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Key note 1

The intellectual division of labour: a stake in the current crisis?

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The core of Labour Process Theory was initially constituted by two hypothesis, mainly inspired by Braverman's work: first, the intellectual division of labour is a form of division of labour specific to capital-labour relationship, second, the successive stages of intellectual division of labour were related to the stages of capitalism. To avoid ambiguity, these two hypotheses will be thereafter named: intellectual division of labour theory, IDL theory.

After founding considerable success in the 70s, the IDL theory was criticized and in many respects lost its importance in scientific debates in 80s and during the 90s. I would like to propose my own explanation for this diminution of interest, explanation based, of course, mainly on the French context, and on my own research trajectory. In the same time, I would like to talk also about the attempts to develop the IDL theory and to surmount its insufficiencies and its ambiguities. After, I will suggest some possible reasons why the intellectual division of labour analysis could become relevant once more, because of the scientific progresses realized since the 70s and because of the nature of the current crisis.

The IDL thesis appeared simultaneously and often independently in several countries during the work crisis of the end of the 60s and the first half of the 70s: Italy, France, USA, Great Britain, Germany and so on. It was developed by researchers who were, in the same time and at that time, active in different left political groups or parties, and who had a non orthodox reading of Marx works. In France, I was one of those. My first book published in 1974 was titled *Deskilling / up-skilling process of labour force*. It was re-titled for its third edition in 1977: *The capitalist division of labour*. The independent and different political origins of IDL thesis can explain the fact it was presented and developed not exactly in a same way by different authors.

Two reasons seem to have contributed to the ebb of deskilling / up skilling arguments during the 80s and 90s: a durable misunderstanding of intellectual division of labour thesis and the change of era occurred mid 70s.

1. The ebb was not due to the criticism, but to the durable misunderstanding of intellectual division of labour thesis

1.1. Criticism of deskilling thesis was numerous, but not essential to explain the ebb of the thesis.

A first type of criticism said that the workers were not so deskilled than it was affirmed for several reasons. First they resisted to deskilling. They changed the rules to their advantage. Second, the production process was not so predetermined. Many incidents occurred, the workers were obliged to prevent or to repair their effects, included on assembly line, for the planned volume of production could be achieved. Third, workers had a tacit knowledge about the tools, the materials and required human relations and so on, which allowed them to gain more autonomy of time and motion. Fourth, the tacit knowledge was voluntary not re-known by the companies to avoid paying best wages. Fifth, efficiency required not only individual competencies but above all collective know-how.

A second type of criticism said like the contrary. The argument was that finally, workers accepted frequently the deskilling. For some of them, it would be the unique means to have a relative convenient wage, given their lack of competence and learning. Other argument was that workers made a cost-benefit calculation and after that they consented frequently to be exploited in these conditions. Others said that workers were under ideological pressure of employers and they internalized psychologically and physically the constraints. Others considered that workers prefer a deskilled job, because they could mentally evade from their tasks and took their payment to enjoy life away from the factory.

All the previous evidences were of course well known by Braverman and the others critical researchers. Don't forget that Braverman was long time worker, that some of the other researchers worked in plant during some years for political reasons, all were activists in permanent contact with workers, specially during long strikes, and they have to fight against the material and ideological grip of business leaders, against fear and individual disengagement. If one read again Braverman's book and the others critical works of the 70s, all these evidences were mentioned.

So why, we did not insist about that? The reason was that the scientific, ideological and political stake was another. The 60s were the triumph of the consumption society. The recent welfare for many people was attributed to the on-going technical and scientific revolution. Including the communist parties agreed with that. The automation was said will be able to free man from degrading tasks and transform the work in a fulfilling intellectual activity. Don't forget that many respected academics pretended to give proofs of that. All strata of society were impregnated by this ideology. In consequence, for us it was crucial to demonstrate that the emergent automation in fact deskilled the work and workers, and that it was to be considered as the fourth phase of intellectual division of labour initiated by the capital-labour relationship, for the first time in the history

1.2. The confusion of IDL, Taylorism, Fordism and fragmentation of tasks

All the critical researchers did not emphasize exactly on the same aspects of intellectual division of labour. Some of us insisted on Taylorism, work scientific organization and assembly line, as the climax of the intellectual division of labour. Others, as me, on the capitalist technical change considered as the main way to deskill-up skill, to polarize the qualifications, to control the labour force. Others, as Braverman, both on the organizational division of labour and on the technical change, finally inspired by the same general Taylorist principles.

To present Taylor as the symbol of the intellectual division of labour was perfect to convince everybody. Taylor voiced clearly the necessity to separate the conception and the execution of work to eliminate the worker's 'soldiering' and to decompose the tasks. But, may be independently of the will of the authors, this presentation had some undesirable effects until today, and had contributed, it seems to me, to weaken and even discredit the IDL thesis.

The mix of intellectual division of labour, Taylorism, Fordism and fragmentation of tasks had three consequences: the regrouping of operations was often interpreted as the beginning of the reversal of intellectual division of labour; the conceptual rupture existing between Taylorist principles and Fordist principles was not perceived; the social and economical contradictions of intellectual division of labour were ignored or forgotten.

1.2.1. The regrouping of operations was often interpreted as the beginning of the reversal of intellectual division of labour

Indeed, it is a fact that many people, many teachers and many researchers confused intellectual division of labour, Taylorism, Fordism and fragmentation of tasks. So when some capitalist companies began to criticize Taylorist spirit in the second part of the 70s, when attempts to increase the autonomy of workers appeared in some European plants, when big automatized factories in steel industry, petrochemical and nuclear industries required essentially technicians and engineers controlling all the process from screens and computers, when quality circles were generalising in Japanese companies, when teamwork diffused in the world, many people considered that the new forms of work organization and the automated plants had initiated a reversal of the intellectual division labour and the up-skilling of workers. The second logical conclusion made was that separation of design and execution of work was not linked to the capital-labour relationship, but instead to cultural traditions or managerial models. So the heart of theory of division of labour could only appear invalidated.

Some of the supporters of the presentation of the division of labour from Taylor method tried of course to refute or to limit these conclusions. But, the answers were sometime surprising. For example in France, but may be elsewhere, was invented an unidentified flying concept in our scientific field: the "process manufacturing" opposed to "discreet manufacturing". The first would require intellectual competences because of the chemical transformation of the product. The second, that consisted in assembling pieces, could be, because of that, decomposed in fragmented operations. But, if the intellectual division of labour was possible only when the product was decomposable in pieces, the thesis is of course discredited.

Other critique was to say that the re-composition of tasks and quality circles were ideological means that did not change the real skill level of workers. Indeed it was often the case, but sometime not, because of a particular moment in the automation process or a particular profit strategy. So, with scientific rigor, that obliged to reformulate, to adapt and to modify the core thesis. Other critique was to consider the regrouping of tasks, the teamwork and so on as only new means to intensify, to control and to exploit still more the workers. The more important for capital would to obtain that the worker exploit themselves by acceptance, internalization, and adhesion to the objectives of the company and to control the result, whatever the means employed. Of course, it was true, but that fact was not specific to capital-labour relationship and it was not enough to explain the evolution of skills in capitalist enterprises.

In conclusion, the focus on Taylorist and Fordist principles impeded to respond in a convincing way, seriously distorted the history and obliged finally to abandon the initial core theory. How go out this dead end?

First remark. It is important to recall that Marx based his periodization of intellectual division of labour, within the capital-labour relationship, not on the organisation of tasks, (that was probably as diverse at his time as it is today), but on the technical base of these organizations. It was clear at the third stage, that he called the “big industry”, but also at the two first stages: simple capitalist cooperation of workers, and the manufacture work division. This meant that for Marx the intellectual division of labour was not the more or less repartition of tasks to do, after technical change. The intellectual division of labour developed mainly by the tools and the machines designed according to the requirements of capital. The work organization was only a choice of repartition of the tasks that remained to do, after technical change.

So, of course, the principle of separation of conception and execution began with the capital-labour relation, long time before Taylor. It was neither an invention nor a specificity of Taylorism. For the contemporaries, the intellectual division of labour between the two first stages of IDL was as important as between mechanisation and automation. So when Taylor intervened, the workers had lost since long time the control not only of all production process, but also of the part of the process and of their specialized task. So it is very incorrect to say that the work was as a craftsman work before Taylorism.

In fact, the contribution of Taylor was very historically and conceptually limited. He proposed only a method to establish the optimal sequence, the optimal succession of operations, in terms of time, quality and, as he claimed, fatigue, to do all types of task and work, whether qualified or not, whether manual or mental, whether in factories or in office. And so that workers accepted to change their way to do, he suggested to give them a part of the gains of productivity obtained. He took the work as it was, and he only optimized, rationalized its execution to reduce the time to do each task. He did not break, neither the sequence according to the logical architecture of the product nor to the intellectual logic of the task. The worker did not decide the sequence of operations, but the sequence remained intelligible for him and logical.

1.2.2. The conceptual rupture existing between Taylorist principles and Fordist principles was not perceived

A real leap forward in the intellectual division of assembly work was the mechanised assembly line, the conveyor belt, as the specialized machine tools were it for the manufacturing work. The moving line was not designed to impose mechanically the optimal succession of operations established by Taylor method. For the first time, the logic of task was broken. The successive operations to do were without intellectual logical link, because of the necessity to saturate the cycle time by the operations made by the worker, the necessity to “balance” the line.

Taylor, many years after the publishing of his method, said rightly that his method did not opposed to the fragmentation of tasks, but that its method did not impose that. And effectively, Ford refused Taylor method, because it did not allow, not only to impose physically the rate, but above all to avoid to continue to depend on the scarcity and the requirements of skilled workers. For the first time, with the conveyor belt, the worker did not need to understand, to know the logic of his task. The real conceptual rupture was between Taylor and Ford.

So it is a complete misinterpretation to mix Taylorism and Fordism. They are confused on the base of their very superficial similarity: the decomposition of tasks. But with Taylor the tasks were analytically decomposed to establish the best way to realize all the operations constitutive of each task in their logical succession, not necessary to fragment it and not to dislocate it. With Ford, the tasks were completely fragmented but, above all, dislocated and the fragments dispersed independently on the line, only to “balance” the line,

only to saturate the cycle time of each worker. It was the conveyor belt that required to dislocate the task and to disperse the operations, not the Taylor method. Taylor method is now presented as a prerequisite for fix the assembly work on line. But it was not the case. On the contrary, the approach was completely reversed, because with Ford it was no more necessary to observe how to do a better worker. For the first time, the worker could not understand anything and nevertheless succeeded to do the work. The rupture was not the rationalisation of work, but the introduction of a special machinery to assemble. The conveyor belt was the third stage of intellectual division of labour for the assembly work.

1.2.3. The social and economical contradictions of intellectual division of labour were ignored or forgotten

The mix between Taylorism and Fordism impedes also to see or leads to forget another crucial point. The conveyor belt materializes the social contradiction of the intellectual division of labour and so of the capital-labour relationship.

Indeed it is impossible to balance completely and permanently a line, because the sum of times to realize the elementary operations at each station by each worker is above or below the cycle time and varied strongly according to the diversity of the products. In any case either the production is disrupted or time is lost. Frequently the whole time used to realize the elementary operations represents only 70% of the total theoretical time on a moving line. The moving line impedes structurally to exploit all the time. It is a stimulating paradox that a machine designed to impose a work rate makes finally waste time.

Effectively workers can assemble a whole car at a fixed station in less time than on moving line, because they can cooperate and gain time thanks to a logical succession of tasks according to the variable conditions of production, as it was demonstrated in Volvo Uddevalla plant. It is also useful to recall that Ford produced 395.000 Ford T at the price of \$495 before the introduction of the moving line in its plants. Mass production and lower price are not related to conveyor belt. Its previous production system was not technically an obstacle to produce more. The obstacle was that previous system needed skilled workers to assemble. Ford could not recruit more of them to increase the production. It needed to deskill work to recruit unskilled workers. Assembly line allowed that, not Taylor method. Assembly line machinery shows that the main way to deskill-up skill the workers, to intellectually divided the work is the technical change conceived according to the requirements of capital.

1.3. Capitalist technical change

We must recognize that the authors that criticize the evolution of work in capitalist conditions at the beginning of 70s were not completely convincing when they said that the machines were actually a way to divide intellectually the work. Including Braverman's arguments, including my own arguments, in my book entirely dedicated to capitalist technical change, were not sufficient.

Of course, engineers, scientists designed tools and machines and not the craftsmen or professional workers as previously. Of course, we have shown further that the work was deskilled and intellectually divided by the introduction of automated machines, despite the regrouping of tasks allowed by them. Indeed, for example the automated machines for machining in 80s allowed to give to the machine operator, not only the monitoring, but also the tools adjustment, the geometrical check, the rework, the little troubleshooting and the little maintenance, realized previously by separate professional workers. That was possible because the time to do these intermittent tasks was considerably reduced and, above all, because they were considerably simplified, their intellectual content being materialized in

the hardware and in the software. In the same time the work of maintenance workers could be divided for the first time. So the regrouping of tasks was the main way to separate even more design and execution of work.

But we did respond to the answer: how could one increase the productivity without divide intellectually the work? The risk of course was to be accused of regretting the past, to be the defenders of old forms of work and to be against the progress. Indeed, to develop news activities, a society needed to reduce the time to do its current activities. The tools, the objects were always the materialization of the intelligence of their designers with a view to attaining their goal, more efficiently from their point of view.

The classical response, used by Braverman, was to consider that it is enough to give the drive of automated machines to skilled workers, that could not only monitor, but also program, maintain and eventually repair and contribute to made the device reliable. The problem was that the software was written to pre-determine the possible intervention of the worker, moreover and above all the physical characteristics of automated machines impeded to understand the process, to prevent incidents and to deal with hazards. The company leaders preferred a quick recovery of production and often delayed the reliability. Doing that, production stoppages might be frequent and the search for causes of incidents much more complicated. That is the contradiction of intellectual division of labour at the stage of capitalist automation.

To understand the reasoning of designers of automated machines and to know how they took in account the requirements of capital, included unconsciously, we have analysed the design process. We have identified six assumptions that guided the design work of engineers. These assumptions were: the actual functioning of an automated machine could and must match to its theoretical functioning; the return on investment was even higher than workforce reduction was significant and rapid; rapid repair was fundamental to the availability of automated lines; seeking a "good compromise" as an optimization strategy; the superiority of the technical solution over every other; the greatest uncertainties about production were human and social.

The results of this inquiry were a good starting point to define the principles and the material characteristics of an automation requiring a real and durable reversal of intellectual division of labour. We had the opportunity to do that at the end of 80s with engineers and workers in a mineral water company, designing an automated bottling line. By this cooperative research, we have demonstrated that one could increase both the performances and the skilling of workers giving priority to reliability over rapid repair. To develop a "short circuit" of reliability, to increase the automation taking in account the concrete conditions of production, the machines must be "readable" and "intelligible", "testable" and "analysable", "adaptable" and "modifiable", by the workers and the engineers working with them. We have designed an automated bottling line according to these criteria.

But to implement this alternative automation, some social conditions were of course necessary. Employees would not participate in increasing reliability, and therefore would not work to directly reduce the number of jobs needed to achieve a given output level, unless they were guaranteed, not only of secure employment, but also employment in which the new abilities they have acquired through their work of increasing reliability could be reutilized and further developed. To do this, a company had to plan its future, not only in terms of the development of its market and of ways to ensure returns on its capital, but also in terms of the development of the abilities of its employees, a development liable to lead the employees far from their original skill.

The CEO of that company was considered in France as an open-minded man, open to social progress. He was well known for his anti-Taylorist statements, as Gilhenhammer of Volvo was in Sweden. What happened? The project was rejected: too risky. After several

experiences and analyses of other cases, I think we have clearly verified that this type of automation process cannot be developed durably within capital-labour relationship, as the theoretical reasoning for suspected.

Despite the loss of interest in the IDL theory, we have significantly progressed in the understanding of deskilling / up-skilling process, and we have results necessary to re-boost this research question, above all if the current crisis is an opportunity to do that. We have now to verify if it is the case for the second aspect of the theory: the link between IDL stages and capitalism stages

2. The second reason of the ebb of the deskilling theory was the change of era

2.1. Oil and currency crisis of 70s changed the priority of employees

The priority was not the struggle against the capitalist division of labour, but against job cuts and flexibility. So the priority for researchers also changed. We had to understand why some firms and countries became more prosperous and why others declined in a comparative context, why and how the labour market and unemployment was more and more segmented by status, by gender, by national origin and so on. This concern was at the origin of GERPISA. When it was founded in 1981, it was only an interdisciplinary French network dedicated to the analysis of automobile sector taken as a research field. It became an international network, ten years later.

The problem for the defenders of IDL theory was that normally this theory must give us the conceptual tools to analyse what was happening and to forecast what would happen. Indeed in the core theory, at each stage of intellectual division of labour corresponded theoretically a form of capitalism: manufacture, big industry and monopoly. Harry Braverman, inspired by Paul Baran and Paul Sweezy, was one among us that went further in this direction. He linked clearly Taylorism-Fordism-automation with monopoly capitalism.

Personally, in my book *Capitalist division of labour*, what I made it was only to show two things: first, that the transition between two stages of IDL was necessarily a crucial phase in class struggle and that the outcome of the battle determined for a long time the trajectories of the companies and of employees; second, I showed the consequences of deskilling-up skilling of labour force on the employment volume, on the use of differences within the labour force by gender, national or professional origins, to pay less and divide the employees, on the evolution of the national and international spatial division of labour and on the academic and occupational trajectories of employees according to their generation. Few years later, I tried to go further.

In my second book published in 1979: *The failure of French Steel industry, 1945-1979*, I proposed to ultimately explain this failure by the inability of the main collective actors (companies owners and leaders of Steel Industry and of steel-consuming industries, Banks, Unions, State, Regions, European authorities) to impose to the others their own solution, or to build a compromise between them, to manage the transition from mechanized labour to automated labour in capitalist context. Finally the right government of Raymond Barre in France was obliged to nationalize all the French steel companies. But the demonstration, limited to an industrial sector, was insufficient.

2.2. A stimulating research road came from what one would later call French School of Regulation.

At the end of 70s, some young heterodox economists, proposed an endogenous explanation of the 70s crisis. According to them, the origin of it was the depletion of productivity gains since the end of the 60s that the Taylorist-Fordist work organization could provide and not the monetary and oil shocks of the 70s. So the national income could not continue to increase and to be redistributed to the household in a coordinated and moderately hierarchized manner as during the previous thirty years. For them, the depletion of productivity came from the counter-performances of Taylorist-Fordist work organisation and from the increase of fixed capital.

Their contribution brought macroeconomic explanations that IDL theory of sociologists lacked. If we replaced Fordism by capitalist mechanized labour stage, we had the link between IDL and an identified form of capitalism, personalized by an emblematic company leader. In this case, the crisis of the 70s could be effectively interpreted as the necessity to change the technical base of the capitalist accumulation, after exhaustion of productivity possibility of previous IDL stage. This view seemed to be confirmed when at the end of 70s occidental companies decided to accelerate the automation of labour process. Automation was supposed at that time to be the reason of the success of Japanese industry in the world market.

But nothing could be as simple. The convergence of IDL theory and Regulationnist theory did not happen, although we shared the common vision of history advancing finally by labour process stage. For the Regulationnists, Fordism was firstly a Keynesian macroeconomic politics supported by a constant increase of economies of scale due to Fordist organization and Fordist product policy of companies. So in fact no clear link with IDL. In addition, their theory was founded at the beginning only on USA and France cases. By generalizing these two national cases, they considered, at that time, that Fordist work organization was the paradigm of all modern industries in the world.

Within GERPISA, due to our historian colleagues, we knew it was not the case, neither in many others countries as Great Britain for example, nor in many industries and companies. Regulationnists discovered a little bit later the diversity of national growth modes. So some of them had then to invent doubtful concepts as “peripheral Fordism” or “partial Fordism” to qualify the economy of Brazil for example, doing it only to salve the idea of successive stages of capitalism founded on macro and microeconomic policies. As a second consequence of this vision, they were in search of the new macro and microeconomic policies adapted to the new era and likely to re-boost the capital accumulation. Under the name of post-Taylorism or post-Fordism, they founded out the country that could foreshadow the new stage. They hesitated a moment between Sweden and Japan, Germany remaining in their opinion too Fordist. They choose Japan, because they considered Japanese labour process as no-Fordist.

So one can understand why the incredible thesis of lean production was accepted by large sectors of academic scholars even by some French regulationnists, despite obvious factual and methodological errors, contradictions and ignorance. Moreover, lean production was presented as the solution of two crises: the work crisis in the 70s by employee involvement to solve production problems, and the competitiveness crisis in the 80s by constant cost reduction, quality improvements and JIT.

2.3. To react against this drift, two international programs of GERPISA

In 1992, we decided in GERPISA to propose to Robert Boyer, one of Regulation School founders, to participate to our two first international programs about industrial models in the automobile industry (1993-1996) and about globalization or regionalization of car industry (1997-1999).

The main results of these programs can be summarized as following. Neither in the past nor today, only one productive model was or is dominant, because it would be adapted to the era. Several profitable productive models coexist, because they develop different profit strategies and because they need different conditions of context. The sources of profitability are not only the economies of scale, but also diversity, quality, innovation, flexibility and reduction of cost at constant volume. So to use only the apparent productivity of assembly plants, as International Motor Vehicle Program of MIT did, impedes to explain the financial performances of companies, and leads finally to mistakes. It is impossible for an enterprise to exploit all the sources of profit, in the same time, at the same level. The companies must privilege some of them according to the structure of the demand and the structure of the labour, and finally according to the national growth modes of the countries where they are located commercially and industrially. There is no one capitalism, but several at the same time.

Many companies do not find the profit strategy relevant for them and the social compromise to build a coherent productive model. It is the reason why the implementation of lean production devices or of supposed best practices could be, not only inefficient, but also sources of strong disorganizations and social conflicts.

We have identified, in car industry for the period of XX century, six productive models: Taylorian model and Woollardian model both implementing the same “diversity and flexibility strategy”, the Fordian model implementing “volume strategy”, the Sloanian model implementing the “volume and diversity strategy”, the Toyotian model implementing the “cost reduction at constant volume strategy”, the Hondian model implementing the “innovation and flexibility strategy”.

Lean production was in fact an intellectual construction amalgamating contradictory aspects of different Japanese companies, particularly Toyota and Honda, companies that had different profit strategies and completely different social compromises. It is the reason why lean production, as it was theorized, does not exist in the reality neither those Japanese companies nor elsewhere.

The Toyota model isn't the model described by Taiichi Ohno. Taiichi Ohno forgot to talk about the wage system that was the core of Toyota Production System. The individual wage was dependent on meeting standard time reduction goals fixed to each work team, month after month, by the managers. In 1990, the same year IMVP presented lean production as the productive model of XXI century, a serious work crisis was broking out at Toyota in Japan. The company was obliged to change significantly its model. But it is not sure that these changes were coherent, were built on durable social compromise, as suggested some difficulties of Toyota.

In conclusion, the labour process, the work conditions, the work organization, the level of technical change, the employment relationship are different according to the productive models in the same industrial sector. In addition, some sectors remains durably at the previous stages of capitalist division of labour. Many luxury goods are made partially or totally manually. New capitalist sectors, new products appear thanks to the gains of productivity realized in other sectors, more advanced in the division of labour. Sometime all the process of division of design and execution has to be restarted in these new sectors.

These results lead to a paradigm shift: from successive dominant productive models to a limited variety of productive models periodically renewed. In this perspective, we must think not in trend, but in differences, not in deviation from a canonical model, but either in incoherence or in new model by hybridization.

As it is easy to see, these results are a considerable challenge for IDL theory. The stages of deskilling / up skilling seem to be incompatible with the diversity of productive models and the diversity of capitalism. In the same time, it is clear that the current level of division between design and execution is globally, socially higher than fifty years ago. This research question is one of these we have now to solve by new field inquiries. But the observation that labour process differences between productive models concern mainly the work organization, not the design of machines, is an indication to find the solution of the apparent contradiction between IDL stages and productive models and capitalism diversity.

In conclusion of the two previous parts, it is possible to say that, despite the decline of interest for IDL theory, we have significantly progressed to solve some of its problems in its two main aspects: the specificity of labour division in capital labour relationship, the ties between stages of IDL and stages of capitalism. But the renewed interest for a theory in social sciences is more linked to the social and political context than its scientific potentialities.

3. The current crisis could be an opportunity to re-boost the interest for IDL theory

3.1. The deregulation of employment and finance since the 90s have disseminated the most brutal forms of intensification of work, of deskilling of workers and of job insecurity in many countries

During the 1990s, the United States (followed by Great Britain) imagined that those countries might become the financial and innovation centre of a rapidly globalizing world. The idea was that growth could be stimulated by capital inflows attracted by banks' financial innovations and by the control of production activities that should disseminate globally as low-cost opportunities arose and were made both financially and technically dependent, notably through the hardening and generalization of intellectual property rights.

"Traditional" companies were asked to outsource their production, to acquire supplies from low-cost countries and to focus solely on design-innovation, funding, marketing and services. This was in line with the example of California start-ups that, within a few short years, had become extremely profitable global giants. Traditional companies' funds - whether working capital, capital reserves or pension funds - were also supposed to be managed "dynamically" to take advantage of variations in stock prices or currency rates across the world and to play an active role in financing the economy. As for fund providers and borrowers, they were supposed to take increasingly large risks, protected by debt segmentation and dissemination techniques like securitization and by new kinds of insurance policies. Powerful investment funds, built on pooled savings that were now free to go anywhere, they could force the companies to increase their profitability and to accept the new rules. This conversion would be facilitated and accelerated by incentivizing corporate executives through profit-sharing schemes that would considerably increase their remuneration via the distribution of stock options and other advantages.

The new international division of labour that notably benefited the United States and Great Britain was supposed to be carried out vigorously and implemented rapidly, so that as much of the general population as possible might benefit, calming tensions and stimulating domestic consumption. As for the social categories that would be disadvantaged by this

new trajectory, their standard of living was supposed to be maintained thanks to the falling price of routine products increasingly imported from low-cost countries that would, in turn, benefit from foreign investment, industrialization and the emergence of a middle-class enabling their own economic take-off and driving broader global growth - something that earlier import substitution policies and large public sectors had been unable to achieve.

3.2. The capital-labour relationship is as matter of fact a manner to live together

It is seeking to invade all spheres of the society, particularly through privatizations and the obligation for the public services to systematically and constantly reduce costs. It is not simply a social relationship in the economic order, or an economic relationship embedded in the social or vice versa, as imagines the new economic sociology. It is a relationship being able to order and to structure all or a large part of the society, as other social relationships were able to do in other era or in other societies.

Its ability to invade all human and social activities comes from an endogenous necessity. And its current success to do that comes from the inability of the others social relationships to contain its expansion. As we know, the capital-labour relationship can reproduce only if the capital enlarge and intensify the exploitation of labour force and if the labour force is obliged to sell itself. It is the only social relationship that can expand automatically as far as the social and political conditions at the origin of its emergence are maintained. It needs to invent constantly new material or immaterial products and to invest in new activities.

On the contrary, the social relationship, we can call “administered” because the employees are paid by tax revenue and sometimes partially by consumers at a price fixed by the public authorities, have not an internal and autonomous mechanism forcing it to always look for new sectors, to develop and to increase its productivity. Only external political decisions can enlarge its domain of utilities and obtain from employees to produce more being less numerous. The leaders of public sector have not their own tools to increase the productivity. So they use frequently the argument of technical progress to impose the diminution of employment for a given service. In fact, they import machines and management methods designed for capitalist enterprises. And thus diffuses the IDL.

Generally speaking, capitalism is justified, despite its many disadvantages and dangers, by the fact it would be the more efficient to decrease the price of goods, to innovate, and ultimately to increase the purchasing power and the welfare. We know now that the reversal of IDL could be much more efficient. Not only of course because the existence of cited cases: Uddevalla, automated bottling in France. But we can think to many other examples: the incredible success of Wikipedia, the open source and free software movement that was able to compete effectively with Microsoft, and so on.

Conclusion

At this point and as a general conclusion, I propose not to dream, but to make two conjectures. One about a new social relationship to invent, another about the end of work

For the first conjecture, it can be useful to look at the past. How a social relationship succeeds to impose on the others? The capital-labour relationship imposed on the petty commodity production and on State manufactures, beginning to compete on the same field, the market, but with means more efficient. The political changes, necessary to break some monopolies and to modify the previous market institutions, occurred after.

We have now the intellectual and practical means to think of new social relationship, more efficient than the capital-labour relationship, because based on the real and durable reversal of IDL thanks to the constant and systematic cooperation between workers currently at different levels of competencies and knowledge. To be viable and acceptable this social relationship must lead to a progressive equalization of status. Because the productivity could increase strongly, the creation of new jobs and new activities must be organized from the new competencies and the new knowledge of the workers. Because the competition could bankrupt capitalist enterprises, the workers of these enterprises should be hired in the new conditions.

We know this new social relationship cannot birth from the capital-labour relationship. But it could develop from current utilities, from public enterprises, from the cooperative sector, from associations. So one can suggest to some of us engaged in work change not spend time to convince capitalist enterprises to reverse the IDL, but to collaborate with public and cooperative sector.

The current economic, social, ecological and political crisis creates opportunities, and, may be, necessities for countries and workers declining. In an open world market, capitalist firms will always find labour force even cheaper in new countries, including labour force for design activities. So one solution is to attack the capital-labour relationship on his weak point: its structural inefficiency to produce goods and services even cheaper, sure and corresponding to the attempts of people, thanks to the reversal of IDL.

The second conjecture is about the work and its end. Work appears not only as a word and notion that are historically dated, but also as an invented reality, constructed by the European 18th century. It would correspond to the emergence of the capital-labour relationship and the "free" worker selling his capability to work. Because it's spread and progressive hegemony, this social relationship has become the reference to perceive, to think, and to organize any other activities. The consequence was an extension of the term "work" to activities which no longer stem from the labour relationship, such as "domestic work," "independent work," and so on. Work was "naturalized" and "universalized". This contemporary reality, which was originally geographically circumscribed, has been projected on the past and on other societies. We have to explain it through historical conditions that made it emerge three centuries ago. Neither it have been socially central from the outset, as it has become today by being the condition of access to resources necessary for life in our societies. Its historicity logically implies its disappearance one day. It supposes the marginalization of the social relationship that brought it forth: the capital-labour relationship. May be, today, we can foresee this possibility.

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