable by households.

The scope of these last two devices is to avoid the financing of government expenditure on wages by an increase in indirect taxes or deficit spending which would raise prices and consequently nominal wages, and trigger off an inflationary cycle;

(iv) To suppress taxes on undistributed profits invested in production;

(v) To suppress any blocking of prices and to develop as far as possible competitive markets;

(vi) To restore a complete freedom for enterprises to adjust, within the framework of general rules fixed in collective agreements, the number of their employees to the effective needs of profitable production;

(vii) To transfer the financial burden of unemployment from the enterprises directly concerned to the entirety of the national community;

(viii) To severely limit the creation and extension of government services which do not improve the profitability and the competitiveness of the nation; and

(ix) To practice a monetary policy which should not:

—prevent nominal demand—that is GDMP at current prices—from growing at least as fast as VDC;

—keep the real rate of interest at a level incompatible with the development of productive investment;

—serve as a means for maintaining an overvalued rate of exchange of national currency.

It is true that the proposed policy, even if applied very strictly, cannot insure to a middle-sized country a rapid growth in an unfavourable world environment. It cannot do more than enable the country concerned to maximize the advantages of world expansion and to minimize the inconveniences of world depression. But this is already a very important result for the population of the country and its international position. As to the economically dominant country, which does not feel the balance of payments constraint in the same way as smaller countries, it is probable that the necessity of minimizing the growth of VDC per unit produced is there much less evident than in countries such as France or West Germany. I am convinced, however, that, in a country the money of which serves as the universal means of payment, the problem of containing the rise in macroeconomic cost is also of primary importance, for that country as well as for the whole world.

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