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COST OF CAPITAL AND THE UNCERTAIN PRE-EMINENCE OF LABOUR

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One of the most important principles on which the whole body of Catholic Social Teaching is based is the pre-eminence of labour over capital. This principle was already clearly articulated in *Rerum Novarum*[1] and its importance has been reaffirmed ever since, especially in *Laborem Exercens*[2] where it is said "... labour is always a primary efficient cause, while 'capital', the whole collection of means of production, remains a mere instrument or instrumental cause". Taking this very general principle as given, the purpose of this paper is to shed some light on the economic – and to a lesser extent societal – mechanisms that govern the relationship between labour and capital in the present day world, more precisely in its most developed part.

The paper has three main parts. The introductory part brings some conceptual and methodological clarity into the complex issue of the labour-capital relationship. The second part is more empirical and presents some statistical evidence possibly useful for a better understanding of the central question addressed by the paper. The concluding part dwells on two sets of issues: technical and policy oriented conclusions, on the one hand, and

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[1] J. Schasching S.J., 'Catholic Social Teaching and Labour', in *Pontifice Academiae Scientiarum Socialium - Acta 2*, ...; see also A. de Salins and F. Villeroy de Galhau, *Le Développement Moderne des Activité Financières au regard des Exigences Éthiques du Christianisme* (Libreria Editrice Vaticana, 1994), 54 pp., especially pp. 19-22; see also P.H. Dembinski, 'Moralité du Travail: au Confluent des Préoccupatins du Magistère et des Responsables de l'Europe de l'Est?', in *L'Enseignement Social Chrétien: Dimensions Actuelles* (coll. Prémices, Editions Universitaires de Fribourg, 1988), pp. 139-155.

[2] LE 12,1.

some suggestions as to the aspects of the present day capital-labour relationship that may necessitate or require specific attention by the Church.

I. Labour and Capital: between complementarity and antagonism

A. *Multiple facets of "capital"*

According to standard economics, labour, land and capital are the three factors that are used, in varying conditions and proportions, in any productive activity or effort. Much of the attention of the founding fathers of "political economy" was devoted to discussions of rules and principles that govern, or should govern, the use and remuneration of these three factors, taking into account their essential differences.

Even for a newcomer to economics, the most fundamental difference between the three above mentioned factors of production is evident and has been stressed by Catholic Social Teaching on many occasions. Capital and land are objects while labour is a service provided by human persons. Capital and land are subject to specific property rights and can be transferred from one owner to another, whereas work is an inalienable capacity of the human person. As the economic importance of land as a factor of production is decreasing, for the sake of simplicity in the following pages it will be assimilated to capital.

Because of their natural differences, the methods of measuring labour and capital also differ. Labour is expressed in terms of quantity of hours during which productive services are granted. Land can either be expressed in physical terms as a surface, or in terms of its monetary equivalent, as a value with explicit or implicit reference to a price. Of the three factors of production, capital is the most problematic to define and to measure. Traditionally, this concept has been used to mean all the physical installations and devices needed for production.[3] However, because of the genuine heterogeneity of means of production, the only way to measure physical capital is in value terms, i.e. with reference to prices.

Many methods of valuation of existing physical capital can be used: valuation at replacement costs or valuation at purchase prices. In the case of physical capital used by a specific enterprise, the corresponding amount will appear on the company balance sheet only to the extent that the equipment has not been depreciated. The corresponding value of physical

[3] LE 12,1 for instance, see also H. Hageman, 'Capital', in *New Palgrave Dictionary of Economics*, vol. I.

capital appearing on the asset side of the company's balance sheet is usually called "tangible assets" and gives an incomplete view of the value of the physical capital used by the company.

When it comes to evaluating the existing stock of physical capital within the framework of the System of National Accounts, things are even more complicated than the level of the enterprise; and this for two different reasons. First, the System of National Accounts records, by definition, flows and not stocks. Thus, the value of capital stock is grasped only indirectly, in terms of increments, i.e. through the investment flow. Second, investment flow data are obtained by estimation rather by the proper measurement of business investment outlays. In consequence, only sparse estimates of capital stock exist.[4]

To complicate things further, the word "capital" is also used with reference to the liability side of a company's balance sheet. "Capital" becomes then a synonym and substitute for "financial capital" which may have two very different meanings in the financial context.

"Capital" in the financial sense is used to mean "equity capital", i.e. the value of the shareholders' commitment to the company. Capital in this sense describes the amount of money entitled to returns, i.e. the amount entitled to collect the residual – the profit.

According to classical financial management rules, equity capital was there to pay for the most risky assets, and tangible assets (physical capital) were considered to be such. In the industrial age, when finance was closely related to "real" economic processes and when production of goods and services was mostly based on physical capital, the two meanings of capital (equity and equipment) were rather narrow. Max Weber saw it clearly: capital is determined by what is on the enterprise capital account, i.e. anything against which the enterprise can raise external funds.[5]

Today this relationship between equity and physical capital no longer holds, especially in service firms which generate the most important part of the GDP of OECD countries. In the service sector, productive activities require more and more "intangible assets"[6] that, in most cases do not

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[4] M. Zarinnejadan, 'L'Évaluation Financière et l'Investissement Privé en Suisse 1946-96', in *Revue Suisse d'Économie Politique et de Statistique*, Dec. 1989.

[5] M. Weber, *Histoire Économique: Esquisse d'une Histoire Universelle de l'Économie et de la Société* (Paris, Gallimard, 1991; original 1923), p. 15: "*Dresser un compte de capital signifie que, des biens d'une certaine valeur estimable en argent ayant été engagés dans une entreprise, on établit ... les gains et les pertes en argent lorsque l'entreprise s'arrête ou lorsqu'on arrive en fin d'un exercice budgétaire*".

[6] See *World Development Report: Knowledge for Development* (World Bank & Oxford University Press, 1998).

appear explicitly as such on the balance sheets, but have to be financed either by equity or by debts.

In the modern financial context "capital" means the "total liabilities" of a company, i.e. equity as well as debts. It means then the value of all financial commitments of third parties towards the company. When used in this context, the term "capital" has no relationship whatsoever with "physical capital" and is used to mean assets – whatever their form – employed in the process of production and appearing on a balance sheet of an enterprise. From the perspective of contemporary business practice, financial capital describes the value of all non-disposable items – tangible or intangible – used in production and financed by any kind of liability of the company. As far as capital remuneration is concerned, a twofold distinction has to be introduced. On the asset side, the allowance for the replacement of physical capital or tangible assets (depreciation); on the liabilities side remuneration of borrowed funds or debts (interest paid) and remuneration of the equity capital (residual claim or profit).

Macro-economic estimates of financial capital stock are even more tricky than the estimates of physical capital stock. Two main reasons should be mentioned. First, the absence of a widely accepted and coherent methodological framework. Second, the difficulties involved in avoiding double-counting because of the multi-layer and overlapping character of the pyramid of financial assets.

The above discussion shows that the gap in meanings is widening between "capital" in the classical and physical sense, and "capital" in the financial contemporary meaning. However, it seems that in its teachings and statements Catholic Social Teaching has not fully acknowledged this state of affairs. When the term "capital" appears in Catholic Social Teaching, it refers implicitly to its classical meaning which can bring many additional misunderstandings to an already complex situation. A new effort by Catholic Social Teaching to come to terms with the contemporary dominant meaning of capital and its social and also theological consequences would be particularly welcome.

Whatever ambiguities surround the notion of capital, it lies at the very bottom of our economic system, i.e. capitalism. Among the whole range of varieties of systemic settings based on the market mechanism and economic freedom that can, in theory at least, be thought of, the distinctive feature on which capitalism stands is the morally, legally and economically accepted principle of the autonomy of financial assets, i.e. financial capital. In fact the capitalist system is the only system where assets – objects of property rights – are morally and legally explicitly entitled to a specific remuneration, distinct and separate from the remuneration of labour. The level of remu-

neration depends on the kind of contract between the owner of the financial capital and the user of corresponding funds, and on the accounting outcomes of the enterprise.

The financial assets are, *de facto*, bundles of transferable property rights – contracts – on a set of goods, services or – as is more and more the case today – on ideas. Many of these rights cannot be enforced outside a very sophisticated and complex institutional system which, *de facto*, is the present framework of our societies and whose international extension is often referred to as "globalisation".

Among the many social consequences of the continuous development of capitalism is the general aspiration to become as quickly as possible a "*rentier*" which means deriving one's living not from labour but from the remuneration of one's own financial assets.[7] The drive towards a "*rentier* society", enhanced by policies aiming at the generalisation of shareholding, leads in consequence to an ever stricter definition of property rights which in turn gives birth to ever new categories of financial assets.

Despite the fact that the autonomy of financial capital lies at the very foundation of capitalism, for many economic actors such as the self-employed, small family firms and many micro-enterprises in developing countries, the distinction between the remuneration of labour and capital is still meaningless.

B. *Value Added*

The concept of "value added" is central for understanding and analysing the functioning of our modern economies. Unlike "capital", value added is a flow concept and thus can be recorded through a system of accounts either at macro or enterprise level. In the case of an enterprise, value added is defined as the contribution of this enterprise to the increase in the value of the intermediate goods it transforms. For example, the value added by an auto maker who turns a set of components into an automobile will be equal to the difference between the value, i.e. the price paid for the components, and the price at which finished car will be sold. In this accounting framework, the transaction – the act of selling the finished good to another owner – sanctions the amount of value added that has been incorporated into it. In consequence, when goods cannot be sold, despite the physical effort of producing them, value added is not acknowledged, and does not exist economically.

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[7] J. Smithin, *Macroeconomic Policy and the Future of Capitalism: The Revenge of the Rentiers* (Edward Elgar, 1996. ISBN: 1 85278 731 7).

The richness of the concept of "value added" is triple. First, unlike "capital", its meaning is non-ambiguous. Second, it is one of few economic concepts that can be quantified within the exisiting accounting systems both at the macro-economic, national level (GNP), and at the enterprise level. Third, it captures the outcome of a joint production effort, i.e. the contribution of all factors of production, labour as well as capital. The concept of "value added" stresses – at least implicitly – the fundamental complementarity of factors of production. *Rerum Novarum* underlined the basic fact of economic life validated by everyday experience; "Capital cannot do without labour, nor labour without capital".[8] In the production process, labour and capital (land included) complement each other and jointly "add value" to the inputs used.

From this perspective, the double role – and responsibility – of the enterprise becomes crystal clear. On one hand, and in order to survive, it has to organise the production process, i.e. the co-operation of labour and capital, in such a way as to obtain, as its outcome, goods and services whose value the market will acknowledged. On the other side, however, the enterprise has also to manage and organise the distribution of created value added among the factors participating in the production process. Two faces of the same coin, the processes of creation and the distribution of value added, are dynamically interdependent.

The challenge to the enterprise – for the sake of simplicity let us stick to a joint stock company – in a capitalist environment, is to organise the dynamic interaction (co-operation and distribution) of factors of production so as to maximise the outcome – remuneration – for the stock of capital exposed to risk. However, every enterprise acts within a number of constraints: economic, technological but also legal. From this perspective the responsibility of the macro institutions – the state and other public bodies – double. On the one hand, they must provide the necessary conditions for the smooth continuation and extension of value-adding activities by the enterprises. On the other, they must ensure – by direct or indirect measures – the participation of all members of the society in value added sharing, through full employment or by any other means.

C. *Capital and Labour as Complements and Substitutes*

One of the most important and complex decisions that any contemporary enterprise has to take in its capacity as organiser of the dynamic inter-

[8] RN, 15, quoted in Schasching, p. 55.

action of factors of production concerns the precise factor-mix it is going to use. Factor-mix means at the same time the absolute quantities of each factor of production used, their relative proportion, and the intrinsic quality of each of them. Factor-mix decisions are crucial for the two dimensions of the enterprise mission: the technological production process, and the distribution of value added. These decisions are complex because labour and capital are at the same time complements and substitutes.

It is supposed – by economists and external analysts – that each enterprise has a long-term view and coherent policy concerning its factor-mix. This may or may not be true. What is sure, is that factor-mix is not decided once for all. Each enterprise updates its factor-mix almost daily through a chain of decisions, some of which may be radical. These decisions concern the fields of liability management (i.e. financial capital structure management), investment (i.e. physical capital management, localisation policy, R&D policy) and employment policies (human resources policies, knowledge management etc.). When taking its business decisions in the field of factor-mix, the freedom of manoeuvre of the enterprise is broadly constrained in at least three ways:

— the core-business constraint. The enterprise requires a given product/service market (or set of markets) which can only be changed in the medium term;
— the technological constraint. The enterprise has a specific level of command in the field of technology relevant to its core business(es);
— factor market constraint. According to received common sense and standard economics, production factors – labour and physical capital – are in limited supply at specific prices.

Enterprise factor-mix will emerge, and will be updated, by the successive outcomes of an ongoing iteration process. The core-business constraint gives a more or less broad indication of prices at which the products or services of enterprises can be sold; technological constraint gives an idea of the scope of factors' combinations which the enterprise is able to manage. In other words, technology will determine the limits of factor substitution which is feasible for the enterprise, and – for each possible factor-mix – the level of productivity of capital and labour, i.e. the level of relative factor productivity.

Factor market constraint, i.e relative factor prices as they appear on a broader market, will determine – out of the technologically feasible factor-mixes – those that are economically viable. Out of this last set – if it is not empty – the enterprise will choose the factor mix that maximises its objective in terms of value added distribution. In case of a joint stock company,

most probably the maximisation of returns on capital will serve as such an objective. According to the outcome of this iteration, the enterprise will hire or fire, will borrow or reduce its indebtedness, will buy new equipment or invest in new technologies.

This lengthy reasoning is perfectly in line with standard economics and boils down to two important statements:

— the feasible set of relative factor productivity is enterprise specific (because of product market and of technological command);
— relative factor prices are supposed to be objective, given by factor markets on which each enterprise is a price taker.

The conclusion is of the utmost importance: the factor-mix used by the same enterprise will change according to relative factor prices on the market. The lower the relative price of capital, the more capital-intensive the enterprise factor-mix. The same holds at a marco-level: the lower the relative price of labour, then the higher the employment level.

Economic theory argues that relative factor prices are country specific. They are influenced, on the demand side, by the needs and willingness of enterprises to pay, i.e. by the technological command of national enterprises, wheres on the supply side, the relative factor price is influenced by the relative scarcity of factors on a given market.

In fact, in an era when national market boundaries have collapsed, especially for financial capital, the reassuring picture presented by this theory has to be revised. It does not account for the changes that globalisation has introduced into the world financial landscape. A dual financial system is emerging world-wide: part of it is global and open to global players only, the rest is still compartmentalised in local sub-systems. In consequence, for instance, a very big *Fortune 500* company has more facility to access global capital markets and will obtain better conditions there when raising additional capital, than a small unknown enterprise without a track record seeking a local bank loan. Because of the duality of the financial system, the two enterprises face different relative factor prices. Thus, if the two enterprises have a similar command of technological processes, their factor-mix will look totally different – rather capital-intensive for the global enterprise, but labour intensive for the local one. Depending on how the product market and the respective technological command evolve, most probably one of the enterprises will be squeezed out of business because of relative factor prices.

The differences mentioned above will have a strong selective impact on "new entrants" into product markets. New or mature small enterprises look-

ing for new activities will most probably avoid fields and industries where competitors have access to global financial markets and the required factor-mix is capital-intensive. In fact, the capacity of the enterprise to obtain factors of production at specific prices and in specific quantities will determine the type of new (i.e. additional) activities the enterprise will choose to enter or develop and not the other way around as theory might suggest.

D. *The Pre-eminence of Capital over Labour*

Value added generated by an enterprise arises from the co-operation of the two factors of production, labour and capital. Beyond organising this co-operation and finding the appropriate factor-mix, any enterprise also has to manage the appropriate distribution of value added among the contributing factors.

In the short run, value added can be seen as a pie whose distribution is determined by contracts the enterprise has signed either with the providers of financial capital or with its employees. Once all the claims have been satisfied, the residual part of value added goes to the owners of financial capital exposed to risk. According to most of the world's legal systems, when value added is insufficient to cover all claims, labour's claims are privileged and have to be paid for first. The legal hierarchy of claims may suggest that contemporary business practice is consistent with the basic principle of Catholic Social Teaching, namely the predominance of labour over capital. In the short term perspective, a change in the market price of one of the factors of production, for instance a fall in interest rates, could be seen as good news for labour, because the remaining value added increases. This, however, is a misleading perception of enterprise behaviour. In order to understand it, the analysis must be extended to the long-term perspective.

As mentioned above, the expected return on invested capital required by the providers of funds is one of the most important parameters driving enterprise decisions in the field of factor-mix. Thus, in response to long term changes in factor prices, enterprises will modify their factor-mix, which in turn will affect the distribution of value added. For instance, when the relative price of capital for the enterprise is falling, all things being equal, the enterprise will be encouraged to adopt more capital-intensive technologies which will lead in turn – most probably – to the increase of the share of capital when value added is distributed. The shift toward more and more capital intensive technologies, due to easier and cheaper access to capital markets, explains the paradox according to which share prices rise when big enterprises announce massive layoffs.

In consequence, in the longer term perspective, labour appears as instrumental in producing a required level of returns on capital and the pre-eminence of capital over labour seems more to be the case than the reverse. This practice stands in contradiction to the basic principle of Catholic Social Teaching.

The share of labour in value added is higher by ten percentage points in small and medium enterprises than in big enterprises in europe (64.7% and 73.1%) and by almost fifteen percentage points in Japan (57% and 73.4%). For the US, data do not exist. In a ten year perspective, the gap between the two populations of enterprises seems to be steadily widening in Europe at least.[9]

According to a recent study of the sources of European competitivness "In the European Union, capital/labour substitution explains nearly half of the increase in labour productivity (i.e. total value added/amount of labour – PHD), whereas in the USA it has contributed only marginally to labour productivity growth. In Japan, it explains almost two thirds. ... There is evidence that the relative prices of labour rose faster in Europe than in the USA. Wages increased more than the prices of machinery and equipment. Real interest rates did not differ much between Europe and the USA in the last decade".[10]

Although the European Commission's conclusion acknowledges the importance of the drive towards a higher capital intensity due to falling relative prices of capital, the second part of the argument is not convincing, for two reasons at least. First, it focuses only on the changing level of wages to explain relative prices, without looking closely at the capital side where, according to our hypothesis, capital costs differ not so much across countries – because of the capital market globalisation process – but across categories of enterprises differentiated according to those that have access to global markets and the others. Second, the relevant capital price from the enterprise perspective is neither fully reflected by the "real interest rate" nor only by prices of equipment, but by the nominal cost of capital.

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[9] 'Situation Financière des Entreprises Européennes', in *Economie Européenne*, Supplément A, n. 7, Juillet 1997. The study in question was carried out the basis of the BACH data which bring together the information of the samples of companies of the eleven countries of the European Union. At the present time this is a pioneering work which was made possible by the phenomenal advance in the ways in which data can be utilised.

[10] *The Competitiveness of European Industry: Report 1998* (European Commission, 1998, ISBN: 92-828-4964-3), pp. 12-13.

E. *The Creation of Financial Assets in Global Markets* [11]

In the first paragraphs of this paper, attention is drawn to the dichotomy between the physical and financial meanings of capital. The conclusion was that from a business perspective, financial capital means more than equipment, especially in the present post-industrial world dominated by intangible assets.

According to standard economic theory, at a given moment in time the physical amount of total available capital is limited. As for any scarce resource, taking into account the stock of capital (real) in the economy, market forces of supply and demand will allocate it, and determine its price – interest rate for debts, required rate of return for equity – in accordance with its productivity and scarcity.

In real business life, where only financial capital counts, the critical question to ask is whether it makes sense to consider financial capital as a limited stock. If this were not the case, if there were reasons to consider the supply of capital as not being physically limited, then the classical price mechanism – postulated by theory – would have difficulties in operating. In consequence, the whole construct of "relative factor prices" as objective, i.e. not enterprise specific, would be put in question.

Financial assets are created when two actors exchange money for "a piece of paper" which stands for a bundle of property rights, either of physical goods or other financial assets. The difficulty in analysing the creation of financial assets comes from the fact that their almost infinite variety combines into a multi-layer pyramid. For instance, less than 10% of all transactions on stock markets generate financial flows that go to enterprises against new shares because 90% of these transactions are "second hand" transactions.

Without entering the tricky field of statistical measurement, a general point can be made. Due to prudential regulations, financial institutions cannot legally extend their lending infinitely, however, technically speaking, their margin of manoeuvre in this field is very important. The willingness to take additional risks is the only truly limiting factor in the creation of financial assets. In other terms, additional financial assets can be created instantly, solely by virtue of an agreement (contract) between two actors, each of them acting within a specific framework of constraints and objectives. In general, in times of increasing globalisation, providers of funds

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[11] This part of the argument is developed in some length by P. Dembinski, 'The Safe Landing of the Financial Baloon is not Impossible', in *Finance & Bien Commun/Common*, autumn 1998.

seem to prefer certain types of clients to others: namely very large enterprises do not have any problems in raising additional funds, while small and lesser known companies are confronted with a kind of credit rationing.

The global capital market offers an almost unlimited supply of funds to the very big enterprises "the global players". Not only do these multinational companies have access to funds at very low costs, but they are also structurally able to locate their productive capacities in regions where labour costs are low. The drive to substitute capital for labour is only limited by ... the low cost of labour. In any case, for these enterprises, the cost of capital will determine the amount of labour used and not the other way around. The situation for the enterprises that do not have access to an unlimited supply of funds, but are exposed to more or less open rationing, is different: the limited amount of capital will determine the amount of labour used.

For each of the two groups of enterprises, the readiness to provide capital by financial institutions (price and quantity) will determine the relative factor prices, and thus, indirectly, the level of employment. For both groups the same capitalist logic applies, aiming at the highest possible return on invested capital. In both cases, as stated above, the principle of the primacy of labour over capital is violated. The only difference will be in the use of factor-mixes: the enterprises for which capital is cheaper will tend to substitute capital for more labour.

F. *Relative Factor Prices Matter*

Two preliminary conclusions can be drawn at this point. The first one refers to the structure of factor markets, the second to factor prices.

One of the least disputed effects of globalisation, is the emergence of a global capital market. The non-financial enterprises able to tap this market are no more than a couple of thousands world-wide. They are the biggest enterprises, the best known and also those with the best financial management. Below this global market a whole array of more limited, specialised or local markets exist. They differ in many ways but are all interdependent, linked to the global market by a pyramid of intermediaries. The access to these markets depends on the quality of the enterprise. In other words, the cost of capital today is much more enterprise specific that received economic theory would suggest. The emerging new setting of the world financial system will have a strong impact on the type of activities that each of these groups of enterprises will be able to carry out.

The second conclusion is by no means new. It is simply to recall that the factor-mix, at the enterprise but also at the national level, depends on

relative factor prices. As the price of capital is more and more enterprise specific, the capacity of governments to steer the national relative factor prices by regulating the labour market alone are very limited. The effectiveness of this steering, and its impact on factor-mix used by national enterprises, depends as much on the evolution of capital prices as on labour regulation *per se*.

The empirical part of this paper presents some findings concerning the factor-mixes used and factor substituability for two types of American enterprises: the non-financial enterprises that are listed on Wall Street (the New York Stock Exchange), and the rest of American non-financial enterprises.

II. Factor substituability and factor-mix: the American case

A. *The Data Used*

Two sets of enterprises are used in this analysis:

— The first set, called "NYSE", contains all the non-financial enterprises that are listed on the New York Stock Exchange; the data are derived directly from their accounting reports thanks to the *Compustat* database.

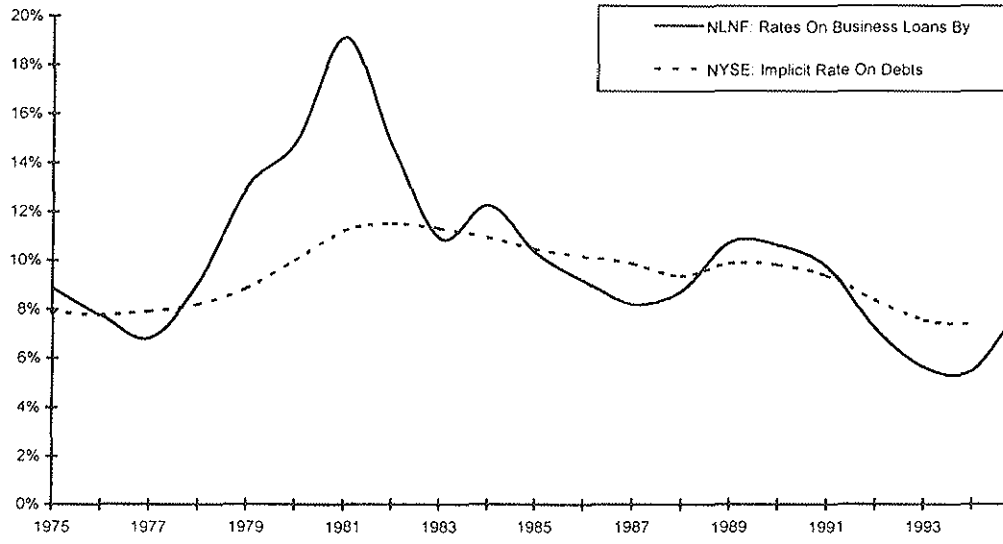
— The second set, called "NLNF", contains non-listed non-financial American enterprises: the data for these enterprises are derived by combining OECD/Federal Reserve data with the *Compustat* ones.[12]

B. *Cost Compared*

Funds borrowed within the financial system (debts) entail a cost to companies. The so-called "implicit interest rate" can be calculated by dividing total gross interest expenses by the companies' outstanding debts. Chart 1 presents such calculation for NYSE companies and compares it with the rates which NLNF companies have paid for their debts. As OECD/Federal Reserve financial statistics record only net interest expenses, whereas gross expenses would be required to calculate implicit interest rates, the "rates on business loans by banks" published by the Federal Reserve, weighted according to NLNF capital structure, have been used as prudent approximations.

The evidence in Chart 1 is clear: NYSE are able to borrow at a lower, but above all, at a much smoother cost and to keep their financing costs

[12] For more methodological information see P.H. Dembinski, 'Will the Financial Balloon Fly or Crash', Observatoire de la Finance, Geneva, occasional paper n. 1/1998, to be published. This section draws heavily on the above mentioned work.



Source: S&P Compustat, Federal Reserve Bulletin

Chart 1: Costs of Borrowed Funds.

well below bank or market rates. On top of this, it seems that trade debt has eased the cost of debts to NSYE even further; this aspect however is not explicitly acknowledged here.

C. *Factor Productivity Levels Compared*

The amount of value added generated by NYSE companies has been calculated from their financial statements as the sum total of labour compensation costs, net interest payments and pre-tax profits. The contribution of NYSE-listed companies to the overall American Gross National Product appears to have fluctuated around 20% over the past 20 years (1975 to 1994), with a peak of over 23% in 1978.

Chart 2 contains three more specific pointers to the relative contribution of NYSE companies to the non-government and non-financial portion of the US economy.

— NYSE companies' contribution to value added has fluctuated between 45% and 40%, with a slight downward trend.
— In 1975, NYSE companies employed 13.2 million people out of 46.8 million working in all non-financial US companies, or 28%. By 1977

Source: S&P Compustat, OECD National Accounts II

Chart 2: Weight of NYSE in Total Non-financial Sector.

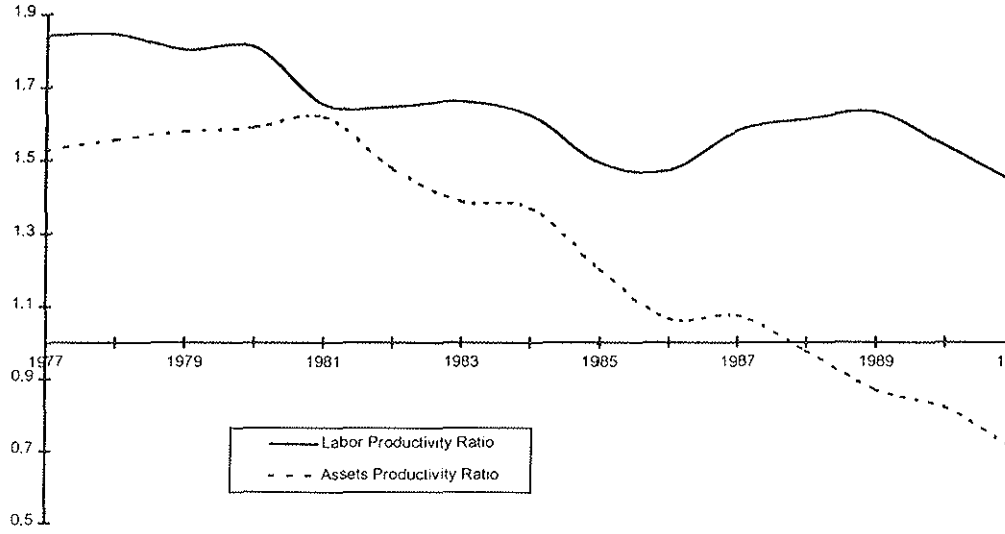
this proportion had risen slightly to 32%, and has fluctuated around this level ever since.

— The third element of comparison is NYSE companies' contribution to total assets in the non-financial sector.[13] Until 1981, this was constantly lower than the same companies' contribution to value added. Between 1981 and 1994 the figure share shot up from 32% to almost 58% of the total.

Chart 2 shows that listed companies' share of value added and their share of employment has remained almost constant over the last twenty years, whereas their share of total assets has soared. This differing trend suggests that a major change may have taken place in the mix of production factors used by NYSE and NLNF companies. The chart shows that NYSE companies have been absorbing a growing proportion of the funds available to US companies, and that NYSE companies have been able to raise the necessary financial resources more cheaply than non-listed companies.

Chart 3 sheds additional light on the changes in factor-mix and factor

[13] In calculating this ratio, total book-value assets – including working capital and financial assets – have been used for both sets.



Source: S&P Compustat, OECD National Accounts II

Chart 3: Factor Productivity Levels in Comparison (NYSE to NLNF).

productivity by comparing the NYSE and NLNF companies.[14] It shows that labour productivity (value added per employee) has been significantly higher in NYSE companies than in NLNF companies, although this advantage is being eroded over time. In 1979, labour in listed companies was outperforming labour in the NLNF sector by 80%, but by the end of the period this advantage had been reduced by almost half.

Where asset productivity is concerned, the relative situation of the two groups of companies differs fundamentally. Until 1981/82, asset productivity in the NYSE set was at least 50% higher than in the NLNF set. From this point on, however, the capital productivity of listed companies tended to fall each year in relation to that of NLNF companies. By the late 1980s a reversal had occurred, and by the end of the period one dollar worth of assets was 45% more productive in NLNF than in NYSE companies.

Standard microeconomics suggests that the only reason why a production factor should be allowed to become less productive without the company concerned going bankrupt is a change in its relative price. All other

[14] For reasons of data availability, the period under consideration is shorter than usual: from 1977 to 1991.

things being equal, a decrease in relative price means that the availability of the given factor will increase accordingly. This explanation is consistent with our earlier evidence concerning the conditions under which NYSE companies have had access to capital markets: the price they have been paying for capital is significantly lower than that paid by NLNF companies, and the availability of funding has been unlimited.

This shows that NYSE companies have been losing their advantage in terms of factor productivity since the beginning of the 1980s. Although labour is still clearly more productive in these companies than in the NLNF, assets are currently much more productive in the NLNF than in the NYSE companies.

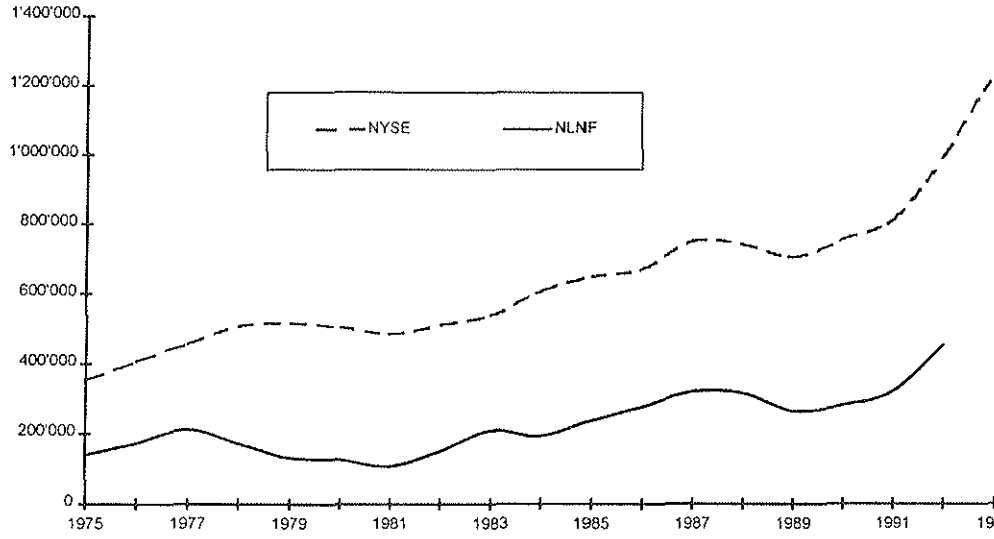
D. *The Concept of "Combined Productivity"*

In order to compare the productivity of sets of companies using a completely different factor-mix and operating in different factor markets, and particularly in different segments of the financial system, a new concept of productivity has to be developed. The concept of "combined productivity" presented below is an attempt in this direction. It has been devised and calculated for the NYSE and NLNF companies.

"Combined productivity" explicitly takes account of the specific costs groups of companies are paying for labour and capital, and measures the productivity of the factor-mix which a given company is using rather than the productivity of a single factor. This concept takes full account of the factor prices which every company is facing. The basic element involved in calculating combined productivity is the "asset equivalent of an employee" (AEE). AEE is an attempt to calculate the substation rate, between labour and capital, specific to the enterprise. The value of the AEE is equal to the amount of additional debt (assets) that a given company could contract if, instead of hiring an additional employee in return for the average compensation package, it used the corresponding amount to pay interest on additional debt. In this sense the AEE can be seen as a proxy for the average factor substitution ratio. The value of the AEE depends on two variables which are related to factor costs: the average compensation package, and the interest rate which the company pays on its debts.

Chart 4 shows the AEE as calculated for NYSE and for NLNF companies.[15] The chart reveals dramatic differences in the amount of additional assets that an additional compensation package can pay for: the AEE for

[15] Average levels of compensation packages are derived from the Compustat database for NYSE companies, and estimated from OECD National Accounts for NLNF ones. The implicit interest rates on all liabilities are those used in Chart 1.



Source: S&P Compustat, OECD National Accounts II

Chart 4: Asset Equivalent of an Employee.

listed companies is consistently at least twice as high as for NLNF companies. This means that, whereas an average NLNF company has to choose between one additional employee and $450,000 worth of additional assets, for NYSE companies the choice is between one additional employee or $1,000,000 worth of additional assets.

The striking difference in relative factor prices explains why the two sets of companies behave very differently when confronted with decisions concerning their factor-mix. Because, in terms of assets, one additional employee is much more expensive for NYSE than for NLNF companies, the rational behaviour for NYSE companies is to be far more capital-intensive than NLNF ones. Conversely, NLNF companies are strongly biased towards a labour-intensive factor-mix.

It should be stressed that the aforementioned disparities in AAE strongly contradict one of the basic assumptions of received economic theory, namely that factor markets are undistorted and that all purchasing companies are consequently faced with the same factor prices.

In view of the fact that listed companies are highly capital-intensive (as shown above), their labour-force requirements will be specific and polarised. At the low end of the market, such companies will either replace

unskilled factory-floor workers in the US with fully automated equipment, or maintain labour-intensive production but transfer it abroad, where compensation packages are lower. At the high end of the labour market, where human capital is required either because it cannot be replaced for technical reasons or because the required capital expenditure would exceed the AEE, NYSE companies will hire highly qualified people and offer them excellent compensation packages. In other words, NYSE companies are logically shedding low-skilled jobs in the US and creating highly sophisticated ones piecemeal.

Faced with different factor market conditions, NLNF companies, which are mainly small and medium-sized, can pursue one of three different strategies in order to survive:

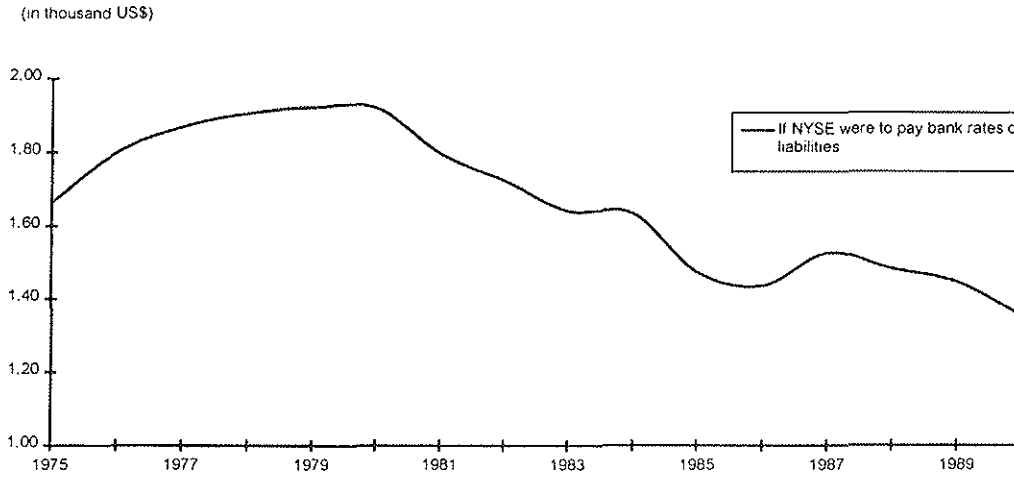
— They can occupy niches left by big companies in fields where skilled labour still cannot be replaced by capital. This will happen at the low end of the market in personal services and distribution, and will lead to the creation of new jobs whose quality is poor and whose sustainability is uncertain. At the high end of the market this will happen in imaginative high-tech ventures with highly motivated people whose skills have not (yet) been properly priced by the labour market.
— They can fight for access to capital markets (NASDAQ) and then develop along a capital-intensive path, with AEEs approaching those of NYSE companies;
— They can hope to be taken over by a listed company, failing which they will have to close down sooner or later.

The AEE is a first step towards "combined productivity", in the sense that it acts as a bridge between the naturally heterogeneous factors labour and capital, at least for calculation purposes. In fact, the AEE concept allows either all of a company's assets to be converted into employee-equivalents or all of its labour costs to be converted into asset-equivalents.[16] Then AEE can then be added to the number of people actually employed, and finally the combined productivity can be calculated. The same procedure could be used to calculate combined productivity from the asset side.

Chart 5 compares combined productivity (based on employee-equivalents).

Combined productivity is higher in NYSE than in NLNF companies. However, the relative advantage of the NYSE companies is being eroded

[16] The underlying hypothesis assumes that all assets are paid for as if they were all debts. This leads to an overestimate of the AEE in the case of many small companies where the owner's income is a mixture of labour and equity capital remuneration.



Source: S&P Compustat, OECD National Accounts II, OECD Non-Financial Enterprises Financial Stat

Chart 5: Ratio of Combined Productivities (NYSE to NLNF).

over the long term. The strongly capital-intensive factor mix chosen by NYSE companies appears to be losing out to the more labour-intensive mix used by NLNF ones. The NYSE companies' lead in terms of combined productivity was reduced by half between 1975 and 1991. Two factors explain this difference: the privileged access of NYSE to capital markets and their ability to manage their balance-sheets more effectively, on both the asset and liability sides.

In conclusion, the analysis in this section has shown the following paradox: at a time when NYSE companies were losing their advantage over NLNF companies in terms of combined factor productivity, the financial system was granting them ever better financing terms and letting them have an unlimited quantity of funds. Relative factor prices have been diverging for the two sets of enterprises despite the opposite change in relative factor productivities.

Since 1975, listed companies have been able to raise funds at premium prices, owing on the one hand to the willingness of financial markets to provide what they want, and on the other hand to their strong negotiating position in relation to their suppliers. Premium pricing has been available even though the combined productivity of listed companies has been systematically falling as compared with the NLNF sector (which explains why their contribution to total value added – see Chart 2 – has not increased).

These facts call into question the efficiency of the financial system in

allocating available resources within the US economy. The critical role that capital markets, and the forces on the supply side that drive them, have in determining the factor price ratio for different enterprises has been studied in some depth in the US case. More research is needed to identify all the intricacies of this relationship, as well as to look at the situation in other parts of the world, especially Japan and the European Union. In the meantime, as the different hypothesis articulated in the first part of this paper have not been invalidated so far, and because they shed new light on the prevalent relationship between capital and labour, the concluding part of the paper aims at drawing a few preliminary conclusions.

III. And so what?

Three sets of conclusions are drawn here. Those referring to a new program of research, those directed at economic policy on the labour market, and finally the most important ones directed towards Catholic Social Teaching.

A. *Unemployment Policy: Beyond the Deadlock*

The arguments developed in this paper suggest that relative factor prices are critical in determining the quantity of labour that enterprises producing within national boundaries will use. In order to increase the labour intensity of production, governments, especially European ones, strive to lower the price of labour. This, however, is only part of the story. The other avenue would be to modify the relative price of labour by increasing that of capital.

Answers to unemployment have to be looked for, in terms of policy response, not only in the labour market, but also in the capital market. It is not impossible that labour intensity of production would grow if real interest rates grew. Very little has been attempted in this direction. Even at the policy level, the prominence of capital is accepted as given, as a fatality.

	Labour regulated	Labour unregulated
Capital regulated	National solutions, prevalent until late 1970s, pre-eminence of labour over capital not impossible	To be experienced ; in theory would allow for the pre-eminence of labour over capital
Capital unregulated	European situation - in most countries - since early 1970s - high unemployment ; pre-eminence of capital over labour.	American situation : low level of unemployment leading to an apparently high level of « poor employment » ; pre-eminence of capital over labour

Chart 6: Typology of factor.

Chart 6 presents a typology of the ways that factor-mix used by national enterprises could be influenced by different types of public interventions. This chart simplifies reality, but hopefully not beyond the point that would make it meaningless. Out of the four possible solutions, three of those shown have been experienced in practice. Since the early 1970s a trend in deregulation of financial and capital markets has begun in order to achieve a higher level of economic efficiency. The philosophical premises underlying this trend have not, until now, been properly analysed. As far as economic consequences are concerned, they have been more often than not taken for granted, but not properly assessed. The US evidence, presented in section two of this paper, suggests that the allocative efficiency of the financial system should not be taken for granted.

The argument presented in this paper has shown at least three lines for reflection and research:

— analyse closely and on the enterprise level the consequences that differing factor prices have on the factor-mix used;
— question more clearly the received but not properly investigated efficiency of financial markets in allocating capital;
— devise ways and methods – with regard to their social and economic consequences as well – that could increase the cost of capital to enterprises when lowering their labour cost. A more even sharing of the overall burden of taxation between the two factors could be a positive direction to take.

B. *Towards a New Research Programme*

The questions raised in this paper require a new approach to economic research. Economists, finance specialists and business specialists have to join forces because they are concerned with the same basic and fundamental questions, they look at the same phenomena, ask similar or complementary questions. However, today they live in three separate scientific worlds: each profession is using its own concepts, its own theories and models, its own data and its own methodologies to collect them. The resulting cacophony increases the quantity of ink used, but does not lead to any unified understanding of the contemporary economy, which has dramatically changed in the last twenty years.

Nation-states have lost a lot of their supremacy, many economic and financial phenomena are transnational and global. The multinational enterprises – global players – seem to be today the major structuring force of the world economy. The meaning and consequence of such a shift in impor-

tance from the state to markets and enterprises have to be properly grasped and conceptualised. The time is ripe to focus research on mechanisms of interdependence between national economies, global markets and the very big enterprises. These new realities require new concepts and data which, in turn, should be confronted in a constructive way with received economic theory, in order to up date it where possible. This is the only way to give policy makers the framework they require.

C. *Catholic Social Teaching and the Challenges of Finance in the Post-industrial Age*

Until now Catholic Social Teaching has kept outside of the world of finance. The time has come to recognise the crucial importance of finance in the present-day world, and the specific conditions under which the financial system operates. Capital today has little in common with the "tool of production" observed by Leo XIII when he was preparing *Rerum Novarum*. Present day capitalism is built on the pre-eminence of financial capital – whatever is its real counterpart over labour. This situation has many roots and consequences for the contemporary world. The time seems ripe for Catholic Social Teaching to take stock of these changes and to address these issues with its usual reserve and prudence. In taking up this challenge, Catholic Social Teaching would make a move towards meeting the expectations of many Christians and of professionals working in finance who strive to give a meaning to their everyday work.

Among many economic issues linked to the process of "financiarisation" that would require a fresh look by Catholic Social Teaching, three are specially worth mentioning.

— the question of financing intangible assets, of related property rights and particularly of "human capital";
— the process of financial asset creation, which looks more and more like a creation *ex nihilo* of assets that, by their sheer existence, are entitled to returns;
— the aspiration, more and more widely spread across Western societies, to a future which is riskless because it is financially insured, should also be addressed.

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