# Capital as a factor of production in OECD agriculture: measurement and data

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This article provides a farm sector comparison of levels of capital input for fourteen OECD countries for the period 1973 to 2002. The starting point for construction of a measure of capital input is the measurement of capital stock. Estimates of depreciable capital are derived by representing capital stock at each point of time as a weighted sum of past investments. The weights correspond to the relative efficiencies of capital goods of different ages, so that the weighted components of capital stock have the same efficiency. Estimates of the stock of land are derived from balance sheet data. We convert estimates of capital stock into estimates of capital service flows by means of capital rental prices. Comparisons of levels of capital input among countries require data on relative prices of capital input. We obtain relative price levels for capital input via relative investment goods prices, taking into account the flow of capital input per unit of capital stock in each country.

## I. Introduction

This article provides a comparison of levels of capital input in agriculture for fourteen OECD countries for the period 1973 to 2002.[1] Measures of capital input are necessary for a description of technology in agriculture. In a subsequent article, we integrate these estimates into production accounts for agriculture, including real output and real factor input. We apply the resulting measures of real product and real factor input to the study of total factor productivity and international competitiveness.

The starting point for construction of a measure of capital input is the measurement of capital stock. Estimates of depreciable capital are derived by representing capital stock at each point of time as a weighted sum of past investments.[2] The weights correspond to the relative efficiencies of capital goods of different

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[1] The countries are Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Sweden, the United Kingdom and the United States.

[2] In this study, depreciation is defined as the decline in the ability of the asset to produce at a given output level, i.e. the physical decay of the asset or a decline in its productivity. Efficiency loss is assumed to be a function of age of the asset.

ages, so that the weighted components of capital stock have the same efficiency. To estimate the stock of land in each country, we construct time series price indexes of land in farms. The stock of land is then constructed implicitly as the ratio of the value of land in farms to the time series price index.

The next step in developing measures of capital input is to construct estimates of prices of capital services. For each asset the price of investment goods is a weighted sum of future service or rental prices, discounted by a factor that incorporates future rates of return. The weights are given by the relative efficiencies of capital goods of different ages. Our estimates of capital input incorporate the same data on relative efficiencies of capital goods into estimates of both capital stock and capital rental prices, so that the requirement for internal consistency of measures of capital input is met.

Finally, a comparison of levels of capital input among countries requires data on the relative prices of capital input among all countries included in the comparison. We develop data on relative prices of capital input for all fourteen countries. We obtain relative price levels of capital input among countries via relative investment goods prices, taking into account the flow of capital input per unit of capital stock in each country. Relative prices of land are based on hedonic regression results.

The article is organized as follows. Section II describes the mathematical model and the underlying assumptions used to estimate capital input. Section III presents estimates of relative levels of capital input for the fourteen countries. Section IV concludes.

## II. Methodology

We compile estimates of capital input and capital service prices for each of fourteen countries. Construction of these series begins with estimating the capital stock and the service price for each asset type in each country. For depreciable assets, the perpetual inventory method is used to derive capital stocks from data on investment in constant prices.[3] For land, capital stocks are measured as implicit quantities derived from balance sheet data. Implicit rental prices for each asset are based on the correspondence between the purchase price of the asset and the discounted value of future service flows derived from that asset.

### *Depreciable assets*

Under the perpetual inventory method, the capital stock at the end of each period, say $K_t$, is measured as the sum of past investments, each weighted by its relative efficiency, say $d_\tau$:[4]

$$K_t = \sum_{\tau=0}^{\infty} d_\tau I_{t \;\; \tau} \qquad (1)$$

In Equation 1, we normalize initial efficiency $d_0$ at unity and assume that relative efficiency decreases so that:

$$d_0 = 1, \quad d_\tau - d_{\tau \;\; 1} \leq 0, \quad \tau = 0, 1, \ldots, T \qquad (2)$$

We also assume that every capital good is eventually retired or scrapped so that relative efficiency declines to zero:

$$\lim_{\tau \to \infty} d_\tau = 0 \qquad (3)$$

The decline in efficiency of capital goods gives rise to needs for replacement in order to maintain the productive capacity of the capital stock. The proportion of a given investment to be replaced at age $\tau$, say $m_\tau$, is equal to the decline in efficiency from age $\tau - 1$ to age $\tau$:

$$m_\tau = -(d_\tau - d_{\tau \;\; 1}), \quad \tau = 1, \ldots, T \qquad (4)$$

These proportions represent mortality rates for capital goods of different ages.

Replacement requirements, say $R_t$, are a weighted sum of past investments:

$$R_t = \sum_{\tau=1}^{\infty} m_\tau I_{t \;\; \tau} \qquad (5)$$

where the weights are the mortality rates.

[3] Data on investment for most member countries of the European Union are from *Capital Stock Data for the European Union* (Beutel, 1997). The series were extended through 2002 using Eurostat's NewCronos database (http://europa.eu.int/comm/eurostat/newcronos/). Additional data sources include *Contabilidad Nacional de España* (Instituto Nacional de Estadística), *Anuario de Estadística Agraria* (Ministerio de Agricultura Pesca y Alimentación) and *Cuentas de Sector Agrario* (Ministerio de Agricultura Pesca y Alimentación); ISTAT, Dipartimento di Contabilità Nazionale ed Analisi Economica; and Instituto Nacional de Estadística, Departamento de Estatísticas da Agricultura e Pescas, Serviço de Estatísticas Económicas Agrícolas. The investment data is reported on pages 53 60 of *Fixed Reproducible Tangible Wealth in the United States* (US Dept. of Commerce (2003)). This data is also available online at the US Dept. of Commerce website www.bea.gov/national/FA2004/SelectTable.ASP#52. The data is also available for the period 1901 2004.

[4] The expression in (1) gives the quantity of capital available for production. In the dual problem, the factor price function relates the price of an asset to the flow of services derived from that asset. This dual relationship between an asset's relative efficiency and its price can be used to construct estimates of the replacement value of the capital stock, or wealth.

Taking the first difference of expression (1) and substituting (4) and (5), we can write:

$$\begin{aligned} K_t - K_{t-1} &= I_t - \sum_{\tau=1}^{\infty}(d_\tau - d_{\tau-1})I_{t-\tau} \\ &= I_t - \sum_{\tau=1}^{\infty} m_\tau I_{t-\tau} \\ &= I_t - R_t \end{aligned} \qquad (6)$$

The change in capital stock in any period is equal to the acquisition of investment goods less replacement requirements.

To estimate replacement, we must introduce an explicit description of the decline in efficiency. This function, $d$, may be expressed in terms of two parameters, the service life of the asset, say $L$, and a curvature or decay parameter, say $\beta$. Initially, we will hold the value of $L$ constant and evaluate the efficiency function for various values of $\beta$. One possible form for the efficiency function is given by:

$$\begin{aligned} d_\tau &= \frac{L-\tau}{L-\beta\tau}, \quad 0 \le \tau \le L \\ d_\tau &= 0, \quad \tau \ge L \end{aligned} \qquad (7)$$

This function is a form of a rectangular hyperbola that provides a general model incorporating several types of depreciation as special cases.[5]

The value of $\beta$ in (7) is restricted only to values less than or equal to one. Values greater than one yield results outside the bounds established by the restrictions on $d$. For values of $\beta$ greater than zero, the function $d$ approaches zero at an increasing rate. For values less than zero, $d$ approaches zero at a decreasing rate.

Little empirical evidence is available to suggest a precise value for $\beta$. However, two studies provide evidence that efficiency decay occurs more rapidly in the later years of service. Utilizing data on expenditures for repairs and maintenance of 745 farm tractors covering the period 1958 to 1974, Penson *et al.* (1977) found that the loss of efficiency was very small in the early years of service and increased rapidly as the end of the asset's service life approached. More recently, Romain *et al.* (1987) compare the explanatory power of alternative capacity depreciation patterns for farm tractors in a model of investment behaviour. They found that the concave depreciation pattern better reflects actual investment decisions.

Taken together, these studies suggest that estimates of $\beta$ should be restricted to the zero-one interval. Ultimately, the $\beta$ values selected for this study are 0.75 for structures and 0.5 for machinery and transportation equipment. It is assumed that the efficiency of a structure declines slowly over most of its service life until a point is reached where the cost of repairs exceeds the increased service flows derived from the repairs, at which point the structure is allowed to depreciate rapidly. The decay parameter for machinery and transportation equipment assumes that the decline in efficiency is more uniformly distributed over the asset's service life.[6]

Consider now the efficiency function that holds $\beta$ constant and allows $L$ to vary. The concept of variable lives is related to the concept of investment used in this study where investment is composed of bundles of different types of capital goods. Each of the different types of capital goods is a homogeneous group of capital assets in which the actual service life $L$ is a random variable reflecting quality differences, maintenance schedules, etc. For each type of capital good there exists some mean service life $\bar{L}$ around which there is a distribution of the actual service lives of the assets in the group. In order to determine the actual capital available for production, the actual service lives and the relative frequency of assets with these service lives must be determined. It is assumed that this distribution may be accurately depicted by the standard normal distribution:[7]

$$P(L) = \frac{1}{\sqrt{2\pi}\sigma} e^{-(L-\bar{L})/2\sigma^2} \qquad (8)$$

[5] The hyperbolic decay function was employed in Ball *et al.* (1993, 2001, 2004).

[6] To determine the effects of changes in the value of $\beta$ on estimates of capital stock, various values of $\beta$ were used to construct a series of capital stocks. Changes in the value of $\beta$ produce significant changes in the magnitude of the estimates of capital stock. However, there is much similarity in the rates of growth in the series over the time interval. Thus the choice of $\beta$, while having a pronounced effect on the level of capital stock, has little impact on the long term trends.

[7] Very little data exist on the form of the distribution around the mean life. The only study available was conducted by Winfrey (1935) detailing the actual service lives of a group of assets. Winfrey's S 3 distribution had a bell shaped appearance somewhat akin to the normal distribution. No rigorous tests were performed to determine if the distribution was, in fact, a normal distribution, but based on this admittedly sparse evidence it is assumed that there exists a normal distribution about the mean life of a particular type of asset. This assumption is used mostly for convenience since tables of values for the normal distribution are readily available.

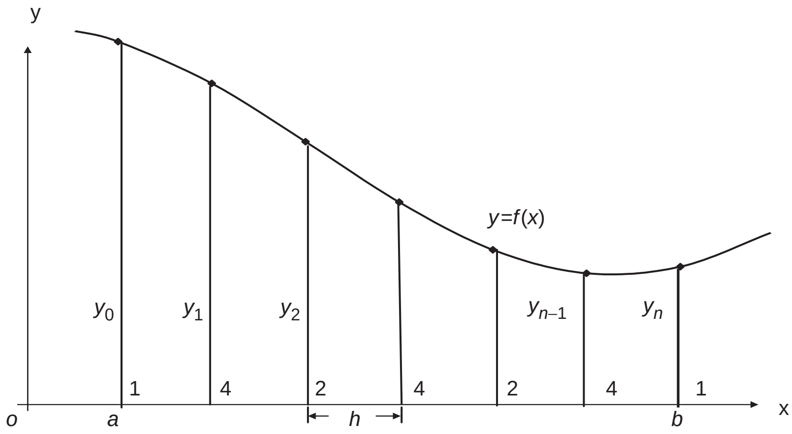


**Fig. 1. Calcuation of integral using Simpson's approximation**

This is a continuous function in which, for any value of $L$, there exists a nonzero density and, for the neighborhood around $L$, a nonzero probability. One property of the normal distribution is related to the infinite nature of the distribution. Without adjustment, the distribution would yield cases where assets were discarded prior to their purchase or assets with unrealistically long service lives. In order to eliminate these extremes, some adjustment is warranted to restrict the values of the actual service lives to a reasonable range around $\bar{L}$. This adjustment requires truncation of the normal at some point before and after $\bar{L}$, say by a value of $\delta$.

This procedure requires that the remaining standard normal values be adjusted upwards by an amount equal to $1/A$ where $A$ is the percent of the distribution remaining within the truncated curve. The value of $A$ is simply the area under the normal curve between the cut-off points:

$$A = \int_{\ \delta/\sigma}^{\delta/\sigma} \frac{1}{\sqrt{2\pi}} e^{\ X^2/2}\, \mathrm{d}X \tag{9}$$

where $X$ is a standard normal variable. The adjusted normal distribution then becomes:

$$\begin{aligned} P(L) &= \frac{\left(1/\sqrt{2\pi\sigma}\right)e^{\ (L\ \ \bar{L})^2/2\sigma^2}}{\int_{\ \delta/\sigma}^{\delta/\sigma}\left(1/\sqrt{2\pi}\right)e^{\ X^2/2}\,\mathrm{d}X} \\ &= \frac{e^{\ (L\ \ \bar{L})^2/2\sigma^2}}{\sigma\int_{\ \delta/\sigma}^{\delta/\sigma} e^{\ X^2/2}\,\mathrm{d}X}. \end{aligned} \tag{10}$$

The above results allow calculation of the probability of service life $L$ occurring given the average age of a group of similar capital goods, the cut-off points of a distribution around the average age, and the SD of the distribution. In this study, we truncate the distribution at points two SDs before and after the mean. Two SDs are assumed to be 0.98 times the mean service life. This dispersion parameter was chosen to conform to the observation that assets are occasionally found that are considerably older than the mean service life and that a few assets are accidentally damaged when new. Once the frequency of a service life $L$ is known, the decay function for that particular service life may be calculated using some fixed value of $\beta$. A similar process is followed for all other possible values of $L$, and the decay functions are aggregated to derive a replacement function for that type of capital good. This function may be expressed mathematically as:

$$R(\tau|\bar{L},\delta,\sigma,\beta) = \int_{\bar{L}\ \ \delta}^{\bar{L}+\delta} d(\tau|L,\beta)P(L|\bar{L},\sigma,\delta)\,\mathrm{d}L \tag{11}$$

Unfortunately, this function is not continuous and may not be integrated to determine the values of $R$ for each age. An alternative to integration is to use an approximation technique to estimate the area under the curve. One such method is Simpson's approximation. This technique requires dividing the area under the curve to be integrated into an even number of equal width segments. The area under the first two segments is estimated by fitting a parabola between the bounds of the first two segments in Fig. 1. The area in successive pairs of segments is estimated in a similar manner. This procedure may be conveniently expressed for a general integral by:

$$\begin{aligned} \int_a^b f(x)\,\mathrm{d}x = \frac{h}{3}\big[&y_0 + 4y_1 + 2y_2 + 4y_3 + 2y_4 \\ &+ \cdots + 2y_{n\ \ 2} + 4y_{n\ \ 1} + y_n\big] \end{aligned} \tag{12}$$

**Table 1. Derivation of the frequency distribution of discards for an asset with a 10-year mean service life**

| Variable | Segment boundaries 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Frequency of service life | 0.0226 | 0.0465 | 0.0814 | 0.1214 | 0.1543 | 0.1671 | 0.1543 | 0.1214 | 0.0814 | 0.0465 | 0.0226 |
| Simpson weights | 1 | 4 | 2 | 4 | 2 | 4 | 2 | 4 | 2 | 4 | 1 |
| Weighted frequency | 0.0226 | 0.1859 | 0.1627 | 0.4856 | 0.3087 | 0.6686 | 0.3087 | 0.4856 | 0.1627 | 0.1859 | 0.0226 |
| Actual frequency | 0.0075 | 0.0620 | 0.0542 | 0.1619 | 0.1029 | 0.2229 | 0.1029 | 0.1619 | 0.0542 | 0.0620 | 0.0075 |

where $y_0, y_1, \ldots, y_n$ are the ordinates of the curve $y = f(x)$ at the points $x_0 = a$, $x_1 = a + h$, $x_2 = a + 2h, \ldots, x_n = a + nh = b$ corresponding to a subdivision of the interval $a \leq x \leq b$ into $n$ segments each of width $h = (b - a)/n$.

Substitution of $\bar{L} + \delta$ for $b$ and $\bar{L} - \delta$ for $a$ in (12) yields:

$$\int_{\bar{L}-\delta}^{\bar{L}+\delta} R(\tau) = \frac{h}{3}\left[R(\bar{L}-\delta) + 4R\left(\bar{L}-\delta+\frac{2\delta}{n}\right) + 2R\left(\bar{L}-\delta+2\frac{2\delta}{n}\right) + 4R\left(\bar{L}-\delta+3\frac{2\delta}{n}\right) + 2R\left(\bar{L}-\delta+4\frac{2\delta}{n}\right) + \cdots + 2R\left(\bar{L}-\delta+(n-2)\frac{2\delta}{n}\right) + 4R\left(\bar{L}-\delta+(n-1)\frac{2\delta}{n}\right) + R(\bar{L}+\delta)\right] \quad (13)$$

A specific example may prove useful in clarifying many of the concepts discussed here. For purposes of this example, we make the following assumptions. The average service life is 10 years. The SD of the distribution is 2.5 years. The distribution is truncated at points two SDs before and after the mean. And depreciation occurs according to (7), where the value of $\beta$ is assumed to be 0.75.

Calculation of the replacement function proceeds in two distinct steps: (1) derive the frequency distribution of discards, and (2) weight the decay functions by their corresponding discard frequencies to yield the replacement function values. The first step in the calculation of the discard frequencies is to divide the discard interval into an even number of equal width segments. For this example, we will chose 10 segments which yields a segment width of one year. This segment width was chosen largely for convenience; in general, the segment widths are not integer values. The second step requires calculating the various ages, $L$, which comprise the boundaries between the segments. These ages correspond to each of the columns shown in Table 1.

The next step is to calculate the probability or frequency of occurrence for each of the 11 asset service lives. Given our assumptions concerning the distribution about the mean life, the probability of each asset life, $L$, occurring may be derived using (10), which is reproduced below with the actual values of $\sigma$, $\delta$ and $L$:

$$P(L) = \frac{e^{-(L-10)^2/12.5}}{2.5\int_{-2}^{2} e^{-X^2/2}\,\mathrm{d}X} \quad (14)$$

Recall that the denominator in (14) is equal to the total area under the normal curve less the area outside the cut-off points defined by our truncation assumption. Rather than perform these calculations, this value may be obtained from a table of normal values. This is found to be 0.9546. The numerator in (14) is the ordinate of the distribution for each of the 11 lives calculated previously. These values may be obtained from a Table of ordinates of the normal curve. This latter Table is developed for the standard normal distribution with mean zero and SD of one. For distributions with a SD other than one, the ordinates derived from the table must be divided by SD of the distribution actually used. These resulting calculations are shown in the first row of Table 1.

The next step requires weighting each of the ordinate values by the appropriate weight required to perform Simpson's approximation. These weights are derived from (12) and are presented in row 2 of Table 1.

The final calculation is to multiply each of the weighted frequency values by the ratio ($h/3$). In our example, the segment width $h$ is one year. Multiplying each of the weighted frequencies by this ratio yields the actual frequencies for each of the 11 service lives as shown in row 4.

We may now proceed to determine the depreciation pattern for the entire group of assets. Recall that while the mean service life is 10 years, the actual service lives range between 5 and 15 years. For each

**Table 2. Change in efficiency of assets with varying service lives and the total replacement function**

| Age of asset (years) | Decay of assets with service lives of: 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Total replacement function |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.9412 | 0.9524 | 0.9600 | 0.9655 | 0.9697 | 0.9730 | 0.9756 | 0.9778 | 0.9796 | 0.9811 | 0.9825 | 0.9710 |
| 2 | 0.8571 | 0.8889 | 0.9091 | 0.9231 | 0.9333 | 0.9412 | 0.9474 | 0.9524 | 0.9565 | 0.9600 | 0.9630 | 0.9363 |
| 3 | 0.7273 | 0.8000 | 0.8421 | 0.8696 | 0.8889 | 0.9032 | 0.9143 | 0.9231 | 0.9302 | 0.9362 | 0.9412 | 0.8933 |
| 4 | 0.5000 | 0.6667 | 0.7500 | 0.8000 | 0.8333 | 0.8571 | 0.8750 | 0.8889 | 0.9000 | 0.9091 | 0.9167 | 0.8380 |
| 5 | 0 | 0.4444 | 0.6154 | 0.7059 | 0.7619 | 0.8000 | 0.8276 | 0.8485 | 0.8649 | 0.8780 | 0.8889 | 0.7624 |
| 6 | | 0 | 0.4000 | 0.5714 | 0.6667 | 0.7273 | 0.7692 | 0.8000 | 0.8235 | 0.8421 | 0.8571 | 0.6568 |
| 7 | | | 0 | 0.3636 | 0.5333 | 0.6316 | 0.6957 | 0.7407 | 0.7742 | 0.8000 | 0.8205 | 0.5437 |
| 8 | | | | 0 | 0.3333 | 0.5000 | 0.6000 | 0.6667 | 0.7143 | 0.7500 | 0.7778 | 0.4064 |
| 9 | | | | | 0 | 0.3077 | 0.4706 | 0.5714 | 0.6400 | 0.6897 | 0.7273 | 0.2924 |
| 10 | | | | | | 0 | 0.2857 | 0.4444 | 0.5455 | 0.6154 | 0.6667 | 0.1741 |
| 11 | | | | | | | 0 | 0.2667 | 0.4211 | 0.5217 | 0.5926 | 0.1028 |
| 12 | | | | | | | | 0 | 0.2500 | 0.4000 | 0.5000 | 0.0421 |
| 13 | | | | | | | | | 0 | 0.2353 | 0.3810 | 0.0175 |
| 14 | | | | | | | | | | 0 | 0.2222 | 0.0017 |
| 15 | | | | | | | | | | | 0 | 0 |

of these service lives, there exists a decay function which describes the change in relative efficiency of assets with that service life. The efficiency of these assets is determined according to (7). These calculations are performed for each of the 11 service lives and are reported in the corresponding column in Table 2. The values shown measure the efficiency of the assets at the end of the period relative to the efficiency of the asset when new. For example, assets with a 5-year service life are slightly more than 94% as efficient after 1 year of service as when new. By the end of the 5th year of service, the relative efficiency has fallen to zero.

The relative efficiency of the entire group of assets may now be determined. This is derived by weighting the efficiency of each of the 11 ages in a given year by the actual frequency of assets with that service life. These weighted efficiency values are summed across all ages to yield the relative efficiency of all assets. For example, according to Table 2, this group of assets is 97% as efficient after one year of service as when new.

The result of these calculations has been to derive a replacement function for a homogeneous group of capital goods. This function reflects not only changes in efficiency but also the discard distribution around the mean service life of the asset. An algorithm for calculating capital stocks was written in SAS and is available from the authors upon request.

## *Capital rental prices*

An important innovation embodied in the measures of capital input presented in this article is the rental price of capital originated by Jorgenson (1963, 1973). This rental price is based on the particular assumption that the pattern of capacity depreciation is characterized by a decaying geometric series. The task in this Section is to derive the rental price of capital allowing for any pattern of depreciation.

The behavioural assumption underlying this derivation is that firms buy and sell assets so as to maximize the present value of the firm. This implies that firms will add to the capital stock so long as the present value of the net revenue generated by an additional unit of capital exceeds the purchase price of the asset. This can be stated algebraically as:

$$\sum_{t=1}^{\infty}\left(p\frac{\partial y}{\partial K} - w\frac{\partial R_t}{\partial K}\right)(1+r)^{\;\;t} > w \qquad (15)$$

To maximize net present value, firms add to capital stock until this equation holds as an equality. This requires that:[8]

$$p\frac{\partial y}{\partial K} = rw + r\sum_{t=1}^{\infty} w\frac{\partial R_t}{\partial K}(1+r)^{\;\;t} = c \qquad (16)$$

The expression for $c$ is the implicit rental price of capital corresponding to the mortality distribution $m$.

[8] If $r > 0$, then $\sum_{t}^{\infty}{}_{1}(1+r)^{-t}$ (1/1 (1/1 + $r$)) 1 1/$r$ Substituting this result in (15) and rearranging terms yields expression (16).

The rental price consists of two components. The first term, $rw$, represents the opportunity cost associated with the initial investment. The second term, $r\sum_{t=1}^{\infty} w(\partial R_t/\partial K)(1+r)^{-t}$, is the present value of the cost of all future replacements required to maintain the productive capacity of the capital stock.

Let $F$ denote the present value of the stream of capacity depreciation on one unit of capital according to the mortality distribution $m$:

$$F = \sum_{\tau=1}^{\infty} m_\tau (1+r)^{-\tau} \tag{17}$$

Since replacement at time $t$ is equal to capacity depreciation at time $t$:

$$\begin{aligned}\sum_{t=1}^{\infty} \frac{\partial R_t}{\partial K}(1+r)^{-t} &= \sum_{t=1}^{\infty} F^t \\ &= \frac{F}{(1-F)}\end{aligned} \tag{18}$$

so that

$$c = \frac{rw}{(1-F)} \tag{19}$$

The[9,10] real rate of return $r$ in expression (19) above is calculated as the nominal yield on government bonds less the rate of inflation as measured by the implicit deflator for gross domestic product.[11] An *ex ante* rate is then obtained by expressing observed real rates as an ARIMA process.[12] We then calculate $F$ holding the required real rate of return constant for that vintage of capital goods. In this way, implicit rental prices $c$ are calculated for each asset type.

Comparisons of levels of capital input among countries require data on relative prices of capital input. A price index that converts the ratio of the nominal value of capital service flows between two countries into an index of relative real capital input is referred to as a purchasing power parity of the currencies of the two countries. The dimensions of the purchasing power parities are the same as exchange rates. However, the purchasing power parities reflect the relative prices of the components of capital input in each country.

Although we estimate the decline in efficiency of capital goods separately for all fourteen countries, we assume that the relative efficiency of new capital goods is the same in each country. Accordingly, the appropriate purchasing power parity for new capital goods is the purchasing power parity for the corresponding component of investment goods output.[13] To obtain the purchasing power parities for capital input, we must take into account the flow of capital services per unit of capital stock in each country. This is accomplished by multiplying the purchasing power parity for investment goods for any country by the ratio of the price of capital input for that country relative to the United States. The resulting price index represents the purchasing power parity for capital input.

### *Land*

To estimate the stock of land in each country, we construct time series price indexes of land in farms. The stock of land is then constructed implicitly as the ratio of the value land in farms to the time series price index. The rental price of land is obtained using (19), assuming zero replacement.

Spatial differences in land characteristics or quality prevent the direct comparison of observed prices. Land in agricultural production across the fourteen countries is heterogeneous in terms of soil type, associated soil characteristics, and other productivity-related factors. Failure to account for these differences would lead to a biased measure of land input, and thus also of productivity levels and growth rates. To account for these differences, indexes of relative prices of land are constructed using hedonic methods where land is viewed as a bundle of characteristics which contribute to the output derived from its use. According to the hedonic approach the price of land represents the valuation of the characteristics 'that are bundled in it,' and each characteristic is valued by its implicit price (Rosen, 1974). Implicit prices for the

[9] For the special case where $d_\tau = \delta(1-\delta)^{\tau-1}$, which was assumed by Jorgenson (1963, 1973), $F = \sum_{\tau=1}^{\infty} \delta(1-\delta)^{\tau-1}(1+r)^{-\tau} = \delta/(r+\delta)$ and $c = w(r+\delta)$.

[10] A number of European countries offer subsidies on purchases of new capital goods at the rate $s$ of their price, in which case the rental price falls to: $c = [rw/(1-F)](1-s)$. To fully realize the reduction in capital costs made possible by the subsidy, the firm would have to sell its existing capital stock and replace it with new units of capital which are eligible for the subsidy. In a simply model with no adjustment costs and perfect resale markets, this would be possible. The subsidy would create a one time capital loss on existing capital. The prices of used capital goods would have to decline to keep the services from them competitive with the lower cost of services available from subsidized, new capital goods.

[11] The nominal rate was taken to be the average annual yield over all maturities.

[12] Observed real rates are expressed as an AR(1) process. We use this specification after examining the correlation coefficients for autocorrelation, partial and inverse autocorrelation, and performing the unit root and while noise tests. We centered each time series by subtracting its sample mean. The analysis was performed on the centred data.

[13] Purchasing power parities for investment goods are from OECD (1999, p. 162).

**Table 3. Definition of variables in hedonic regression**

| Variable | Unit | Definition |
|---|---|---|
| Land price | Local currency | Price per hectare |
| Population accessibility | Index | A measure of the size and proximity of nearby population centers |
| Ice | Dummy variable | Covered by ice |
| Ocean | ” | Covered by ocean |
| Inland water | ” | Covered by lakes or rivers |
| Low temperature | ” | Having soils with mean annual temperature < 0°C and mean summer temperature < 10°C |
| Salinity | ” | Having soils with pH > 9.0 (i.e. where the salt concentration is so high that it prevents plant growth) |
| Low water storage | ” | Regions where the ability of the soil to store moisture is low |
| Excess water | ” | Having soils saturated with water during long periods of the year |
| High organic matter | ” | Regions with peats or organic soils |
| High shrink/swell | ” | Having soils dominated by a mineral that causes soils to crack during the dry season |
| High anion exchange | ” | Having volcanic soils where phosphate is made unavailable to plants |
| Few constraints | ” | Having soils with few or no major soil related constraints and a generally temperate climate |
| Acidity | Percent of land area | Having soils with pH < 5.2 (i.e.,where soil acidity reduces root growth and prevents nutrient uptake) |
| Moisture deficit | ” | Regions which experience soil moisture stress for 4 or more months in a year |
| Moisture stress | ” | Regions which experience continuous moisture stress |
| Irrigation | ” | Area irrigated |

*Source*: World Soils Group, Natural Resource and Conservation Service,US Department of Agriculture.

characteristics exhibit many of the properties of ordinary prices. But these prices are seldom observed directly and must be estimated from the hedonic price function. Griliches (1964) notes that if we can observe different ‘quality combinations’ selling at different prices, it is possible to estimate, at the margin, the prices of these characteristics.

The hedonic method was pioneered by Waugh (1928) to study the influences of quality factors on vegetable prices at a given point of time, and by Court (1939) to examine if price increases for automobiles were due to quality changes or to monopoly power. Chow (1967) and Griliches (1961), among others, used hedonic methods to obtain quality-adjusted price indexes for automobiles and computers. Hedonic methods have also been used to study markets for agricultural inputs. Griliches (1958) and Rayner and Lingard (1971) studied fertilizer prices. And Palmquist (1989) developed a hedonic model of land values.

A hedonic price function expresses the price of a good or service as a function of the quantities of the characteristics it embodies. Thus, a land hedonic function may be expressed as $w = W(X, D)$, where $w$ represents the price of land, $X$ is a vector of characteristics or quality variables, and $D$ is a vector of other variables. In the hedonic framework, we regard different parcels of land as alternative bundles of a smaller number of characteristics. These characteristics reflect measures of land quality.

The World Soil Resources Office of the US Department of Agriculture’s Natural Resource Conservation Service has compiled data on characteristics that capture differences in land quality.[14] These characteristics include soil acidity, salinity and moisture stress, among others. The ‘level’ of each characteristic is measured as the percentage of the land area in a given region that is subject to stress.[15] A detailed description of the characteristics is provided in Table 3, while Fig. 2 depicts their level. The spatial incidence of environmental stress can be seen in Figs 3 and 4. The environmental attributes most highly correlated with land prices in major agricultural areas in the European countries are seasonal moisture deficit and soil acidity. These environmental characteristics are also important in

[14] See Eswaren *et al*. (2003). They develop a procedure for evaluating inherent land quality and use this procedure to assess land resources on a global scale. Given the Eswaran *et al*. database, we use GIS to overlay country and regional boundaries. The result of the overlay gives us the proportion of the land area of each region that is in each of the soil stress categories.
[15] A number of characteristics are common to only a few regions. In this case, we indicate environmental stress by a dummy variable equal to unity if more than 10% of the land area is affected and zero otherwise.

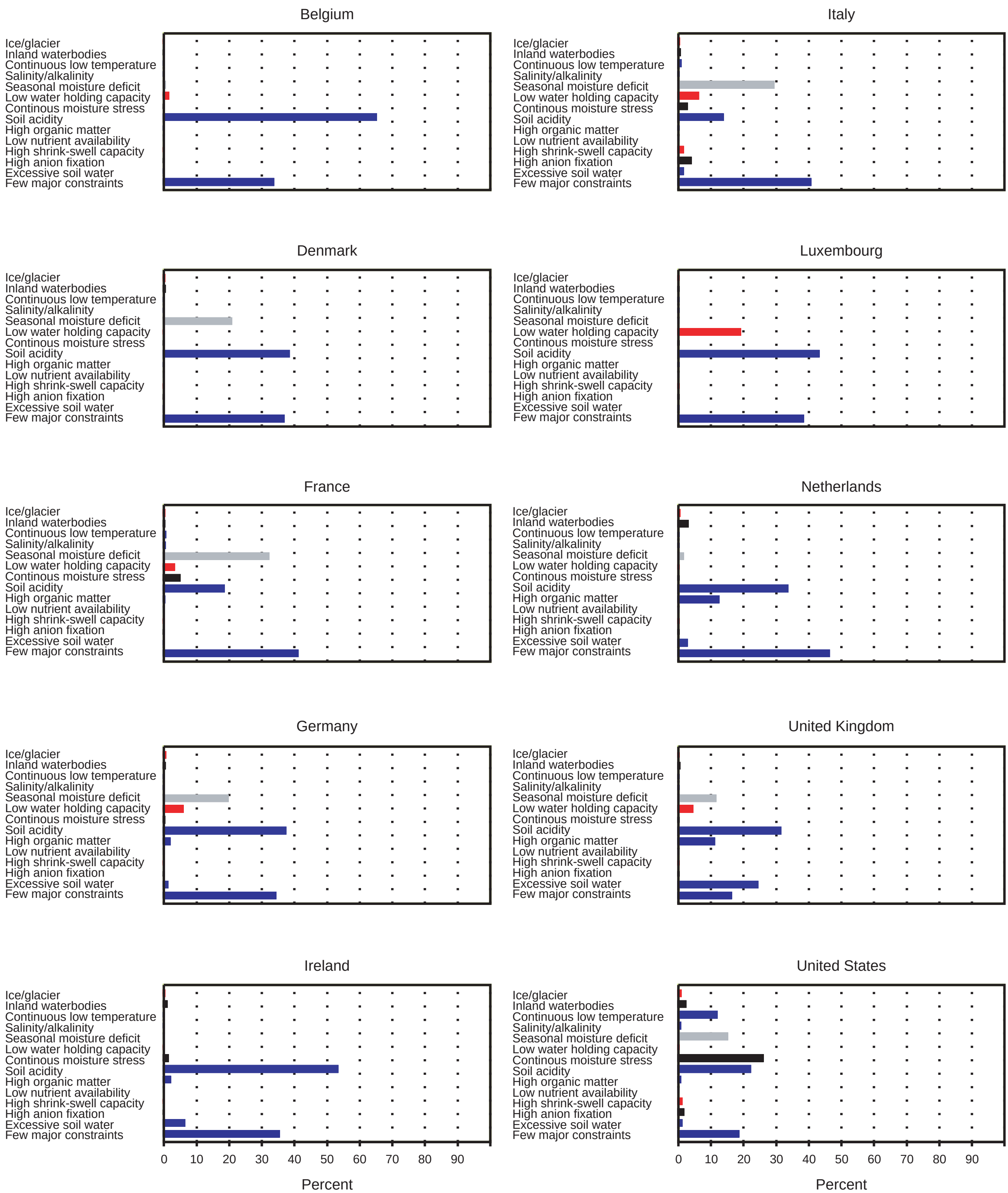


**Fig. 2. Level of characteristics**

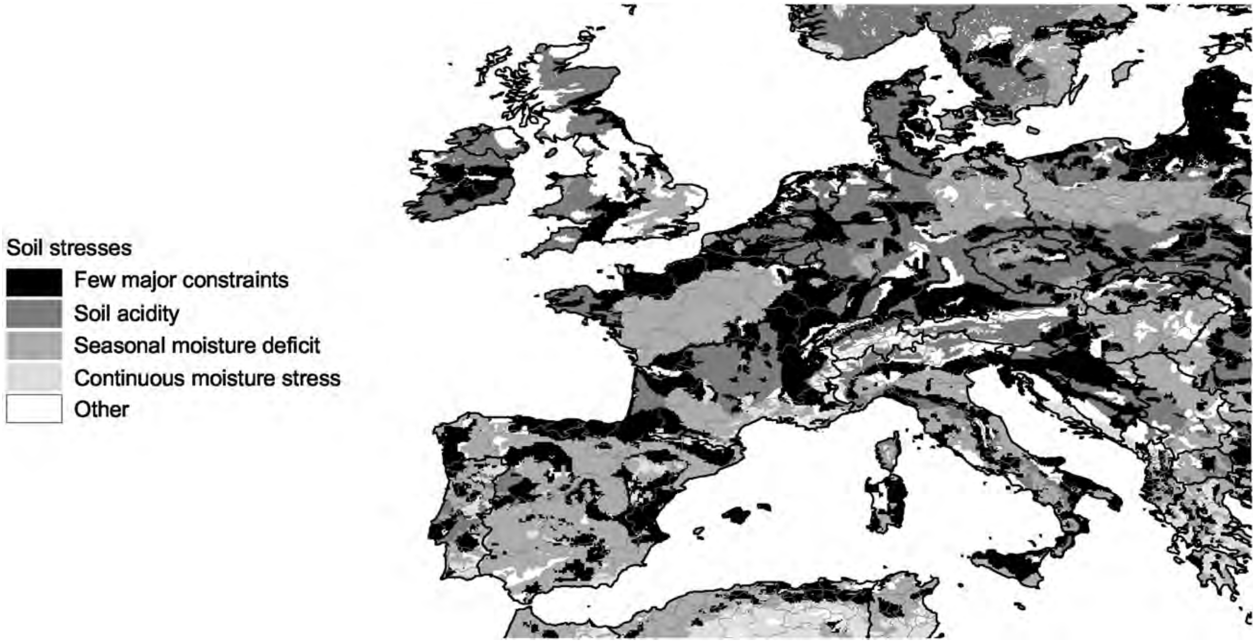


**Fig. 3. Soil stresses in the European Union**

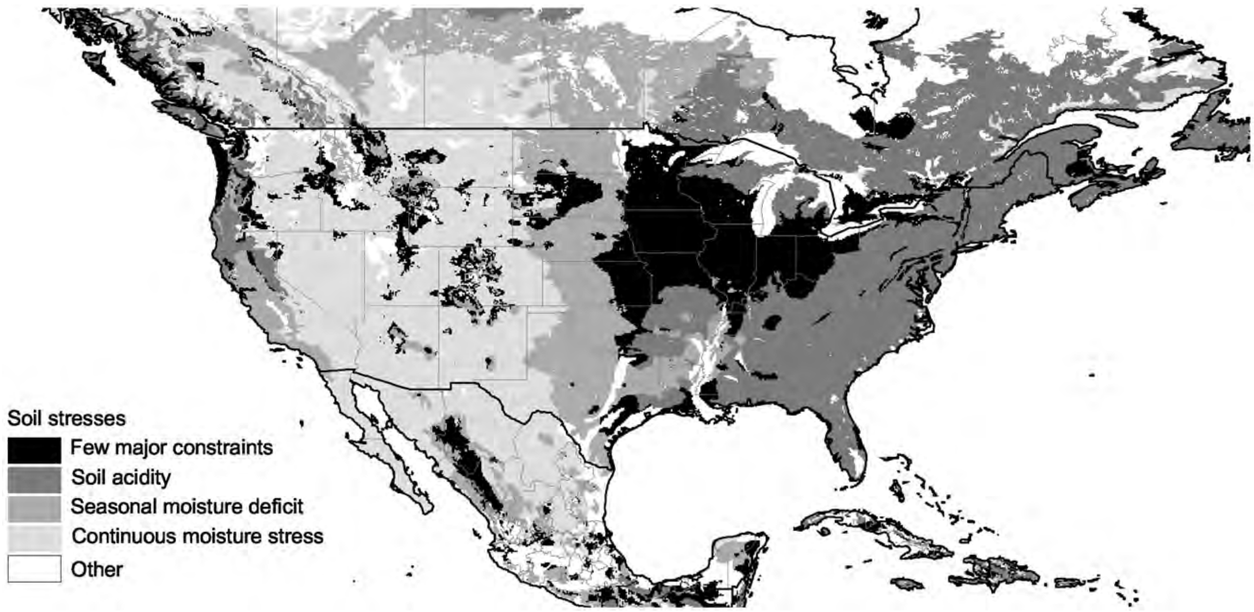


**Fig. 4. Soil stresses in the United States**

the United States, with moisture deficit dominating in the Northern and Southern Plains, and soil acidity being important in the East and Southeast. Additionally, moisture stress is the dominant environmental attribute in the western United States.

In areas with moisture stress, agriculture is not possible without irrigation. Hence irrigation (i.e. the percentage of the cropland that is irrigated) is included as a separate variable. Because irrigation mitigates the negative impact of acidity on plant growth, the interaction between irrigation and soil acidity is also included in the hedonic regression.

In addition to environmental attributes, we also include a 'population accessibility' score for each region in each country. These indexes are constructed using a gravity model of urban development, which provides a measure of accessibility to population concentrations (Shi *et al.*, 1997). A gravity index accounts for both population density and distance from that population. The index increases as population increases and/or distance from the population centre decreases.

Other variables (denoted by $D$) are also included in the hedonic equation, and their selection depends not only on the underlying theory but also on the objectives of the study. If the main objective of the study is to obtain price indexes adjusted for quality, as in our case, the only variables that should be included in $D$ are country dummy variables, which will capture all price effects other than quality. After allowing for differences in the levels of the characteristics, the part of the price difference not accounted for by the included characteristics will be reflected in the country dummy coefficients.

Most empirical studies adopt the semilog or double-log form of the hedonic price function. However, the choice of functional form of the hedonic function is entirely an empirical matter. In this study, we adopt a generalized linear form, where the dependent variable and each of the continuous independent variables is represented by the Box–Cox transformation. This is a mathematical expression that assumes a different functional form depending on the transformation parameter, and which can assume both linear and logarithmic forms, as well as intermediate nonlinear functional forms.

Thus the general functional form of our model is given by:

$$w(\lambda_0) = \sum_{n=1}^{N} \alpha_n X_n(\lambda_n) + \sum_{m=1}^{M} \gamma_m D_m + \varepsilon \qquad (20)$$

where $w(\lambda_0)$ is the Box–Cox transformation of the dependent price variable

$$w(\lambda_0) = \begin{cases} \dfrac{w^{\lambda_0} - 1}{\lambda_0} & \lambda_0 \neq 0, \\ \ln w, & \lambda_0 = 0 \end{cases}$$

Similarly, $X_n(\lambda_n)$ is the Box–Cox transformation of the continuous quality variable $X_n$ where $X_n(\lambda_n) = (X_n^{\lambda_n} - 1)/\lambda_n$ if $\lambda_n \neq 0$ and $X_n(\lambda_n) = \ln X_n$ if $\lambda_n = 0$. Variables represented by $D$ are country dummy variables, not subject to transformation; $\lambda$, $\alpha$ and $\gamma$ are unknown parameter vectors, and $\varepsilon$ is a stochastic disturbance.

Several methods have been used to calculate price indexes adjusted for quality using hedonic functions, including characteristics prices and dummy variable techniques. The latter is used in this study because it is simpler, and Triplett (1989) has provided extensive empirical evidence of the robustness of the hedonic price indexes to the method of calculation. Using the dummy variable technique, quality-adjusted prices indexes are calculated directly from the coefficients on the country dummy variables $D$ in the hedonic regression.

Ordinarily, estimating a Box–Cox model is straightforward. However, the fact that our model contains dichotomous variables with values equal to zero at some point(s) makes for a more difficult application of this procedure. Since the Box–Cox transformation involves logarithms, and the logarithm of zero is not defined, one cannot simply fit the Box–Cox model to the data. In response to this problem, we do not transform those quality variables with values of zero.[16]

Table 4 contains the results of our hedonic price model. As expected, the price of land is positively correlated with irrigation, and population accessibility. The coefficient on the interaction term between soil acidity and irrigation is also positive. The price of land is negatively correlated with seasonal and continuous moisture deficit. Only the positive coefficients on low temperature and high anion-exchange capacity appear counterintuitive. One possible explanation for these results is the limited number of observations.

## III. Indexes of Capital Input, 1973–2002

In the previous Section, we outlined the development of data on capital stock and the rental price of capital services. Estimates of capital stock by asset type for each of thirteen European countries and the United States are presented in Table 5. The corresponding capital rental prices are given in Table 6. These data are the basis for our estimates of capital input in each country.

We construct price indexes of capital input in each country by aggregating over the various assets using cost-share weights based on asset-specific rental prices. Our time series price indexes of capital input are reported in Table 7. The quantity indexes of capital input found in Table 8 are formed implicitly by taking the ratio of the value of capital service flows to the price index of capital input.

Our objective is to compare relative levels of capital input among countries. However, the values of capital service flows presented in Table 8 are

[16] We use the PROC QLIM procedure in SAS 9.1 to estimate the Box Cox parameters.

**Table 4. Regression of land prices on characteristics**

| Variable | $\alpha$ | $t$ statistic | $\lambda$ | $t$ statistic |
|---|---|---|---|---|
| Dependent variable | | | | |
| Price of land | | | 0 | Fixed |
| Explanatory variables | | | | |
| Dummy variables | | | | |
| D1 (Belgium) | 10.402*** | 5.39 | | |
| D2 (Germany) | 7.807*** | 16.84 | | |
| D3 (Denmark) | 7.356*** | 2.94 | | |
| D4 (Greece) | 12.696 | 1.15 | | |
| D5 (Spain) | 11.839*** | 14.43 | | |
| D6 (France) | 7.815*** | 20.44 | | |
| D7 (Ireland) | 7.009*** | 3.18 | | |
| D8 (Italy) | 14.778*** | 13.98 | | |
| D9 (Luxembourg) | 11.128 | 0.59 | | |
| D10 (Netherlands) | 8.125*** | 2.97 | | |
| D11 (Portugal) | 10.920*** | 3.85 | | |
| D12 (Sweden) | 7.507 | 0.92 | | |
| D13 (United Kingdom) | 5.989*** | 3.64 | | |
| D14 (United States) | 5.917*** | 48.99 | | |
| Inland water | 0.183 | 0.97 | | |
| Ice cover | 0.289 | 0.93 | | |
| Ocean | 0.256 | 0.12 | | |
| Low temperature | 3.526*** | 2.99 | | |
| Salinity | 0.014 | 0.11 | | |
| Acidity | 0.199 | 0.31 | 3.004 | 0.30 |
| Moisture deficit | 0.445** | 1.96 | 1.084** | 1.91 |
| Moisture stress | 0.536*** | 3.02 | 0.646*** | 3.13 |
| Low water storage | 0.539 | 0.88 | | |
| Excess water | 0.131 | 0.70 | | |
| High organic matter | 0.146 | 0.27 | | |
| High shrink/swell | 0.384*** | 2.72 | | |
| High anion exchange | 0.610*** | 2.59 | | |
| Irrigation | 0.034** | 2.32 | 1.488*** | 5.52 |
| Acidity* irrigation | 0.019* | 1.72 | 0.330* | 1.77 |
| Few constraints | 0.107* | 1.76 | | |
| Accessibility | 0.222*** | 18.41 | 0.035 | 1.52 |
| Model summary: | | | | |
| Number of observations | 2842 | | | |
| Log Likelihood | 618.771 | | | |
| AIC | 1314 | | | |
| Schwarz Criterion | 1504 | | | |

*Notes*: * denotes significance at the 10% level; ** at the 5% level; and *** at the 1% level.

expressed in national currencies. The problem is to find appropriate conversion factors between each national currency and a reference currency which can be used to carry out these quantity comparisons, i.e. that take into account the differences in price levels among countries for each component of capital input.

Conversions to a common unit are often made using exchange rates, but it is generally recognized that these conversions do not enable the comparison of real flows between countries. Movements in relative prices do not coincide with variations in exchange rates.

In this study, we compile data on purchasing power parities for capital input, which are shown in Table 9.[17] These are relative prices of capital input in each country expressed in terms of national currencies per dollar. As a final step, we divide the relative prices of capital input by the exchange rate to translate purchasing power parities into relative prices in dollars. This allows us to decompose the values of capital service flows into price and quantity components. We report relative prices of capital input in Table 10, while Table 11 provides real values of capital input in each country.

[17] The results in Table 9 are based on translog multilateral indexes of relative prices in the base year (See Caves *et al*., 1982). The base year purchasing power parities are then extrapolated to earlier and later years in the sample via translog time series indexes of capital rental prices for the individual countries.

**Table 5. Capital stock, 1972–2001 (millions of 1996 national currencies, except Italy: billions of national currencies)**

| Yearending | Belgium | Denmark | Germany 1/ | Greece | Spain | France | Ireland | Italy | Luxembourg | Netherlands | Portugal | Sweden | United Kingdom | United States |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Transportation equipment | | | | | | | | | | | | | | |
| 1972 | 9245 | 3326 | 11169 | 85596 | 599109 | 16322 | 248 | 3076 | 2062 | 1177 | 19391 | 6372 | 580 | 21413 |
| 1973 | 10170 | 3888 | 11556 | 94517 | 627781 | 17983 | 273 | 3236 | 2177 | 1355 | 22910 | 6066 | 611 | 21581 |
| 1974 | 11134 | 4333 | 11896 | 97190 | 656554 | 19940 | 266 | 3390 | 2180 | 1555 | 27244 | 5995 | 627 | 21511 |
| 1975 | 11353 | 4801 | 12301 | 99860 | 679435 | 21034 | 276 | 3406 | 2172 | 1659 | 31983 | 6093 | 630 | 21664 |
| 1976 | 12035 | 5394 | 12939 | 103108 | 717830 | 22469 | 293 | 3513 | 2085 | 1780 | 35076 | 6173 | 661 | 22986 |
| 1977 | 12418 | 5809 | 13569 | 105564 | 727137 | 23143 | 315 | 3564 | 2317 | 2008 | 37984 | 6049 | 685 | 24316 |
| 1978 | 13118 | 6059 | 13999 | 105050 | 757934 | 23280 | 348 | 3639 | 2400 | 2229 | 39209 | 5767 | 694 | 25408 |
| 1979 | 13526 | 6100 | 14744 | 101811 | 770846 | 23913 | 383 | 3639 | 2254 | 2620 | 40723 | 5685 | 720 | 26781 |
| 1980 | 13029 | 5818 | 15302 | 95657 | 835235 | 24531 | 411 | 3868 | 2463 | 2726 | 41228 | 5379 | 700 | 26600 |
| 1981 | 12539 | 5507 | 16069 | 88828 | 811278 | 25568 | 447 | 4029 | 2290 | 2819 | 41016 | 5274 | 703 | 25588 |
| 1982 | 12015 | 5243 | 16272 | 84415 | 778654 | 25626 | 456 | 4128 | 2175 | 2868 | 39455 | 5024 | 691 | 24230 |
| 1983 | 11461 | 4905 | 16740 | 78052 | 737770 | 25472 | 452 | 4155 | 2022 | 3077 | 37510 | 4810 | 698 | 23290 |
| 1984 | 11321 | 4608 | 16899 | 75168 | 703016 | 25231 | 453 | 4107 | 1828 | 3110 | 34428 | 4648 | 705 | 22226 |
| 1985 | 10913 | 4456 | 17009 | 73521 | 678239 | 24393 | 458 | 3973 | 1702 | 3117 | 31266 | 4384 | 696 | 20836 |
| 1986 | 10712 | 4413 | 16969 | 66302 | 650469 | 23033 | 475 | 3937 | 1560 | 2994 | 31039 | 4101 | 692 | 19436 |
| 1987 | 11076 | 4245 | 17271 | 58475 | 628354 | 22880 | 479 | 3933 | 1520 | 3035 | 32709 | 3936 | 736 | 18792 |
| 1988 | 11205 | 4035 | 17533 | 52064 | 606473 | 22152 | 494 | 3928 | 1518 | 2995 | 37266 | 3756 | 762 | 18480 |
| 1989 | 11334 | 4045 | 17986 | 50765 | 582512 | 22888 | 553 | 3961 | 1527 | 3031 | 40796 | 3750 | 793 | 18426 |
| 1990 | 11493 | 4037 | 18436 | 48109 | 561529 | 23375 | 618 | 3984 | 1518 | 3115 | 45008 | 3668 | 803 | 18472 |
| 1991 | 11036 | 4072 | 19315 | 45576 | 536594 | 23263 | 639 | 3990 | 1572 | 3174 | 48344 | 3434 | 787 | 18184 |
| 1992 | 10848 | 4005 | 19734 | 43832 | 501738 | 22837 | 650 | 3924 | 1579 | 3264 | 51557 | 3255 | 779 | 17850 |
| 1993 | 10395 | 3863 | 19502 | 41687 | 467544 | 22203 | 654 | 3770 | 1562 | 3136 | 53817 | 3089 | 801 | 17683 |
| 1994 | 9869 | 3735 | 19210 | 40029 | 449929 | 22073 | 691 | 3653 | 1564 | 3040 | 56078 | 3026 | 830 | 17508 |
| 1995 | 9465 | 3676 | 18940 | 37922 | 439891 | 22208 | 702 | 3608 | 1511 | 2960 | 58484 | 2972 | 873 | 17578 |
| 1996 | 9048 | 3582 | 19035 | 35479 | 444981 | 22802 | 713 | 3576 | 1345 | 2884 | 61114 | 2943 | 904 | 18119 |
| 1997 | 8905 | 3612 | 18670 | 32812 | 465039 | 23383 | 714 | 3541 | 1315 | 2853 | 63973 | 2957 | 904 | 19217 |
| 1998 | 8908 | 3600 | 18413 | 30087 | 495081 | 24070 | 705 | 3520 | 1299 | 2829 | 66833 | 2950 | 874 | 20493 |
| 1999 | 9057 | 3557 | 18213 | 27399 | 513684 | 24775 | 692 | 3526 | 1255 | 2842 | 69597 | 2988 | 845 | 21451 |
| 2000 | 9211 | 3554 | 18078 | 24748 | 521368 | 25585 | 675 | 3554 | 1233 | 2872 | 72277 | 3033 | 821 | 22326 |
| 2001 | 9362 | 3610 | 17782 | 22138 | 521454 | 25974 | 657 | 3602 | 1214 | 2902 | 74886 | 3068 | 816 | 23351 |
| Machinery | | | | | | | | | | | | | | |
| 1972 | 117295 | 22877 | 83187 | 616527 | 1126095 | 228827 | 960 | 38070 | 10631 | 16765 | 95875 | 60496 | 10915 | 145820 |
| 1973 | 125072 | 27727 | 85561 | 693525 | 1140065 | 247381 | 1130 | 40929 | 11102 | 18184 | 115093 | 59530 | 10904 | 155059 |
| 1974 | 130105 | 30880 | 85767 | 749695 | 1134283 | 266165 | 1189 | 43604 | 11466 | 19365 | 140115 | 59126 | 10591 | 162345 |
| 1975 | 131415 | 33671 | 85884 | 812280 | 1129766 | 280817 | 1256 | 46755 | 11490 | 19973 | 168523 | 59790 | 10241 | 166209 |
| 1976 | 136093 | 36660 | 86391 | 862169 | 1142517 | 293959 | 1379 | 51980 | 10827 | 20663 | 192276 | 60829 | 10050 | 169944 |
| 1977 | 140260 | 39388 | 87843 | 903764 | 1169296 | 301153 | 1547 | 56967 | 10436 | 22035 | 216927 | 60824 | 9919 | 172558 |
| 1978 | 147296 | 42538 | 89790 | 915919 | 1218322 | 308936 | 1694 | 61946 | 10840 | 23808 | 232493 | 60272 | 9865 | 177770 |
| 1979 | 150172 | 45862 | 91322 | 926050 | 1291477 | 315695 | 1838 | 67024 | 11342 | 25530 | 251304 | 59615 | 9725 | 183462 |
| 1980 | 148703 | 46551 | 91470 | 915669 | 1371387 | 320324 | 1886 | 74068 | 10842 | 26359 | 272310 | 58012 | 9358 | 183712 |

(*continued*)

**Table 5. Continued**

| Yearending | Belgium | Denmark | Germany 1/ | Greece | Spain | France | Ireland | Italy | Luxembourg | Netherlands | Portugal | Sweden | United Kingdom | United States |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1981 | 145278 | 46053 | 89906 | 903730 | 1466333 | 322953 | 1933 | 77916 | 10815 | 26824 | 289463 | 56397 | 9115 | 181492 |
| 1982 | 144403 | 45809 | 88677 | 887537 | 1548118 | 326625 | 1939 | 80045 | 11517 | 27387 | 299013 | 55521 | 9072 | 173880 |
| 1983 | 141245 | 45800 | 88388 | 875261 | 1634729 | 326983 | 1941 | 81002 | 11879 | 28166 | 299606 | 54783 | 9264 | 165553 |
| 1984 | 138890 | 46396 | 87324 | 893658 | 1708272 | 328470 | 1935 | 81601 | 11949 | 28401 | 297880 | 54597 | 9524 | 157189 |
| 1985 | 136546 | 47859 | 86204 | 910491 | 1732717 | 326792 | 1930 | 81791 | 11704 | 28824 | 296708 | 53648 | 9614 | 146562 |
| 1986 | 136347 | 48998 | 85141 | 872890 | 1787233 | 322649 | 1904 | 81642 | 11412 | 28548 | 316184 | 52317 | 9554 | 135892 |
| 1987 | 134649 | 49156 | 83752 | 823391 | 1820699 | 320576 | 1870 | 81055 | 11318 | 28515 | 340067 | 51107 | 9554 | 128422 |
| 1988 | 132667 | 48598 | 82895 | 785377 | 1806873 | 321919 | 1845 | 80829 | 11333 | 28414 | 376730 | 50461 | 9485 | 121963 |
| 1989 | 130126 | 48752 | 82682 | 751871 | 1747895 | 323842 | 1861 | 80505 | 11348 | 28372 | 407584 | 50080 | 9425 | 117261 |
| 1990 | 127872 | 48730 | 83142 | 724138 | 1661796 | 323159 | 1838 | 79605 | 11951 | 28530 | 443495 | 49213 | 9267 | 113672 |
| 1991 | 122686 | 47745 | 82386 | 695679 | 1623320 | 319182 | 1802 | 78405 | 12572 | 28490 | 478110 | 47391 | 9056 | 109420 |
| 1992 | 120150 | 46608 | 81373 | 671129 | 1517961 | 312481 | 1778 | 77121 | 12887 | 28634 | 513661 | 45105 | 8920 | 105009 |
| 1993 | 115561 | 44771 | 79393 | 649260 | 1422019 | 305189 | 1748 | 75413 | 13047 | 28149 | 542385 | 42944 | 9021 | 101315 |
| 1994 | 110147 | 43771 | 77462 | 631162 | 1345442 | 300513 | 1761 | 74518 | 13300 | 27523 | 571344 | 41945 | 9224 | 97889 |
| 1995 | 105505 | 43366 | 75883 | 608975 | 1291195 | 297967 | 1818 | 74597 | 13276 | 26970 | 602001 | 41041 | 9545 | 94123 |
| 1996 | 101026 | 42318 | 75249 | 583306 | 1264244 | 301840 | 1847 | 74756 | 12513 | 25512 | 634765 | 40128 | 9749 | 91279 |
| 1997 | 97762 | 42615 | 73556 | 554874 | 1216394 | 302792 | 1868 | 74764 | 12615 | 25224 | 669403 | 39884 | 9696 | 89175 |
| 1998 | 95198 | 42445 | 72579 | 525199 | 1172856 | 304918 | 1919 | 74892 | 12817 | 24914 | 703888 | 39475 | 9373 | 87823 |
| 1999 | 93427 | 41983 | 72006 | 495119 | 1113532 | 307504 | 1977 | 75310 | 12812 | 24779 | 737101 | 39541 | 9036 | 86128 |
| 2000 | 92356 | 41879 | 71782 | 464673 | 1066607 | 311485 | 2033 | 76001 | 12926 | 24762 | 769050 | 39626 | 8713 | 84683 |
| 2001 | 91448 | 42347 | 70796 | 433890 | 1017889 | 312939 | 2081 | 76944 | 13010 | 24804 | 799756 | 39628 | 8543 | 84423 |
| Nonresidental structures | | | | | | | | | | | | | | |
| 1972 | 60889 | 80486 | 140018 | 3707106 | 3986618 | 116327 | 6892 | 129335 | 45961 | 11489 | 452273 | 25150 | 13417 | 130054 |
| 1973 | 65793 | 83115 | 140663 | 3800772 | 4168633 | 126604 | 7103 | 129112 | 46358 | 12689 | 479759 | 25661 | 13917 | 132858 |
| 1974 | 69784 | 85428 | 141696 | 3844832 | 4314324 | 136228 | 7188 | 128712 | 46859 | 13716 | 513318 | 26136 | 14403 | 136618 |
| 1975 | 72294 | 87533 | 142865 | 3909285 | 4433140 | 144310 | 7247 | 128548 | 47664 | 14474 | 552297 | 26726 | 14704 | 138088 |
| 1976 | 76103 | 89747 | 144183 | 3974013 | 4514383 | 152320 | 7394 | 128240 | 49228 | 15336 | 588597 | 27340 | 14867 | 140528 |
| 1977 | 80205 | 92150 | 145692 | 4077334 | 4709685 | 159642 | 7543 | 127603 | 48075 | 16670 | 632250 | 27789 | 14967 | 143272 |
| 1978 | 85411 | 95441 | 147203 | 4161351 | 4853780 | 166735 | 7685 | 126833 | 47524 | 18245 | 674837 | 28401 | 15124 | 147111 |
| 1979 | 89509 | 99099 | 148364 | 4268162 | 4971532 | 174160 | 7950 | 125780 | 47037 | 19895 | 724676 | 28984 | 15297 | 151276 |
| 1980 | 93229 | 100714 | 149344 | 4336445 | 5078628 | 181770 | 8169 | 127703 | 47052 | 21242 | 798414 | 29427 | 15511 | 153006 |
| 1981 | 96438 | 100847 | 150002 | 4385006 | 5187077 | 188540 | 8372 | 129517 | 47137 | 22398 | 864837 | 29564 | 15663 | 152929 |
| 1982 | 97958 | 101041 | 150717 | 4424454 | 5376649 | 194299 | 8512 | 131423 | 46906 | 23466 | 885033 | 29739 | 15901 | 152114 |
| 1983 | 99942 | 101147 | 151621 | 4461532 | 5592285 | 199166 | 8567 | 132985 | 47313 | 24675 | 904354 | 29914 | 16181 | 150461 |
| 1984 | 102018 | 101331 | 152299 | 4536974 | 5678499 | 204564 | 8584 | 134910 | 47195 | 25553 | 919694 | 30025 | 16449 | 148670 |
| 1985 | 103774 | 101488 | 152896 | 4613157 | 5767642 | 209612 | 8558 | 137066 | 46839 | 26501 | 927685 | 29892 | 16561 | 145702 |
| 1986 | 104751 | 102135 | 153213 | 4630335 | 5825571 | 214459 | 8507 | 138593 | 46079 | 28415 | 932686 | 29728 | 16724 | 142853 |
| 1987 | 108529 | 102691 | 153403 | 4628034 | 5854718 | 220209 | 8488 | 140115 | 45432 | 29125 | 937845 | 29642 | 16818 | 140281 |
| 1988 | 111169 | 102658 | 153577 | 4642702 | 5857492 | 226388 | 8449 | 142474 | 44897 | 30154 | 942970 | 29611 | 16929 | 137152 |
| 1989 | 113693 | 102884 | 153763 | 4652587 | 5885709 | 232442 | 8428 | 144827 | 44604 | 31423 | 950486 | 29651 | 17049 | 134228 |
| 1990 | 117680 | 103551 | 154006 | 4661413 | 5916144 | 238956 | 8530 | 147403 | 44331 | 32713 | 962160 | 29801 | 17245 | 131353 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 | 120902 | 103495 | 154410 | 4662362 | 5944600 | 245924 | 8607 | 149911 | 43894 | 34091 | 972035 | 30000 | 17284 | 128443 |
| 1992 | 125745 | 103902 | 154946 | 4658869 | 5976552 | 251754 | 8682 | 151926 | 43349 | 35027 | 975466 | 30427 | 17251 | 125238 |
| 1993 | 127382 | 103361 | 155454 | 4648724 | 6006072 | 255828 | 8594 | 153515 | 42570 | 35881 | 977629 | 31057 | 17235 | 122304 |
| 1994 | 127943 | 103428 | 155912 | 4634107 | 6034502 | 259437 | 8549 | 155311 | 41775 | 36593 | 978005 | 31976 | 17315 | 119530 |
| 1995 | 129281 | 103389 | 156603 | 4611214 | 6061692 | 263960 | 8628 | 157277 | 40903 | 37321 | 977069 | 32769 | 17301 | 116568 |
| 1996 | 131446 | 102916 | 158090 | 4580475 | 6086951 | 270088 | 8754 | 159296 | 37921 | 38438 | 971785 | 32552 | 17308 | 114088 |
| 1997 | 134455 | 103332 | 158597 | 4542498 | 6110870 | 275145 | 8778 | 160864 | 37074 | 39297 | 969225 | 33052 | 17290 | 111650 |
| 1998 | 137843 | 104026 | 159152 | 4499036 | 6133404 | 280507 | 8777 | 162243 | 36261 | 40273 | 967806 | 33859 | 17205 | 109488 |
| 1999 | 141572 | 104352 | 159708 | 4451069 | 6154716 | 286315 | 8720 | 163154 | 35462 | 41830 | 965773 | 34561 | 16985 | 107697 |
| 2000 | 145164 | 105072 | 160204 | 4398661 | 6175438 | 292838 | 8685 | 163599 | 34529 | 43028 | 963130 | 35230 | 16726 | 106405 |
| 2001 | 148553 | 106162 | 160602 | 4341877 | 6199304 | 299664 | 8603 | 163584 | 33716 | 44219 | 959885 | 35952 | 16529 | 104346 |
| Land | | | | | | | | | | | | | | |
| 1972 | 685074 | 41355 | 480522 | 15200579 | 22473516 | 756356 | 23622 | 403139 | 292190 | 95262 | 1029486 | 34611 | 87489 | 693341 |
| 1973 | 679598 | 40828 | 477619 | 15156994 | 22476903 | 754786 | 23677 | 411525 | 289993 | 94252 | 1024794 | 34697 | 87641 | 689517 |
| 1974 | 697210 | 40825 | 475245 | 15254303 | 22113705 | 745157 | 23014 | 418785 | 289993 | 93834 | 1020634 | 34571 | 87970 | 690259 |
| 1975 | 691387 | 40802 | 474050 | 15521494 | 21999004 | 744146 | 23012 | 418941 | 287796 | 93423 | 1016220 | 34568 | 87919 | 693645 |
| 1976 | 663539 | 41120 | 471442 | 15460204 | 21744808 | 740922 | 23161 | 411414 | 289993 | 92832 | 1013212 | 34486 | 86897 | 697218 |
| 1977 | 658111 | 41048 | 466520 | 15644890 | 21606292 | 739607 | 23212 | 413126 | 285599 | 92164 | 1008517 | 34492 | 86951 | 698518 |
| 1978 | 651187 | 40980 | 439763 | 15578256 | 21399426 | 739692 | 23289 | 412136 | 285599 | 91605 | 1002736 | 34330 | 86870 | 695867 |
| 1979 | 644096 | 40766 | 437287 | 15662983 | 21314702 | 723478 | 23123 | 411346 | 285599 | 91000 | 999969 | 34236 | 86773 | 690287 |
| 1980 | 639554 | 40661 | 435666 | 15703257 | 21290502 | 722402 | 23182 | 410168 | 281205 | 90564 | 995184 | 34079 | 86208 | 683459 |
| 1981 | 637073 | 40521 | 433554 | 15717347 | 21301674 | 721248 | 23197 | 413885 | 279008 | 90312 | 991432 | 34224 | 86077 | 677036 |
| 1982 | 635265 | 39914 | 431691 | 15803571 | 21296923 | 719294 | 23225 | 402855 | 281205 | 90477 | 986051 | 34112 | 85995 | 672248 |
| 1983 | 633509 | 40076 | 430303 | 15869082 | 21331954 | 717600 | 23249 | 402617 | 281205 | 90828 | 983295 | 34024 | 86011 | 668760 |
| 1984 | 630788 | 39726 | 429187 | 16055406 | 21373046 | 718901 | 23314 | 416418 | 279008 | 91285 | 979670 | 33890 | 85918 | 665889 |
| 1985 | 627583 | 39530 | 428403 | 16068429 | 21323530 | 713453 | 23347 | 414827 | 281205 | 90273 | 975114 | 33729 | 85816 | 662993 |
| 1986 | 624868 | 39226 | 426858 | 16147404 | 21349786 | 710749 | 24256 | 413664 | 279008 | 90374 | 973816 | 33528 | 85851 | 659500 |
| 1987 | 621239 | 39017 | 425212 | 16188921 | 21414914 | 696992 | 23854 | 412471 | 276811 | 90291 | 978533 | 33319 | 85697 | 655061 |
| 1988 | 617738 | 38841 | 424214 | 16276831 | 21371935 | 714734 | 23271 | 390843 | 276811 | 90001 | 969748 | 33096 | 85396 | 650162 |
| 1989 | 615919 | 39026 | 423380 | 16271264 | 21268207 | 712486 | 22607 | 371150 | 279008 | 90111 | 984673 | 32997 | 85150 | 645518 |
| 1990 | 613208 | 38759 | 469016 | 16194329 | 21003466 | 710106 | 22234 | 366512 | 276811 | 89448 | 975543 | 32364 | 84933 | 641963 |
| 1991 | 611301 | 38640 | 466883 | 16349674 | 20892705 | 707787 | 22105 | 366041 | 276811 | 89262 | 983737 | 32108 | 84928 | 640331 |
| 1992 | 617285 | 36120 | 469057 | 16412928 | 20721307 | 697425 | 22038 | 363714 | 279008 | 89336 | 969812 | 32245 | 85791 | 641154 |
| 1993 | 622008 | 33991 | 470843 | 16470721 | 20574995 | 695576 | 21977 | 362885 | 279008 | 88739 | 967141 | 32249 | 85597 | 643565 |
| 1994 | 623653 | 34615 | 470022 | 16528713 | 20225450 | 694138 | 21985 | 363399 | 279008 | 89082 | 963147 | 32093 | 84998 | 646468 |
| 1995 | 627950 | 35039 | 468542 | 16610100 | 20031539 | 692736 | 21753 | 360845 | 276811 | 83541 | 949552 | 32614 | 84999 | 648924 |
| 1996 | 631873 | 35469 | 467605 | 16488580 | 20211304 | 692163 | 22170 | 359014 | 279008 | 87867 | 943232 | 32463 | 84697 | 650124 |
| 1997 | 635733 | 35281 | 468467 | 16056189 | 20142860 | 691341 | 22092 | 360613 | 279008 | 87118 | 943510 | 32292 | 84400 | 649616 |
| 1998 | 636726 | 34083 | 460061 | 15933947 | 19890426 | 718289 | 22107 | 368569 | 279008 | 88420 | 903235 | 31864 | 84273 | 647387 |
| 1999 | 636955 | 34099 | 457212 | 15745633 | 19728639 | 716658 | 22027 | 370993 | 279008 | 87904 | 905972 | 31389 | 82838 | 643767 |
| 2000 | 634596 | 34380 | 456439 | 15554970 | 19726606 | 714468 | 21863 | 368556 | 276811 | 86786 | 899546 | 31253 | 84286 | 639096 |
| 2001 | 635701 | 34249 | 454463 | 15365449 | 19733462 | 719184 | 21690 | 367859 | 276811 | 87589 | 889092 | 31087 | 83188 | 633771 |

*Note*: 1/Includes former East Germany beginning in 1991.

**Table 6. Capital rental prices, 1973–2002**

| Year | Belgium | Denmark | Germany | Greece | Spain | France | Ireland | Italy | Luxembourg | Netherlands | Portugal | Sweden | United Kingdom | United States |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Transportation equipment | | | | | | | | | | | | | | |
| 1973 | 0.0640 | 0.0299 | 0.0451 | 0.0031 | 0.0159 | 0.0311 | 0.0285 | 0.0098 | 0.0358 | 0.0717 | 0.0049 | 0.0241 | 0.0247 | 0.0559 |
| 1974 | 0.0740 | 0.0379 | 0.0500 | 0.0036 | 0.0168 | 0.0369 | 0.0315 | 0.0131 | 0.0424 | 0.0770 | 0.0050 | 0.0254 | 0.0305 | 0.0596 |
| 1975 | 0.0752 | 0.0386 | 0.0520 | 0.0042 | 0.0194 | 0.0409 | 0.0397 | 0.0195 | 0.0481 | 0.0818 | 0.0050 | 0.0313 | 0.0402 | 0.0642 |
| 1976 | 0.0803 | 0.0422 | 0.0561 | 0.0051 | 0.0202 | 0.0448 | 0.0499 | 0.0206 | 0.0576 | 0.0869 | 0.0065 | 0.0357 | 0.0497 | 0.0683 |
| 1977 | 0.0863 | 0.0466 | 0.0614 | 0.0061 | 0.0260 | 0.0531 | 0.0606 | 0.0260 | 0.0558 | 0.0955 | 0.0112 | 0.0402 | 0.0616 | 0.0743 |
| 1978 | 0.0913 | 0.0546 | 0.0610 | 0.0073 | 0.0311 | 0.0607 | 0.0692 | 0.0302 | 0.0617 | 0.0994 | 0.0158 | 0.0447 | 0.0690 | 0.0823 |
| 1979 | 0.0976 | 0.0598 | 0.0648 | 0.0090 | 0.0391 | 0.0645 | 0.0681 | 0.0371 | 0.0655 | 0.1044 | 0.0202 | 0.0461 | 0.0777 | 0.0946 |
| 1980 | 0.1106 | 0.0671 | 0.0688 | 0.0110 | 0.0434 | 0.0721 | 0.0684 | 0.0348 | 0.0774 | 0.1154 | 0.0235 | 0.0597 | 0.0866 | 0.1048 |
| 1981 | 0.1280 | 0.0765 | 0.0805 | 0.0140 | 0.0646 | 0.0873 | 0.0788 | 0.0454 | 0.0866 | 0.1313 | 0.0281 | 0.0662 | 0.0976 | 0.1267 |
| 1982 | 0.1333 | 0.0900 | 0.0838 | 0.0177 | 0.0780 | 0.1075 | 0.0892 | 0.0547 | 0.0950 | 0.1359 | 0.0329 | 0.0739 | 0.1060 | 0.1320 |
| 1983 | 0.1351 | 0.0940 | 0.0814 | 0.0209 | 0.0918 | 0.1156 | 0.1007 | 0.0611 | 0.0939 | 0.1304 | 0.0501 | 0.0855 | 0.1119 | 0.1390 |
| 1984 | 0.1403 | 0.0941 | 0.0849 | 0.0231 | 0.1053 | 0.1058 | 0.1096 | 0.0642 | 0.1002 | 0.1324 | 0.0593 | 0.0845 | 0.1191 | 0.1517 |
| 1985 | 0.1423 | 0.0959 | 0.0870 | 0.0275 | 0.1089 | 0.1132 | 0.1220 | 0.0729 | 0.0827 | 0.1363 | 0.0649 | 0.0901 | 0.1259 | 0.1465 |
| 1986 | 0.1381 | 0.0991 | 0.0854 | 0.0367 | 0.1203 | 0.1241 | 0.1291 | 0.0767 | 0.1039 | 0.1347 | 0.0990 | 0.0947 | 0.0920 | 0.1414 |
| 1987 | 0.1362 | 0.1099 | 0.0842 | 0.0415 | 0.1275 | 0.1232 | 0.1379 | 0.0796 | 0.1042 | 0.1446 | 0.1112 | 0.1004 | 0.1050 | 0.1466 |
| 1988 | 0.1426 | 0.1213 | 0.0906 | 0.0491 | 0.1399 | 0.1378 | 0.1482 | 0.0953 | 0.1113 | 0.1548 | 0.1053 | 0.1037 | 0.1194 | 0.1514 |
| 1989 | 0.1519 | 0.1234 | 0.1004 | 0.0603 | 0.1509 | 0.1503 | 0.1514 | 0.0987 | 0.1205 | 0.1678 | 0.1058 | 0.1079 | 0.1290 | 0.1548 |
| 1990 | 0.1559 | 0.1362 | 0.1303 | 0.0801 | 0.1599 | 0.1618 | 0.1503 | 0.1018 | 0.1253 | 0.1840 | 0.0974 | 0.1164 | 0.1391 | 0.1569 |
| 1991 | 0.1649 | 0.1440 | 0.1134 | 0.1016 | 0.1776 | 0.1661 | 0.1513 | 0.1045 | 0.1342 | 0.1903 | 0.0806 | 0.1231 | 0.1441 | 0.1595 |
| 1992 | 0.1670 | 0.1419 | 0.1056 | 0.1154 | 0.1409 | 0.1683 | 0.1544 | 0.1255 | 0.1384 | 0.1881 | 0.0589 | 0.1348 | 0.1612 | 0.1635 |
| 1993 | 0.1647 | 0.1377 | 0.0989 | 0.1320 | 0.1306 | 0.1609 | 0.1569 | 0.1294 | 0.1356 | 0.1806 | 0.0290 | 0.1605 | 0.1684 | 0.1697 |
| 1994 | 0.1684 | 0.1449 | 0.1029 | 0.1361 | 0.1482 | 0.1768 | 0.1537 | 0.1377 | 0.1385 | 0.1839 | 0.0630 | 0.1383 | 0.1739 | 0.1805 |
| 1995 | 0.1745 | 0.1569 | 0.1076 | 0.1517 | 0.1666 | 0.1808 | 0.1719 | 0.1606 | 0.1590 | 0.1867 | 0.0530 | 0.1471 | 0.1822 | 0.1845 |
| 1996 | 0.1756 | 0.1567 | 0.1062 | 0.1629 | 0.1755 | 0.1782 | 0.1692 | 0.1638 | 0.1756 | 0.1853 | 0.1022 | 0.1432 | 0.1800 | 0.1856 |
| 1997 | 0.1770 | 0.1490 | 0.1056 | 0.1483 | 0.1733 | 0.1749 | 0.1685 | 0.1724 | 0.1749 | 0.2034 | 0.1046 | 0.1407 | 0.1730 | 0.1844 |
| 1998 | 0.1728 | 0.1379 | 0.1059 | 0.1515 | 0.1877 | 0.1713 | 0.1600 | 0.1752 | 0.1714 | 0.1968 | 0.0964 | 0.1390 | 0.1665 | 0.1765 |
| 1999 | 0.1717 | 0.1424 | 0.1037 | 0.1466 | 0.1725 | 0.1732 | 0.1595 | 0.1831 | 0.1700 | 0.1974 | 0.1036 | 0.1402 | 0.1561 | 0.1842 |
| 2000 | 0.1821 | 0.1512 | 0.1115 | 0.1458 | 0.1785 | 0.1795 | 0.1637 | 0.1787 | 0.1776 | 0.2100 | 0.1419 | 0.1381 | 0.1487 | 0.1868 |
| 2001 | 0.1826 | 0.1511 | 0.1161 | 0.1659 | 0.1637 | 0.1808 | 0.1656 | 0.1830 | 0.1776 | 0.2131 | 0.0997 | 0.1410 | 0.1453 | 0.1793 |
| 2002 | 0.1838 | 0.1486 | 0.1099 | 0.1817 | 0.1687 | 0.1748 | 0.1647 | 0.1805 | 0.1782 | 0.2141 | 0.0714 | 0.1495 | 0.1414 | 0.1796 |
| Machinery | | | | | | | | | | | | | | |
| 1973 | 0.0494 | 0.0256 | 0.0553 | 0.0027 | 0.0144 | 0.0231 | 0.0192 | 0.0128 | 0.0249 | 0.0453 | 0.0038 | 0.0240 | 0.0198 | 0.0337 |
| 1974 | 0.0561 | 0.0329 | 0.0610 | 0.0033 | 0.0172 | 0.0291 | 0.0221 | 0.0170 | 0.0287 | 0.0506 | 0.0039 | 0.0275 | 0.0250 | 0.0371 |
| 1975 | 0.0553 | 0.0327 | 0.0611 | 0.0037 | 0.0191 | 0.0312 | 0.0273 | 0.0188 | 0.0322 | 0.0521 | 0.0038 | 0.0306 | 0.0316 | 0.0423 |
| 1976 | 0.0587 | 0.0357 | 0.0653 | 0.0043 | 0.0215 | 0.0330 | 0.0320 | 0.0201 | 0.0401 | 0.0559 | 0.0050 | 0.0332 | 0.0383 | 0.0453 |
| 1977 | 0.0632 | 0.0396 | 0.0710 | 0.0048 | 0.0253 | 0.0377 | 0.0393 | 0.0225 | 0.0380 | 0.0624 | 0.0084 | 0.0354 | 0.0441 | 0.0500 |
| 1978 | 0.0671 | 0.0465 | 0.0711 | 0.0056 | 0.0290 | 0.0427 | 0.0445 | 0.0258 | 0.0412 | 0.0670 | 0.0108 | 0.0378 | 0.0472 | 0.0556 |
| 1979 | 0.0712 | 0.0509 | 0.0765 | 0.0067 | 0.0326 | 0.0456 | 0.0454 | 0.0284 | 0.0455 | 0.0732 | 0.0132 | 0.0410 | 0.0537 | 0.0629 |
| 1980 | 0.0814 | 0.0570 | 0.0828 | 0.0081 | 0.0379 | 0.0515 | 0.0500 | 0.0285 | 0.0568 | 0.0838 | 0.0165 | 0.0503 | 0.0576 | 0.0740 |
| 1981 | 0.0970 | 0.0648 | 0.0979 | 0.0111 | 0.0442 | 0.0661 | 0.0583 | 0.0367 | 0.0644 | 0.0995 | 0.0204 | 0.0575 | 0.0664 | 0.0912 |
| 1982 | 0.1028 | 0.0767 | 0.0993 | 0.0135 | 0.0526 | 0.0830 | 0.0644 | 0.0425 | 0.0730 | 0.0994 | 0.0267 | 0.0633 | 0.0692 | 0.0958 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1983 | 0.1031 | 0.0787 | 0.0971 | 0.0166 | 0.0599 | 0.0876 | 0.0718 | 0.0480 | 0.0719 | 0.0902 | 0.0422 | 0.0704 | 0.0752 | 0.1044 |
| 1984 | 0.1075 | 0.0774 | 0.1002 | 0.0192 | 0.0690 | 0.0798 | 0.0783 | 0.0522 | 0.0762 | 0.0889 | 0.0537 | 0.0722 | 0.0766 | 0.1158 |
| 1985 | 0.1077 | 0.0787 | 0.1018 | 0.0222 | 0.0691 | 0.0847 | 0.0878 | 0.0564 | 0.0773 | 0.0881 | 0.0546 | 0.0789 | 0.0783 | 0.1078 |
| 1986 | 0.1023 | 0.0821 | 0.0995 | 0.0280 | 0.0744 | 0.0888 | 0.0870 | 0.0602 | 0.0757 | 0.0873 | 0.0799 | 0.0818 | 0.0766 | 0.0963 |
| 1987 | 0.0998 | 0.0916 | 0.0977 | 0.0305 | 0.0785 | 0.0895 | 0.0943 | 0.0645 | 0.0755 | 0.0934 | 0.0875 | 0.0858 | 0.0848 | 0.1001 |
| 1988 | 0.1056 | 0.1015 | 0.1027 | 0.0364 | 0.0904 | 0.1010 | 0.1044 | 0.0692 | 0.0809 | 0.1010 | 0.0846 | 0.0931 | 0.1001 | 0.1036 |
| 1989 | 0.1142 | 0.1040 | 0.1135 | 0.0453 | 0.1002 | 0.1097 | 0.1093 | 0.0760 | 0.0892 | 0.1123 | 0.0817 | 0.0977 | 0.1029 | 0.1068 |
| 1990 | 0.1173 | 0.1158 | 0.1208 | 0.0578 | 0.1083 | 0.1212 | 0.0970 | 0.0838 | 0.0918 | 0.1282 | 0.0745 | 0.1098 | 0.1080 | 0.1105 |
| 1991 | 0.1253 | 0.1230 | 0.1312 | 0.0740 | 0.1177 | 0.1250 | 0.0968 | 0.0948 | 0.0989 | 0.1331 | 0.0608 | 0.1140 | 0.1129 | 0.1108 |
| 1992 | 0.1265 | 0.1212 | 0.1215 | 0.0835 | 0.1157 | 0.1250 | 0.1054 | 0.0958 | 0.1021 | 0.1316 | 0.0405 | 0.1126 | 0.1271 | 0.1113 |
| 1993 | 0.1211 | 0.1163 | 0.1122 | 0.0955 | 0.1025 | 0.1130 | 0.1080 | 0.0988 | 0.0972 | 0.1226 | 0.0195 | 0.1132 | 0.1413 | 0.1119 |
| 1994 | 0.1230 | 0.1230 | 0.1165 | 0.0977 | 0.1065 | 0.1208 | 0.1045 | 0.1023 | 0.0990 | 0.1275 | 0.0419 | 0.1091 | 0.1441 | 0.1186 |
| 1995 | 0.1287 | 0.1346 | 0.1211 | 0.1059 | 0.1184 | 0.1250 | 0.1252 | 0.1083 | 0.1109 | 0.1300 | 0.0366 | 0.1176 | 0.1478 | 0.1250 |
| 1996 | 0.1288 | 0.1334 | 0.1197 | 0.1129 | 0.1260 | 0.1221 | 0.1163 | 0.1170 | 0.1174 | 0.1274 | 0.0657 | 0.1136 | 0.1481 | 0.1285 |
| 1997 | 0.1325 | 0.1249 | 0.1153 | 0.1056 | 0.1315 | 0.1199 | 0.1128 | 0.1206 | 0.1150 | 0.1353 | 0.0707 | 0.1108 | 0.1407 | 0.1321 |
| 1998 | 0.1314 | 0.1160 | 0.1146 | 0.1118 | 0.1355 | 0.1159 | 0.1066 | 0.1217 | 0.1095 | 0.1346 | 0.0634 | 0.1092 | 0.1363 | 0.1284 |
| 1999 | 0.1323 | 0.1204 | 0.1151 | 0.1126 | 0.1536 | 0.1181 | 0.1058 | 0.1239 | 0.1091 | 0.1414 | 0.0664 | 0.1103 | 0.1326 | 0.1354 |
| 2000 | 0.1357 | 0.1292 | 0.1243 | 0.1123 | 0.1868 | 0.1229 | 0.1160 | 0.1244 | 0.1167 | 0.1516 | 0.0898 | 0.1083 | 0.1298 | 0.1371 |
| 2001 | 0.1357 | 0.1267 | 0.1290 | 0.1257 | 0.2059 | 0.1230 | 0.1207 | 0.1278 | 0.1157 | 0.1475 | 0.0624 | 0.1111 | 0.1246 | 0.1299 |
| 2002 | 0.1354 | 0.1229 | 0.1255 | 0.1330 | 0.2108 | 0.1167 | 0.1187 | 0.1269 | 0.1142 | 0.1422 | 0.0445 | 0.1240 | 0.1250 | 0.1287 |
| Nonresidential structures | | | | | | | | | | | | | | |
| 1973 | 0.0207 | 0.0086 | 0.0183 | 0.0008 | 0.0031 | 0.0096 | 0.0039 | 0.0060 | 0.0112 | 0.0178 | 0.0011 | 0.0089 | 0.0131 | 0.0166 |
| 1974 | 0.0233 | 0.0126 | 0.0209 | 0.0009 | 0.0037 | 0.0127 | 0.0055 | 0.0086 | 0.0130 | 0.0209 | 0.0012 | 0.0103 | 0.0168 | 0.0168 |
| 1975 | 0.0214 | 0.0098 | 0.0171 | 0.0010 | 0.0039 | 0.0134 | 0.0058 | 0.0075 | 0.0134 | 0.0200 | 0.0011 | 0.0116 | 0.0186 | 0.0168 |
| 1976 | 0.0227 | 0.0110 | 0.0190 | 0.0012 | 0.0044 | 0.0136 | 0.0069 | 0.0099 | 0.0164 | 0.0214 | 0.0014 | 0.0117 | 0.0220 | 0.0167 |
| 1977 | 0.0250 | 0.0131 | 0.0226 | 0.0013 | 0.0049 | 0.0152 | 0.0080 | 0.0137 | 0.0165 | 0.0254 | 0.0024 | 0.0117 | 0.0247 | 0.0186 |
| 1978 | 0.0275 | 0.0174 | 0.0214 | 0.0015 | 0.0060 | 0.0168 | 0.0088 | 0.0180 | 0.0188 | 0.0285 | 0.0029 | 0.0117 | 0.0275 | 0.0218 |
| 1979 | 0.0299 | 0.0197 | 0.0246 | 0.0018 | 0.0072 | 0.0177 | 0.0088 | 0.0270 | 0.0210 | 0.0333 | 0.0030 | 0.0125 | 0.0328 | 0.0263 |
| 1980 | 0.0394 | 0.0225 | 0.0286 | 0.0026 | 0.0097 | 0.0208 | 0.0107 | 0.0089 | 0.0296 | 0.0421 | 0.0039 | 0.0170 | 0.0370 | 0.0329 |
| 1981 | 0.0539 | 0.0268 | 0.0391 | 0.0038 | 0.0131 | 0.0306 | 0.0143 | 0.0115 | 0.0412 | 0.0550 | 0.0049 | 0.0220 | 0.0419 | 0.0448 |
| 1982 | 0.0573 | 0.0340 | 0.0386 | 0.0050 | 0.0168 | 0.0415 | 0.0156 | 0.0128 | 0.0442 | 0.0524 | 0.0084 | 0.0255 | 0.0485 | 0.0448 |
| 1983 | 0.0539 | 0.0312 | 0.0335 | 0.0059 | 0.0190 | 0.0414 | 0.0197 | 0.0141 | 0.0412 | 0.0417 | 0.0174 | 0.0285 | 0.0525 | 0.0502 |
| 1984 | 0.0564 | 0.0270 | 0.0349 | 0.0063 | 0.0256 | 0.0350 | 0.0215 | 0.0148 | 0.0443 | 0.0391 | 0.0199 | 0.0284 | 0.0589 | 0.0605 |
| 1985 | 0.0542 | 0.0263 | 0.0347 | 0.0067 | 0.0216 | 0.0366 | 0.0282 | 0.0153 | 0.0438 | 0.0399 | 0.0168 | 0.0328 | 0.0572 | 0.0541 |
| 1986 | 0.0474 | 0.0277 | 0.0318 | 0.0086 | 0.0264 | 0.0387 | 0.0307 | 0.0167 | 0.0395 | 0.0362 | 0.0268 | 0.0326 | 0.0449 | 0.0441 |
| 1987 | 0.0444 | 0.0351 | 0.0289 | 0.0094 | 0.0288 | 0.0429 | 0.0325 | 0.0187 | 0.0376 | 0.0416 | 0.0304 | 0.0353 | 0.0513 | 0.0498 |
| 1988 | 0.0493 | 0.0427 | 0.0333 | 0.0123 | 0.0400 | 0.0519 | 0.0423 | 0.0212 | 0.0421 | 0.0489 | 0.0291 | 0.0413 | 0.0549 | 0.0531 |
| 1989 | 0.0565 | 0.0440 | 0.0424 | 0.0162 | 0.0462 | 0.0582 | 0.0401 | 0.0241 | 0.0491 | 0.0592 | 0.0316 | 0.0461 | 0.0583 | 0.0529 |
| 1990 | 0.0576 | 0.0552 | 0.0544 | 0.0209 | 0.0555 | 0.0684 | 0.0360 | 0.0265 | 0.0501 | 0.0752 | 0.0340 | 0.0563 | 0.0606 | 0.0545 |
| 1991 | 0.0637 | 0.0586 | 0.0561 | 0.0295 | 0.0588 | 0.0697 | 0.0356 | 0.0320 | 0.0554 | 0.0798 | 0.0275 | 0.0546 | 0.0587 | 0.0514 |
| 1992 | 0.0640 | 0.0547 | 0.0443 | 0.0328 | 0.0563 | 0.0711 | 0.0376 | 0.0311 | 0.0569 | 0.0774 | 0.0156 | 0.0463 | 0.0661 | 0.0486 |
| 1993 | 0.0557 | 0.0471 | 0.0353 | 0.0393 | 0.0494 | 0.0607 | 0.0361 | 0.0312 | 0.0498 | 0.0683 | 0.0069 | 0.0421 | 0.0765 | 0.0489 |
| 1994 | 0.0559 | 0.0530 | 0.0395 | 0.0393 | 0.0503 | 0.0673 | 0.0309 | 0.0330 | 0.0504 | 0.0735 | 0.0141 | 0.0434 | 0.0783 | 0.0542 |
| 1995 | 0.0615 | 0.0642 | 0.0439 | 0.0405 | 0.0597 | 0.0711 | 0.0473 | 0.0363 | 0.0586 | 0.0752 | 0.0149 | 0.0499 | 0.0778 | 0.0577 |
| 1996 | 0.0602 | 0.0596 | 0.0420 | 0.0422 | 0.0571 | 0.0671 | 0.0413 | 0.0356 | 0.0602 | 0.0708 | 0.0218 | 0.0443 | 0.0655 | 0.0586 |

(*continued*)

**Table 6. Continued**

| Year | Belgium | Denmark | Germany | Greece | Spain | France | Ireland | Italy | Luxembourg | Netherlands | Portugal | Sweden | United Kingdom | United States |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 | 0.0593 | 0.0497 | 0.0403 | 0.0390 | 0.0512 | 0.0641 | 0.0396 | 0.0351 | 0.0590 | 0.0699 | 0.0221 | 0.0406 | 0.0562 | 0.0615 |
| 1998 | 0.0539 | 0.0396 | 0.0380 | 0.0462 | 0.0510 | 0.0596 | 0.0309 | 0.0335 | 0.0545 | 0.0635 | 0.0191 | 0.0390 | 0.0531 | 0.0582 |
| 1999 | 0.0524 | 0.0449 | 0.0365 | 0.0451 | 0.0473 | 0.0617 | 0.0286 | 0.0361 | 0.0535 | 0.0642 | 0.0213 | 0.0400 | 0.0489 | 0.0662 |
| 2000 | 0.0605 | 0.0530 | 0.0447 | 0.0406 | 0.0450 | 0.0697 | 0.0337 | 0.0358 | 0.0623 | 0.0711 | 0.0299 | 0.0395 | 0.0511 | 0.0691 |
| 2001 | 0.0596 | 0.0508 | 0.0480 | 0.0448 | 0.0379 | 0.0696 | 0.0360 | 0.0380 | 0.0629 | 0.0719 | 0.0211 | 0.0417 | 0.0516 | 0.0615 |
| 2002 | 0.0578 | 0.0480 | 0.0431 | 0.0454 | 0.0352 | 0.0638 | 0.0332 | 0.0369 | 0.0617 | 0.0665 | 0.0145 | 0.0463 | 0.0519 | 0.0591 |
| Land | | | | | | | | | | | | | | |
| 1973 | 0.0061 | 0.0054 | 0.0139 | 0.0023 | 0.0044 | 0.0074 | 0.0017 | 0.0020 | 0.0033 | 0.0080 | 0.0005 | 0.0044 | 0.0050 | 0.0079 |
| 1974 | 0.0066 | 0.0114 | 0.0158 | 0.0017 | 0.0046 | 0.0115 | 0.0038 | 0.0033 | 0.0039 | 0.0137 | 0.0008 | 0.0048 | 0.0052 | 0.0071 |
| 1975 | 0.0041 | 0.0050 | 0.0099 | 0.0016 | 0.0040 | 0.0112 | 0.0026 | 0.0021 | 0.0016 | 0.0074 | 0.0008 | 0.0058 | 0.0029 | 0.0056 |
| 1976 | 0.0055 | 0.0075 | 0.0118 | 0.0015 | 0.0036 | 0.0086 | 0.0039 | 0.0022 | 0.0024 | 0.0061 | 0.0008 | 0.0051 | 0.0032 | 0.0054 |
| 1977 | 0.0090 | 0.0131 | 0.0178 | 0.0014 | 0.0036 | 0.0070 | 0.0050 | 0.0021 | 0.0037 | 0.0131 | 0.0009 | 0.0037 | 0.0028 | 0.0078 |
| 1978 | 0.0144 | 0.0258 | 0.0171 | 0.0015 | 0.0035 | 0.0061 | 0.0048 | 0.0023 | 0.0051 | 0.0180 | 0.0009 | 0.0024 | 0.0033 | 0.0119 |
| 1979 | 0.0182 | 0.0302 | 0.0240 | 0.0023 | 0.0038 | 0.0054 | 0.0042 | 0.0034 | 0.0072 | 0.0241 | 0.0006 | 0.0021 | 0.0065 | 0.0178 |
| 1980 | 0.0358 | 0.0303 | 0.0325 | 0.0055 | 0.0054 | 0.0085 | 0.0037 | 0.0042 | 0.0137 | 0.0290 | 0.0007 | 0.0045 | 0.0075 | 0.0263 |
| 1981 | 0.0542 | 0.0238 | 0.0559 | 0.0104 | 0.0091 | 0.0247 | 0.0071 | 0.0077 | 0.0237 | 0.0356 | 0.0010 | 0.0092 | 0.0086 | 0.0439 |
| 1982 | 0.0485 | 0.0226 | 0.0509 | 0.0122 | 0.0138 | 0.0350 | 0.0064 | 0.0068 | 0.0198 | 0.0321 | 0.0034 | 0.0118 | 0.0139 | 0.0399 |
| 1983 | 0.0385 | 0.0211 | 0.0420 | 0.0111 | 0.0150 | 0.0280 | 0.0110 | 0.0065 | 0.0135 | 0.0262 | 0.0097 | 0.0122 | 0.0157 | 0.0456 |
| 1984 | 0.0402 | 0.0141 | 0.0439 | 0.0090 | 0.0207 | 0.0196 | 0.0103 | 0.0054 | 0.0139 | 0.0305 | 0.0109 | 0.0117 | 0.0192 | 0.0552 |
| 1985 | 0.0352 | 0.0159 | 0.0408 | 0.0065 | 0.0145 | 0.0181 | 0.0171 | 0.0044 | 0.0145 | 0.0362 | 0.0070 | 0.0148 | 0.0145 | 0.0400 |
| 1986 | 0.0257 | 0.0162 | 0.0327 | 0.0069 | 0.0208 | 0.0192 | 0.0185 | 0.0050 | 0.0104 | 0.0373 | 0.0097 | 0.0133 | 0.0175 | 0.0225 |
| 1987 | 0.0225 | 0.0246 | 0.0259 | 0.0084 | 0.0250 | 0.0290 | 0.0182 | 0.0067 | 0.0111 | 0.0377 | 0.0119 | 0.0148 | 0.0197 | 0.0257 |
| 1988 | 0.0281 | 0.0332 | 0.0303 | 0.0125 | 0.0409 | 0.0384 | 0.0230 | 0.0095 | 0.0161 | 0.0474 | 0.0151 | 0.0187 | 0.0230 | 0.0269 |
| 1989 | 0.0368 | 0.0348 | 0.0414 | 0.0178 | 0.0498 | 0.0434 | 0.0237 | 0.0126 | 0.0262 | 0.0536 | 0.0179 | 0.0233 | 0.0249 | 0.0254 |
| 1990 | 0.0375 | 0.0497 | 0.0559 | 0.0209 | 0.0576 | 0.0566 | 0.0212 | 0.0148 | 0.0421 | 0.0536 | 0.0278 | 0.0339 | 0.0251 | 0.0270 |
| 1991 | 0.0425 | 0.0509 | 0.0573 | 0.0294 | 0.0543 | 0.0565 | 0.0193 | 0.0204 | 0.0459 | 0.0523 | 0.0255 | 0.0329 | 0.0215 | 0.0245 |
| 1992 | 0.0425 | 0.0395 | 0.0356 | 0.0296 | 0.0449 | 0.0537 | 0.0202 | 0.0173 | 0.0575 | 0.0496 | 0.0148 | 0.0247 | 0.0217 | 0.0221 |
| 1993 | 0.0296 | 0.0261 | 0.0221 | 0.0342 | 0.0363 | 0.0414 | 0.0176 | 0.0160 | 0.0344 | 0.0399 | 0.0128 | 0.0167 | 0.0298 | 0.0216 |
| 1994 | 0.0288 | 0.0337 | 0.0266 | 0.0342 | 0.0379 | 0.0457 | 0.0125 | 0.0175 | 0.0240 | 0.0389 | 0.0132 | 0.0231 | 0.0337 | 0.0266 |
| 1995 | 0.0364 | 0.0481 | 0.0320 | 0.0308 | 0.0489 | 0.0504 | 0.0300 | 0.0204 | 0.0330 | 0.0480 | 0.0275 | 0.0289 | 0.0438 | 0.0290 |
| 1996 | 0.0342 | 0.0422 | 0.0281 | 0.0299 | 0.0478 | 0.0451 | 0.0260 | 0.0192 | 0.0342 | 0.0453 | 0.0182 | 0.0235 | 0.0409 | 0.0302 |
| 1997 | 0.0328 | 0.0310 | 0.0276 | 0.0273 | 0.0482 | 0.0402 | 0.0265 | 0.0176 | 0.0315 | 0.0468 | 0.0180 | 0.0204 | 0.0273 | 0.0331 |
| 1998 | 0.0267 | 0.0178 | 0.0253 | 0.0380 | 0.0484 | 0.0355 | 0.0152 | 0.0170 | 0.0239 | 0.0466 | 0.0196 | 0.0208 | 0.0218 | 0.0274 |
| 1999 | 0.0259 | 0.0263 | 0.0240 | 0.0337 | 0.0474 | 0.0383 | 0.0110 | 0.0201 | 0.0310 | 0.0339 | 0.0302 | 0.0236 | 0.0168 | 0.0357 |
| 2000 | 0.0362 | 0.0380 | 0.0333 | 0.0254 | 0.0403 | 0.0491 | 0.0189 | 0.0189 | 0.0535 | 0.0357 | 0.0458 | 0.0230 | 0.0192 | 0.0370 |
| 2001 | 0.0336 | 0.0378 | 0.0374 | 0.0249 | 0.0319 | 0.0475 | 0.0210 | 0.0216 | 0.0499 | 0.0342 | 0.0474 | 0.0289 | 0.0170 | 0.0248 |
| 2002 | 0.0303 | 0.0327 | 0.0315 | 0.0234 | 0.0257 | 0.0404 | 0.0114 | 0.0186 | 0.0442 | 0.0364 | 0.0417 | 0.0350 | 0.0146 | 0.0209 |

**Table 7. Translog price Indexes of capital input**

| Year | Belgium | Denmark | Germany | Greece | Spain | France | Ireland | Italy | Luxembourg | Netherlands | Portugal | Sweden | United Kingdom | United States |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | 0.2841 | 0.1613 | 0.4712 | 0.0566 | 0.0914 | 0.1742 | 0.0959 | 0.1199 | 0.1279 | 0.2507 | 0.0449 | 0.2042 | 0.1392 | 0.2744 |
| 1974 | 0.3162 | 0.2375 | 0.5304 | 0.0451 | 0.0987 | 0.2430 | 0.1607 | 0.1781 | 0.1499 | 0.3425 | 0.0555 | 0.2319 | 0.1598 | 0.2752 |
| 1975 | 0.2723 | 0.1922 | 0.4223 | 0.0439 | 0.0928 | 0.2497 | 0.1432 | 0.1492 | 0.1081 | 0.2679 | 0.0543 | 0.2622 | 0.1440 | 0.2736 |
| 1976 | 0.3078 | 0.2189 | 0.4749 | 0.0441 | 0.0912 | 0.2328 | 0.1882 | 0.1705 | 0.1414 | 0.2653 | 0.0646 | 0.2790 | 0.1683 | 0.2812 |
| 1977 | 0.3768 | 0.2646 | 0.6001 | 0.0431 | 0.0984 | 0.2390 | 0.2334 | 0.2014 | 0.1657 | 0.3709 | 0.0981 | 0.2902 | 0.1798 | 0.3336 |
| 1978 | 0.4701 | 0.3575 | 0.5845 | 0.0475 | 0.1055 | 0.2544 | 0.2438 | 0.2441 | 0.2044 | 0.4427 | 0.1197 | 0.3027 | 0.2004 | 0.4156 |
| 1979 | 0.5394 | 0.4015 | 0.7183 | 0.0664 | 0.1192 | 0.2614 | 0.2310 | 0.3331 | 0.2570 | 0.5337 | 0.1276 | 0.3248 | 0.2706 | 0.5281 |
| 1980 | 0.8263 | 0.4423 | 0.8798 | 0.1390 | 0.1553 | 0.3167 | 0.2421 | 0.2347 | 0.4246 | 0.6321 | 0.1602 | 0.4127 | 0.3031 | 0.6895 |
| 1981 | 1.1481 | 0.4817 | 1.3139 | 0.2503 | 0.2304 | 0.5277 | 0.3476 | 0.3466 | 0.6675 | 0.7714 | 0.2017 | 0.4933 | 0.3463 | 0.9980 |
| 1982 | 1.0977 | 0.5703 | 1.2461 | 0.2984 | 0.3186 | 0.7000 | 0.3553 | 0.3597 | 0.6086 | 0.7338 | 0.3230 | 0.5533 | 0.4453 | 0.9662 |
| 1983 | 0.9611 | 0.5547 | 1.0869 | 0.2852 | 0.3547 | 0.6630 | 0.4843 | 0.3821 | 0.4736 | 0.6273 | 0.6375 | 0.6146 | 0.4915 | 1.0809 |
| 1984 | 1.0024 | 0.5019 | 1.1313 | 0.2472 | 0.4636 | 0.5511 | 0.4960 | 0.3825 | 0.4963 | 0.6565 | 0.7529 | 0.6226 | 0.5610 | 1.2679 |
| 1985 | 0.9331 | 0.5074 | 1.0926 | 0.2017 | 0.3731 | 0.5629 | 0.6862 | 0.3832 | 0.5047 | 0.7088 | 0.6539 | 0.6926 | 0.4934 | 1.0343 |
| 1986 | 0.7745 | 0.5297 | 0.9567 | 0.2275 | 0.4798 | 0.5937 | 0.7303 | 0.4165 | 0.4113 | 0.7059 | 0.9830 | 0.7063 | 0.4958 | 0.7485 |
| 1987 | 0.7188 | 0.6366 | 0.8394 | 0.2663 | 0.5483 | 0.6833 | 0.7522 | 0.4753 | 0.4185 | 0.7437 | 1.1142 | 0.7487 | 0.5592 | 0.8188 |
| 1988 | 0.8221 | 0.7466 | 0.9414 | 0.3764 | 0.8059 | 0.8233 | 0.9276 | 0.5593 | 0.5387 | 0.8732 | 1.1264 | 0.8307 | 0.6402 | 0.8558 |
| 1989 | 0.9801 | 0.7688 | 1.1829 | 0.5216 | 0.9540 | 0.9122 | 0.9343 | 0.6566 | 0.7715 | 0.9911 | 1.1853 | 0.8955 | 0.6807 | 0.8452 |
| 1990 | 1.0013 | 0.9270 | 1.4885 | 0.6284 | 1.0973 | 1.0852 | 0.8408 | 0.7374 | 1.0959 | 1.0861 | 1.3116 | 1.0513 | 0.7000 | 0.8823 |
| 1991 | 1.1080 | 0.9794 | 1.5356 | 0.8768 | 1.0836 | 1.1021 | 0.8046 | 0.9072 | 1.1961 | 1.1040 | 1.1055 | 1.0690 | 0.6524 | 0.8392 |
| 1992 | 1.1117 | 0.9164 | 1.1256 | 0.9100 | 0.9396 | 1.0849 | 0.8471 | 0.8569 | 1.4360 | 1.0690 | 0.6765 | 1.0022 | 0.7001 | 0.8012 |
| 1993 | 0.9028 | 0.8109 | 0.8526 | 1.0582 | 0.7881 | 0.9176 | 0.7970 | 0.8472 | 0.9481 | 0.9336 | 0.3897 | 0.9678 | 0.8641 | 0.7984 |
| 1994 | 0.8985 | 0.8954 | 0.9544 | 1.0617 | 0.8214 | 1.0005 | 0.6639 | 0.8986 | 0.7440 | 0.9561 | 0.6528 | 0.9676 | 0.9296 | 0.9073 |
| 1995 | 1.0346 | 1.0522 | 1.0729 | 1.0026 | 1.0155 | 1.0628 | 1.1251 | 0.9940 | 0.9629 | 1.0441 | 0.7911 | 1.0723 | 1.0750 | 0.9707 |
| 1996 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 1997 | 0.9868 | 0.8700 | 0.9720 | 0.9179 | 0.9864 | 0.9446 | 0.9914 | 0.9827 | 0.9391 | 1.0334 | 1.0394 | 0.9525 | 0.7762 | 1.0617 |
| 1998 | 0.8789 | 0.7306 | 0.9232 | 1.1995 | 0.9955 | 0.8809 | 0.7213 | 0.9659 | 0.7642 | 1.0046 | 0.9629 | 0.9374 | 0.6840 | 0.9511 |
| 1999 | 0.8647 | 0.8060 | 0.8965 | 1.0993 | 0.9769 | 0.9168 | 0.6326 | 1.0457 | 0.9079 | 0.9175 | 1.1248 | 0.9616 | 0.5966 | 1.1210 |
| 2000 | 1.0501 | 0.9249 | 1.1073 | 0.8892 | 0.9029 | 1.0417 | 0.8204 | 1.0240 | 1.4061 | 0.9863 | 1.5832 | 0.9446 | 0.6308 | 1.1542 |
| 2001 | 1.0096 | 0.9003 | 1.2018 | 0.9133 | 0.7737 | 1.0299 | 0.8799 | 1.0972 | 1.3319 | 0.9682 | 1.2541 | 0.9971 | 0.5923 | 0.9231 |
| 2002 | 0.9550 | 0.8544 | 1.0735 | 0.8905 | 0.6855 | 0.9359 | 0.6931 | 1.0358 | 1.2085 | 0.9532 | 0.9640 | 1.1204 | 0.5589 | 0.8528 |

**Table 8. Capital input (millions of 1996 national currencies except Italy billions of national currencies)_**

| Year | Belgium | Denmark | Germany 1/ | Greece | Spain | France | Ireland | Italy | Luxembourg | Netherlands | Portugal | Sweden | United Kingdom | United States |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | 41714 | 9896 | 30433 | 702670 | 1494866 | 71610 | 971 | 17496 | 14220 | 7211 | 32614 | 9704 | 6062 | 50162 |
| 1974 | 43537 | 10827 | 30684 | 707102 | 1508665 | 74704 | 1014 | 17933 | 14321 | 7531 | 34996 | 9579 | 6121 | 51455 |
| 1975 | 45395 | 11547 | 30728 | 716292 | 1502287 | 77379 | 1011 | 18337 | 14510 | 7851 | 37786 | 9542 | 6143 | 52753 |
| 1976 | 45803 | 12209 | 30811 | 733325 | 1506730 | 79959 | 1028 | 18716 | 14575 | 8057 | 41134 | 9658 | 6104 | 53556 |
| 1977 | 46482 | 12905 | 30925 | 738692 | 1513259 | 82643 | 1062 | 19228 | 14580 | 8260 | 44281 | 9821 | 6074 | 54654 |
| 1978 | 47308 | 13460 | 31075 | 753054 | 1528441 | 84425 | 1104 | 19749 | 14355 | 8596 | 47848 | 9823 | 6065 | 55478 |
| 1979 | 48478 | 14058 | 30555 | 754685 | 1553177 | 86273 | 1148 | 20163 | 14407 | 8974 | 50645 | 9736 | 6069 | 56454 |
| 1980 | 48820 | 14657 | 30723 | 762165 | 1580545 | 87660 | 1195 | 20811 | 14420 | 9359 | 53998 | 9661 | 6068 | 57328 |
| 1981 | 48599 | 14791 | 30746 | 764174 | 1621616 | 88604 | 1221 | 21686 | 14252 | 9559 | 57987 | 9437 | 6005 | 57129 |
| 1982 | 48282 | 14677 | 30606 | 764601 | 1638693 | 89431 | 1247 | 22280 | 14153 | 9708 | 61044 | 9245 | 5976 | 56507 |
| 1983 | 48130 | 14588 | 30464 | 767555 | 1654008 | 90172 | 1257 | 22427 | 14274 | 9877 | 62064 | 9117 | 5990 | 55344 |
| 1984 | 47755 | 14540 | 30448 | 769364 | 1671164 | 90444 | 1259 | 22615 | 14335 | 10120 | 62430 | 9009 | 6049 | 54218 |
| 1985 | 47485 | 14576 | 30342 | 778921 | 1680771 | 91009 | 1261 | 22947 | 14238 | 10230 | 62398 | 8968 | 6116 | 53054 |
| 1986 | 47119 | 14776 | 30232 | 783722 | 1681309 | 90738 | 1261 | 23017 | 14196 | 10282 | 62150 | 8815 | 6138 | 51332 |
| 1987 | 47028 | 14962 | 30072 | 781188 | 1687012 | 90067 | 1281 | 23034 | 13979 | 10332 | 63806 | 8612 | 6144 | 49457 |
| 1988 | 46978 | 14978 | 29900 | 776178 | 1691911 | 89526 | 1267 | 22995 | 13839 | 10371 | 65988 | 8445 | 6155 | 48137 |
| 1989 | 46787 | 14859 | 29810 | 775350 | 1684719 | 90796 | 1250 | 22665 | 13807 | 10396 | 69049 | 8344 | 6148 | 46936 |
| 1990 | 46587 | 14902 | 29809 | 772324 | 1671050 | 91406 | 1244 | 22332 | 13883 | 10484 | 71703 | 8301 | 6146 | 46012 |
| 1991 | 46478 | 14924 | 31602 | 767286 | 1646877 | 91690 | 1249 | 22230 | 13835 | 10577 | 74115 | 8188 | 6132 | 45276 |
| 1992 | 45934 | 14794 | 31540 | 769638 | 1634672 | 91551 | 1248 | 22181 | 13871 | 10673 | 76789 | 7963 | 6095 | 44419 |
| 1993 | 46091 | 14560 | 31548 | 769107 | 1609762 | 90577 | 1249 | 22053 | 13949 | 10780 | 78626 | 7697 | 6095 | 43561 |
| 1994 | 45640 | 14172 | 31340 | 768333 | 1586470 | 89764 | 1240 | 21875 | 13914 | 10730 | 80648 | 7449 | 6107 | 42916 |
| 1995 | 44928 | 14049 | 31078 | 767560 | 1559262 | 89359 | 1247 | 21833 | 13895 | 10699 | 82101 | 7367 | 6125 | 42358 |
| 1996 | 44500 | 14003 | 30852 | 766324 | 1543253 | 89316 | 1252 | 21855 | 13755 | 10414 | 84117 | 7308 | 6178 | 41786 |
| 1997 | 44099 | 13832 | 30823 | 758075 | 1550743 | 90296 | 1274 | 21907 | 13525 | 10484 | 86349 | 7185 | 6206 | 41416 |
| 1998 | 43915 | 13904 | 30621 | 739978 | 1545840 | 90838 | 1276 | 21985 | 13474 | 10462 | 88905 | 7177 | 6185 | 41179 |
| 1999 | 43764 | 13879 | 30263 | 731179 | 1533780 | 92714 | 1282 | 22191 | 13447 | 10534 | 90339 | 7152 | 6098 | 41032 |
| 2000 | 43773 | 13823 | 30115 | 719660 | 1519797 | 93476 | 1284 | 22319 | 13408 | 10607 | 92550 | 7183 | 5959 | 40763 |
| 2001 | 43788 | 13860 | 30074 | 707387 | 1511044 | 94426 | 1283 | 22375 | 13289 | 10659 | 94188 | 7223 | 5907 | 40513 |
| 2002 | 43929 | 13992 | 29890 | 694561 | 1498547 | 95348 | 1281 | 22483 | 13254 | 10787 | 95384 | 7253 | 5821 | 40407 |

*Note*: 1/Includes former East Germany beginning in 1991.

**Table 9. Purchasing power parities for capital input (national currencies per US dollar)**

| Year | Belgium | Denmark | Germany | Greece | Spain | France | Ireland | Italy | Luxembourg | Netherlands | Portugal | Sweden | United Kingdom | United States |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | 16.692 | 1.509 | 1.315 | 29.575 | 25.815 | 1.357 | 0.100 | 264.825 | 11.188 | 1.281 | 4.383 | 1.499 | 0.143 | 0.274 |
| 1974 | 18.577 | 2.221 | 1.480 | 23.572 | 27.880 | 1.894 | 0.168 | 393.460 | 13.107 | 1.751 | 5.414 | 1.702 | 0.164 | 0.275 |
| 1975 | 15.995 | 1.797 | 1.179 | 22.934 | 26.225 | 1.945 | 0.150 | 329.593 | 9.452 | 1.369 | 5.302 | 1.925 | 0.148 | 0.274 |
| 1976 | 18.082 | 2.047 | 1.325 | 23.013 | 25.775 | 1.814 | 0.197 | 376.664 | 12.365 | 1.356 | 6.305 | 2.048 | 0.173 | 0.281 |
| 1977 | 22.135 | 2.474 | 1.675 | 22.488 | 27.789 | 1.862 | 0.244 | 445.004 | 14.486 | 1.896 | 9.574 | 2.130 | 0.185 | 0.334 |
| 1978 | 27.617 | 3.343 | 1.631 | 24.809 | 29.819 | 1.982 | 0.255 | 539.349 | 17.872 | 2.263 | 11.676 | 2.222 | 0.206 | 0.416 |
| 1979 | 31.687 | 3.754 | 2.005 | 34.690 | 33.669 | 2.036 | 0.241 | 735.973 | 22.478 | 2.728 | 12.446 | 2.385 | 0.278 | 0.528 |
| 1980 | 48.543 | 4.136 | 2.456 | 72.613 | 43.870 | 2.467 | 0.253 | 518.489 | 37.134 | 3.231 | 15.635 | 3.030 | 0.311 | 0.689 |
| 1981 | 67.451 | 4.504 | 3.667 | 130.717 | 65.106 | 4.111 | 0.363 | 765.883 | 58.373 | 3.944 | 19.684 | 3.621 | 0.356 | 0.998 |
| 1982 | 64.487 | 5.333 | 3.478 | 155.866 | 90.023 | 5.454 | 0.371 | 794.888 | 53.222 | 3.751 | 31.521 | 4.062 | 0.458 | 0.966 |
| 1983 | 56.461 | 5.186 | 3.034 | 148.958 | 100.217 | 5.165 | 0.506 | 844.294 | 41.421 | 3.207 | 62.202 | 4.512 | 0.505 | 1.081 |
| 1984 | 58.888 | 4.693 | 3.158 | 129.128 | 130.968 | 4.294 | 0.518 | 845.237 | 43.398 | 3.356 | 73.466 | 4.571 | 0.576 | 1.268 |
| 1985 | 54.821 | 4.745 | 3.049 | 105.360 | 105.398 | 4.386 | 0.717 | 846.661 | 44.137 | 3.623 | 63.811 | 5.084 | 0.507 | 1.034 |
| 1986 | 45.499 | 4.953 | 2.670 | 118.844 | 135.553 | 4.625 | 0.763 | 920.251 | 35.965 | 3.608 | 95.922 | 5.185 | 0.509 | 0.748 |
| 1987 | 42.228 | 5.953 | 2.343 | 139.095 | 154.906 | 5.324 | 0.786 | 1050.214 | 36.602 | 3.802 | 108.727 | 5.496 | 0.574 | 0.819 |
| 1988 | 48.299 | 6.982 | 2.628 | 196.580 | 227.690 | 6.414 | 0.969 | 1235.721 | 47.111 | 4.464 | 109.913 | 6.098 | 0.658 | 0.856 |
| 1989 | 57.578 | 7.189 | 3.302 | 272.450 | 269.522 | 7.107 | 0.976 | 1450.840 | 67.473 | 5.066 | 115.665 | 6.574 | 0.699 | 0.845 |
| 1990 | 58.825 | 8.668 | 4.155 | 328.231 | 310.019 | 8.455 | 0.878 | 1629.323 | 95.837 | 5.552 | 127.983 | 7.717 | 0.719 | 0.882 |
| 1991 | 65.094 | 9.158 | 4.286 | 457.984 | 306.156 | 8.587 | 0.841 | 2004.521 | 104.603 | 5.644 | 107.869 | 7.847 | 0.670 | 0.839 |
| 1992 | 65.310 | 8.569 | 3.142 | 475.328 | 265.447 | 8.453 | 0.885 | 1893.290 | 125.577 | 5.465 | 66.015 | 7.357 | 0.719 | 0.801 |
| 1993 | 53.040 | 7.582 | 2.380 | 552.735 | 222.644 | 7.149 | 0.833 | 1871.893 | 82.911 | 4.772 | 38.029 | 7.105 | 0.888 | 0.798 |
| 1994 | 52.784 | 8.373 | 2.664 | 554.535 | 232.056 | 7.795 | 0.694 | 1985.516 | 65.062 | 4.888 | 63.701 | 7.103 | 0.955 | 0.907 |
| 1995 | 60.781 | 9.839 | 2.995 | 523.660 | 286.902 | 8.281 | 1.175 | 2196.352 | 84.209 | 5.338 | 77.198 | 7.871 | 1.105 | 0.971 |
| 1996 | 58.748 | 9.351 | 2.791 | 522.314 | 282.526 | 7.791 | 1.045 | 2209.571 | 87.452 | 5.112 | 97.579 | 7.341 | 1.027 | 1.000 |
| 1997 | 57.971 | 8.135 | 2.713 | 479.415 | 278.694 | 7.360 | 1.036 | 2171.427 | 82.126 | 5.283 | 101.426 | 6.992 | 0.797 | 1.062 |
| 1998 | 51.633 | 6.831 | 2.577 | 626.490 | 281.241 | 6.863 | 0.754 | 2134.224 | 66.828 | 5.136 | 93.960 | 6.881 | 0.703 | 0.951 |
| 1999 | 50.797 | 7.537 | 2.502 | 574.190 | 276.008 | 7.143 | 0.661 | 2310.593 | 79.399 | 4.690 | 109.760 | 7.059 | 0.613 | 1.121 |
| 2000 | 61.692 | 8.649 | 3.091 | 464.421 | 255.105 | 8.116 | 0.857 | 2262.516 | 122.969 | 5.042 | 154.485 | 6.934 | 0.648 | 1.154 |
| 2001 | 59.313 | 8.418 | 3.354 | 477.028 | 218.581 | 8.024 | 0.919 | 2424.406 | 116.475 | 4.950 | 122.378 | 7.319 | 0.609 | 0.923 |
| 2002 | 56.106 | 7.989 | 2.996 | 465.128 | 193.666 | 7.292 | 0.724 | 2288.672 | 105.683 | 4.873 | 94.064 | 8.225 | 0.574 | 0.853 |

**Table 10. Prices of capital input relative to US in 1996**

| Year | Belgium | Denmark | Germany | Greece | Spain | France | Ireland | Italy | Luxembourg | Netherlands | Portugal | Sweden | United Kingdom | United States |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | 0.4285 | 0.2496 | 0.4923 | 0.9983 | 0.4431 | 0.3047 | 0.2456 | 0.4548 | 0.2872 | 0.4584 | 0.1788 | 0.3436 | 0.3506 | 0.2744 |
| 1974 | 0.4768 | 0.3645 | 0.5723 | 0.7857 | 0.4833 | 0.3937 | 0.3927 | 0.6043 | 0.3364 | 0.6512 | 0.2131 | 0.3834 | 0.3840 | 0.2752 |
| 1975 | 0.4347 | 0.3127 | 0.4790 | 0.7156 | 0.4568 | 0.4537 | 0.3324 | 0.5046 | 0.2569 | 0.5414 | 0.2075 | 0.4634 | 0.3286 | 0.2736 |
| 1976 | 0.4684 | 0.3385 | 0.5264 | 0.6302 | 0.3853 | 0.3807 | 0.3549 | 0.4525 | 0.3203 | 0.5130 | 0.2086 | 0.4701 | 0.3122 | 0.2812 |
| 1977 | 0.6176 | 0.4119 | 0.7211 | 0.6104 | 0.3658 | 0.3788 | 0.4255 | 0.5041 | 0.4042 | 0.7727 | 0.2501 | 0.4751 | 0.3225 | 0.3336 |
| 1978 | 0.8774 | 0.6062 | 0.8123 | 0.6752 | 0.3889 | 0.4395 | 0.4889 | 0.6352 | 0.5678 | 1.0461 | 0.2657 | 0.4916 | 0.3953 | 0.4156 |
| 1979 | 1.0806 | 0.7136 | 1.0937 | 0.9366 | 0.5016 | 0.4787 | 0.4940 | 0.8858 | 0.7665 | 1.3601 | 0.2544 | 0.5561 | 0.5899 | 0.5281 |
| 1980 | 1.6598 | 0.7339 | 1.3509 | 1.7038 | 0.6118 | 0.5838 | 0.5203 | 0.6055 | 1.2697 | 1.6252 | 0.3123 | 0.7161 | 0.7241 | 0.6895 |
| 1981 | 1.8156 | 0.6321 | 1.6223 | 2.3592 | 0.7052 | 0.7565 | 0.5865 | 0.6734 | 1.5712 | 1.5804 | 0.3198 | 0.7149 | 0.7211 | 0.9980 |
| 1982 | 1.4103 | 0.6395 | 1.4324 | 2.3332 | 0.8194 | 0.8294 | 0.5275 | 0.5873 | 1.1640 | 1.4049 | 0.3966 | 0.6460 | 0.8005 | 0.9662 |
| 1983 | 1.1040 | 0.5668 | 1.1876 | 1.6915 | 0.6987 | 0.6777 | 0.6313 | 0.5556 | 0.8099 | 1.1236 | 0.5615 | 0.5881 | 0.7655 | 1.0809 |
| 1984 | 1.0188 | 0.4529 | 1.1087 | 1.1456 | 0.8147 | 0.4911 | 0.5626 | 0.4808 | 0.7508 | 1.0460 | 0.5019 | 0.5522 | 0.7698 | 1.2679 |
| 1985 | 0.9232 | 0.4474 | 1.0357 | 0.7628 | 0.6198 | 0.4880 | 0.7638 | 0.4434 | 0.7433 | 1.0909 | 0.3745 | 0.5907 | 0.6568 | 1.0343 |
| 1986 | 1.0184 | 0.6117 | 1.2298 | 0.8490 | 0.9679 | 0.6679 | 1.0229 | 0.6170 | 0.8050 | 1.4728 | 0.6412 | 0.7273 | 0.7471 | 0.7485 |
| 1987 | 1.1306 | 0.8694 | 1.3033 | 1.0269 | 1.2545 | 0.8857 | 1.1695 | 0.8100 | 0.9800 | 1.8774 | 0.7711 | 0.8659 | 0.9417 | 0.8188 |
| 1988 | 1.3136 | 1.0361 | 1.4962 | 1.3849 | 1.9546 | 1.0769 | 1.4783 | 0.9493 | 1.2813 | 2.2590 | 0.7622 | 0.9939 | 1.1716 | 0.8558 |
| 1989 | 1.4623 | 0.9828 | 1.7569 | 1.6769 | 2.2776 | 1.1148 | 1.3853 | 1.0580 | 1.7136 | 2.3911 | 0.7348 | 1.0188 | 1.1467 | 0.8452 |
| 1990 | 1.7606 | 1.4008 | 2.5711 | 2.0704 | 3.0408 | 1.5528 | 1.4565 | 1.3600 | 2.8683 | 3.0504 | 0.8973 | 1.3033 | 1.2837 | 0.8823 |
| 1991 | 1.9065 | 1.4321 | 2.5842 | 2.5112 | 2.9475 | 1.5228 | 1.3472 | 1.6170 | 3.0636 | 3.0194 | 0.7460 | 1.2981 | 1.1862 | 0.8392 |
| 1992 | 2.0308 | 1.4187 | 2.0108 | 2.4902 | 2.5904 | 1.5963 | 1.5073 | 1.5353 | 3.9048 | 3.1064 | 0.4884 | 1.2624 | 1.2690 | 0.8012 |
| 1993 | 1.5343 | 1.1695 | 1.4391 | 2.4089 | 1.7488 | 1.2621 | 1.2209 | 1.1908 | 2.3984 | 2.5701 | 0.2364 | 0.9122 | 1.3332 | 0.7984 |
| 1994 | 1.5789 | 1.3172 | 1.6424 | 2.2866 | 1.7334 | 1.4053 | 1.0382 | 1.2319 | 1.9461 | 2.6867 | 0.3839 | 0.9207 | 1.4633 | 0.9073 |
| 1995 | 2.0608 | 1.7559 | 2.0896 | 2.2592 | 2.3010 | 1.6598 | 1.8841 | 1.3483 | 2.8551 | 3.3262 | 0.5148 | 1.1025 | 1.7431 | 0.9707 |
| 1996 | 1.8974 | 1.6123 | 1.8548 | 2.1689 | 2.2303 | 1.5230 | 1.6716 | 1.4323 | 2.8245 | 3.0326 | 0.6325 | 1.0943 | 1.6044 | 1.0000 |
| 1997 | 1.6199 | 1.2315 | 1.5645 | 1.7554 | 1.9030 | 1.2611 | 1.5712 | 1.2750 | 2.2949 | 2.7086 | 0.5784 | 0.9151 | 1.3062 | 1.0617 |
| 1998 | 1.4224 | 1.0194 | 1.4647 | 2.1207 | 1.8828 | 1.1636 | 1.0738 | 1.2291 | 1.8409 | 2.5897 | 0.5214 | 0.8652 | 1.1646 | 0.9511 |
| 1999 | 1.3414 | 1.0796 | 1.3628 | 1.8772 | 1.7670 | 1.1600 | 0.8951 | 1.2711 | 2.0966 | 2.2673 | 0.5832 | 0.8539 | 0.9917 | 1.1210 |
| 2000 | 1.4080 | 1.0686 | 1.4548 | 1.2694 | 1.4115 | 1.1391 | 1.0049 | 1.0758 | 2.8064 | 2.1083 | 0.7094 | 0.7557 | 0.9824 | 1.1542 |
| 2001 | 1.3156 | 1.0106 | 1.5345 | 1.2526 | 1.1754 | 1.0945 | 1.0452 | 1.1203 | 2.5835 | 2.0095 | 0.5462 | 0.7076 | 0.8763 | 0.9231 |
| 2002 | 1.3105 | 1.0129 | 1.4434 | 1.2862 | 1.0967 | 1.0474 | 0.8691 | 1.1137 | 2.4685 | 2.1059 | 0.4421 | 0.8459 | 0.8628 | 0.8528 |

**Table 11. Capital input (millions of 1996 US dollars)**

| Year | Belgium | Denmark | Germany 1/ | Greece | Spain | France | Ireland | Italy | Luxembourg | Netherlands | Portugal | Sweden | United Kingdom | United States |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | 710 | 1058 | 10902 | 1345 | 5291 | 9191 | 929 | 7918 | 163 | 1410 | 334 | 1322 | 5900 | 50162 |
| 1974 | 741 | 1158 | 10994 | 1354 | 5340 | 9588 | 971 | 8116 | 164 | 1473 | 359 | 1305 | 5957 | 51455 |
| 1975 | 773 | 1235 | 11016 | 1371 | 5317 | 9932 | 968 | 8299 | 166 | 1536 | 387 | 1300 | 5979 | 52753 |
| 1976 | 780 | 1306 | 11023 | 1404 | 5333 | 10263 | 984 | 8470 | 167 | 1576 | 422 | 1316 | 5941 | 53556 |
| 1977 | 791 | 1380 | 11087 | 1414 | 5356 | 10607 | 1017 | 8702 | 167 | 1616 | 454 | 1338 | 5912 | 54654 |
| 1978 | 805 | 1439 | 11136 | 1442 | 5410 | 10836 | 1057 | 8938 | 164 | 1682 | 490 | 1338 | 5903 | 55478 |
| 1979 | 825 | 1503 | 10946 | 1445 | 5497 | 11073 | 1099 | 9125 | 165 | 1756 | 519 | 1326 | 5907 | 56454 |
| 1980 | 831 | 1567 | 11006 | 1459 | 5594 | 11251 | 1144 | 9419 | 165 | 1831 | 553 | 1316 | 5906 | 57328 |
| 1981 | 827 | 1582 | 11012 | 1463 | 5740 | 11372 | 1169 | 9814 | 163 | 1870 | 594 | 1286 | 5844 | 57129 |
| 1982 | 822 | 1570 | 10965 | 1464 | 5800 | 11478 | 1194 | 10083 | 162 | 1899 | 626 | 1259 | 5817 | 56507 |
| 1983 | 819 | 1560 | 10916 | 1470 | 5854 | 11573 | 1203 | 10150 | 163 | 1932 | 636 | 1242 | 5830 | 55344 |
| 1984 | 813 | 1555 | 10914 | 1473 | 5915 | 11608 | 1205 | 10235 | 164 | 1980 | 640 | 1227 | 5888 | 54218 |
| 1985 | 808 | 1559 | 10874 | 1491 | 5949 | 11681 | 1207 | 10385 | 163 | 2001 | 639 | 1222 | 5953 | 53054 |
| 1986 | 802 | 1580 | 10827 | 1500 | 5951 | 11646 | 1207 | 10417 | 162 | 2011 | 637 | 1201 | 5974 | 51332 |
| 1987 | 801 | 1600 | 10767 | 1496 | 5971 | 11560 | 1226 | 10425 | 160 | 2021 | 654 | 1173 | 5980 | 49457 |
| 1988 | 800 | 1602 | 10719 | 1486 | 5989 | 11491 | 1212 | 10407 | 158 | 2029 | 676 | 1150 | 5991 | 48137 |
| 1989 | 796 | 1589 | 10676 | 1484 | 5963 | 11654 | 1196 | 10258 | 158 | 2034 | 708 | 1137 | 5984 | 46936 |
| 1990 | 793 | 1594 | 10678 | 1479 | 5915 | 11732 | 1191 | 10107 | 159 | 2051 | 735 | 1131 | 5982 | 46012 |
| 1991 | 791 | 1596 | 11321 | 1469 | 5829 | 11768 | 1195 | 10061 | 158 | 2069 | 760 | 1115 | 5969 | 45276 |
| 1992 | 782 | 1582 | 11304 | 1474 | 5786 | 11750 | 1195 | 10039 | 159 | 2088 | 787 | 1085 | 5932 | 44419 |
| 1993 | 785 | 1557 | 11312 | 1472 | 5698 | 11625 | 1196 | 9981 | 160 | 2109 | 806 | 1049 | 5932 | 43561 |
| 1994 | 777 | 1516 | 11231 | 1471 | 5615 | 11521 | 1187 | 9900 | 159 | 2099 | 826 | 1015 | 5944 | 42916 |
| 1995 | 765 | 1502 | 11131 | 1470 | 5519 | 11469 | 1194 | 9881 | 159 | 2093 | 841 | 1004 | 5962 | 42358 |
| 1996 | 757 | 1498 | 11046 | 1467 | 5462 | 11464 | 1199 | 9891 | 157 | 2037 | 862 | 995 | 6013 | 41786 |
| 1997 | 751 | 1479 | 11043 | 1451 | 5489 | 11589 | 1219 | 9914 | 155 | 2051 | 885 | 979 | 6040 | 41416 |
| 1998 | 748 | 1487 | 10979 | 1417 | 5472 | 11659 | 1221 | 9950 | 154 | 2046 | 911 | 978 | 6020 | 41179 |
| 1999 | 745 | 1484 | 10839 | 1400 | 5429 | 11900 | 1227 | 10043 | 154 | 2061 | 926 | 974 | 5936 | 41032 |
| 2000 | 745 | 1478 | 10792 | 1378 | 5379 | 11998 | 1229 | 10101 | 153 | 2075 | 948 | 978 | 5800 | 40763 |
| 2001 | 745 | 1482 | 10771 | 1354 | 5348 | 12119 | 1228 | 10127 | 152 | 2085 | 965 | 984 | 5750 | 40513 |
| 2002 | 748 | 1496 | 10703 | 1330 | 5304 | 12238 | 1226 | 10175 | 152 | 2110 | 978 | 988 | 5666 | 40407 |

*Notes*: 1/Includes former East Germany beginning in 1991.

## IV. Concluding Remarks

Our objective is to provide a farm-sector comparison of levels of capital input among OECD countries. This comparison begins with estimating the capital stock and rental price for each asset class for each country. Internal consistency of a measure of capital input requires that the same pattern of relative efficiency is employed in measuring both the capital stock and the rental price of capital services. The decline in efficiency affects both the level of capital stock and the corresponding rental price. The estimates of capital stocks and rental prices that underlie the data presented in Tables 10 and 11 are based on a hyperbolic decay function concave to the origin. The concave decay pattern is based on the observation that the efficiency of an asset is relatively high during the early years of service and only after some time does the asset begin to deteriorate. The same patterns of decline in efficiency are used for both capital stock and the rental price of each asset, so that the requirement for internal consistency of measures of capital input is met.

In order to compare levels of capital input among countries, we require conversion factors that reflect the comparative value of their currencies. The OECD regularly constructs estimates of the purchasing power of OECD currencies. We make use of purchasing power parities for investment goods output, taking into account the flow of capital services per unit of capital stock in each country. Relative prices of land are based on hedonic regressions. These conversion factors are used to express the value of capital service flows in each country in a common unit. As a final step, we form indexes of relative prices of capital input among countries by taking the ratio of the purchasing power parity and the exchange rate. This allows us to decompose the values of capital services into price and quantity components.

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