

# THE EFFECTS OF THE ECONOMIC PROGRESS ON WAGES

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In regard to the general opinion on the effects of the economic progress on wages, we may say that in the course of development of the capitalistic economy it has changed from the opinion that the economic progress does not lead to a rise in wages to the one that it leads to a rise in wages.

In Europe up to nearly the end of 19th century the theory on wages of Ricardo had been almost universally acknowledged, so that it had been believed in general widely that the economic progress does not lead to the rise in wages. Ricardo says in his "Principles of Political Economy and Taxation" published in 1821 as follows.

"Labour, like all other things which are purchased and sold, and which may be increased or diminished in quantity, has its natural and its market price. The natural price of labour is that price which is necessary to enable the labourers, one with another, to subsist and perpetuate their race, without either increase or diminution.

The market price of labour is the price which is really paid for it, from the natural operation of the proportion of the supply to the demand: labour is dear when it is scarce and cheap when it is plentiful. However much the market price of labour may deviate from its natural price, it has, like commodity, a tendency to conform to it.

It is when the market price of labour exceeds its natural price that the condition of the labourers is flourishing and happy, that he has in his power to command a greater proportion of the necessaries and enjoyments of life, and therefore to rear a healthy and numerous family. When, however, by the encouragement which high wages give to the increase of population, the number of labourers is increased, wages again fall to their natural price, and indeed from a reaction sometimes fall below it.

When the market price of labour is below its natural price, the condition of the labourers is most wretched: then poverty deprives them of those comforts which custom renders absolute necessities. It is only after their privations have reduced their number, or the demand for labour has increased, that the market price of labour will rise to its natural price, and that the labourer will have the moderate comforts which the natural rate of wages will afford."

Lassalle who is a well known socialist in Germany, evidently depending on this Ricardo's theory of wages, states his famous "Iron Law of Wages" which asserts that a rise in the productivity of labour in consequence of the economic progress never lead to the rise in wages, as follows, in his "Public Letter to the Central Committee for the Calling of a General German Labourers Congress in Leipzig at 16 April 1863."

"The iron economic law, which under the present conditions, under the rule of supply and demand for labour, determines the wage of labour is this: that the average wage of labour remains always reduced to the necessary livelihood which is required

customarily in a land to maintenance of existence and to generation. This is the point around which the real daily wages in a pendulum swing in every time gravitate and can not in any time long either rise above that or fall under that. It can not rise long above this average—because otherwise the easier, better condition of labourer brings about the increase in marriage and generation of labourer, the increase in the population of labourer and so the supply of hands which would bring down the wage of labour again to and under its former level.

The wage of labour can not long fall under this necessary livelihood, because then arises emigration, celibacy, restraint of birth and lastly the decrease brought about through poverty in the number of labourer which in this way decreases further the supply of hands and therefore brings back the wage of labour to its former level.

Therefore the real average wage of labour is in the movement always to revolve around that center of gravitation, in which it must fall back incessantly, to stand now some above that (the period of prosperity in all or particular sections of industry) now some under it (the period of more or less general distress and of crisis).

The limitation of the average wage of labour to the necessities of life which are required customarily to maintenance of existence and to generation—This is the cruel and iron law which rules the wage of labour under the present condition.”

“We consider the effects and nature of this law in detail. It is with other words the following:

From the returns of labour (the production) will be first so much deduced and distributed among the labourers as is necessary to their maintenance (the wage of labour).

The whole surplus of the production—the returns of labour—falls on the share of the entrepreneur.

Therefore it is a result of this cruel and iron law that you are excluded from the productivity raised by the progress of civilization, that is, is necessarily excluded from the increased returns of labour, from the increased ability of your own labour! For you always the necessities, for the share of entrepreneur always all what is produced by labour above them.”

Marx also, evidently depending on Ricardo's theory of wages, remarks as follows, in his “Wage, Labour and Capital” published in 1846.

“The wage of labour will now rise, now fall, according to the proportion of demand and supply, according to the situation of the competition between the buyers of the labour power, the capitalists and the sellers of the labour power, the labourers. The fluctuations of wages in general correspond to the fluctuations of the prices of commodities. But within these fluctuations the price of labour is determined by the cost of production, by the working hours which are necessary to produce this commodity, the labour power.

Now what is the cost of production of the labour power? It is the cost which is required to maintain the labourer as labourer and to bring up him to labourer.

Therefore the less a labour requires the time of education, the lower the price of his labour, his wages. In the section of industry where almost no time of education is required and to which the bare physical existence of labourer suffices, the cost of production required to his production is limited almost only to the commodities which

are necessary to maintain him on the workable living. Therefore the price of his labour will be determined by the price of the necessary means of living.

At the same time further another consideration is added. The manufacturer who calculates his cost of production and according to it the price of product takes account of the waste of the instrument of production. If a machine cost him e. g. 1000 mark and this machine was used up in ten years, so he would put 100 mark yearly in the price of the commodity in order that after 10 years a new machine can be substituted for the used-up machine. In the same way must be put in the cost of the simple labour power the cost of generation by which the race of labourer will be able to increase and to substitute a new labourer for the used-up. The waste of labourer will be taken in account in the same way as the waste of machine. Hence the cost of production of the simple labour power is the cost of existence and generation."

"The larger division of labour enables one labourer to do the work of 5, 10, 20. In this way it increases the competition among the labourers 5-, 10- and 20 fold. The labourers compete not only because one sells cheaper than the other: they compete because one does the work of 5, 10, 20: and the division of labour which is introduced by capital and incessantly grows compels the labourers to do this kind of competition.

Further: the work is simplified in the same degree as the division of labour increases. The special skill of the labourer will lose its value. He will be transformed in the simple, monotonous productive power which requires to set in play neither bodily nor spiritual power of strain. His labour will become that which can be done by all. Hence competitors from all sides press on it and moreover we remember that the simpler, the easier learnable is the work, the lesser the cost of production to learn it, the lower falls wages, because like the price of any other commodity, it is determined by the cost of production.

Thus in the same degree in which the work will be more unsatisfactory, unpleasant the competition increases and wages decreases. The labourer attempts to maintain the mass of his wages through his more work, be it, that he more hours works, be it, that he more produces in the same hours. In this way driven thorough poverty, he increases further the harmful effects of the division of labour. The result is: the more he works, the less he receives wages."

The same view is expressed in "the Communistic Manifest" published by him in 1848 as follows.

"The labour of the proletariat had lost all independent character and consequently all incentive for the labourer through the extention of machinery and the division of labour. He becomes a bare attachment of the machine which requires only the most simple, most monotonous, most easily learnable operation. Therefore the cost caused by the labourer is limited almost only to the means of subsistence which he needs for his subsistence and for generation of his race. The price of a commodity, therefore of the labour also, is again equal to its cost of production. Hence in the same degree in which the unpleasantness of labour grows the wages decreases. Still more in the same degree as machinery and division of labour increase, in the same degree the quantity of labour also increases, be it through increase of the working hours, be it through increase of the work demanded in a given time, accelerated run of machines and so on."

Marx, in his "Capital" published in 1868 also, asserting that the proportion of his so-called "variable capital" namely the quantity or value of the labour power to his so-called "constant capital" namely the quantity or value of the means of production decreases with the increase in the productivity of labour because the quantity of labour required to produce the same quantity of product decreases with it, states that "The accumulation of wealth in a polar is at the same time poverty, pain of labour, slavery, ignorance, vulgarity, moral degradation in the opposite polar, namely on the side of the class which produces its own product as capital."

Besides these socialists, Lujo Brentano who is known as a liberalist also, in his "The economic foundation of the problem of labourer" published in 1872, agrees to the above-mentioned view of Lassalle, depending on the indivisibly binding of the labour with the person of the seller of it and the regular poverty of the labourer, and says as follows.

"The labourers, if they act individually, as a result of the indivisibly binding of their commodities with their persons and their regular poverty, not only in a given moment offers for sale their labour unconditionally and therefore are without influence on the conditions of labour, but also when the demand falls they are not able to prevent the fall of the price of their commodities arbitrarily through the decrease of the supply of their commodities like other sellers, when the demand rises they have only under the comparatively scarcely appearing premises the lasting advantage, and they are without influence even on the supply of their commodities in the future market. So they at the conclusion of the contract of labour are given completely in the hands of buyers of labour, namely their natural opponents in the struggle in price; only that the lowest limit under which their incomes can not fall through poverty and death, the highest limit which it reaches through the imprudence of their fellows. Individual labourers themselves are without influence on the height of wages.

Namely the purchase of labour gives a control on the person of seller and his physical, moral, intellectual and social existence, and those who determine the conditions of sale fix the degree and way of this control. It becomes clear that, where the labourer acts individually, it is the buyer of labour that determines the degree of the culture on which the labourer has a share, the labourer himself is wholly without influence on this degree in present as well as in future, that poverty and death the lowest share, the imprudence of others on which the individual is without influence the largest share determines, which they acquire on the civilization and its progress.

Even if Lassalle called it unrightly as something cruel that wages tend to conform to the indispensables to maintenance of life, if he unrightly sees here the justification to call the labourer as the eternal unpropertied, so undoubtedly it is something miserable that a fate, on which the labourers, if they act individually, are wholly without influence, determines the amount of their incomes, moreover the degree in which they can be really a human being, that the share which they have on the culture is prevented from decreasing only through poverty and death, that it can be raised only through unforeseeable factors. Indeed if the present social and state order continues to exist, so there is no possibility to make the degree in which the labourers have a share on the culture dependent on themselves."

However such a view on the effects of the economic progress on wages had ceased to

prevail since the so-called "the theory of marginal productivity" which asserts that wages are determined by the productivity of the marginal labourer, had taken place of the aforementioned "theory of the cost of reproduction of labour power" and then its opposite view has been prevalent.

For instance Alfred Amonn, undoubtedly depending on this theory of marginal productivity, says on the effects of the economic progress on wages as follows, in his "the Problem of Wages" published in 1930.

"The absolute height of wages—in the case of free competition also—must never conform to the cost of reproduction of labour power or to the minimum existence of the labourer. This can be the case only either when in consequence of a low height of productivity of the national economy, the whole products by the co-operation of capital and labour are not or just only sufficient, on the one hand, to guarantee to the capital that returns which are necessary to keep up the supply of capital required to employ the whole existing quantity of labour, and on the other hand, to provide for the labourers, or when the quantity of the supplied labour will be in the long run regulated only by its cost of production, consequently the number of labourer and with it the quantity of labour rises with every rise of productivity in the same degree, or lastly, when the supply price for that quantity of capital—in consequence of large risk, little confidence as a result of political insecurity—is a exceptionally higher. Hence the regulation of the generation of population on the one hand and the supply price for the capital on the other had plays in this respect a decisive role. But under the normal conditions and on the higher stage of the development of national economy the supply price for larger quantity of capital also stands according to experience on the level which moves between narrow and low limits (3-4 per cent), further the increase of population remains remarkably short of the quantity based on the minimum limit of existence and is lastly the productivity as a rule so large, that the difference between the interest necessary to keep up that supply of capital and the income flowed from it on the one hand and the whole products of the national economy on the other hand is so large, that the wage income which stands over the minimum existence results from it. It follows from it further that the larger the productivity the larger the wage income—when the proportion of distribution between labour and capital is constant also—is,"

"The development of the national economy takes place in general in the process of time for the following directions: 1. the population increases, 2. the new capital is formed, 3. the method of production is improved. What mean these economically? The increase of population means economically evidently the facts of three kind: firstly the increase of the demand for products, secondly the increase of the labour power and consequently the increase of the quantity of the supplied labour, and thirdly the increase of the demand for capital or the quantity of the demanded capital. The formation of new capital means on the one hand the increase of the supply of capital, on the other hand the increase of the demand for labour. The increase of population in connection with the corresponding increase of capital results in the corresponding increase of the quantity of produced commodities. The improvement of the method of production means the increase of productivity, and this means the increase of the whole quantity of products larger than the increase of population or the increase of the quantity of products

fallen on the head of population. Now what kind of results had all these facts in respect to wages?

The view that the economic development and the rise of productivity has no influence on the absolute height of wages at all, that consequently these remain the same, but the share of wages in the whole income must necessarily fall, is formerly supported. This view is already refuted by the experience. Moreover its unrightness is proved easily also theoretically. What it says can be right only when the increase of the population and consequently the number of labourer and the quantity of supplied labour on the one hand takes place in the same degree as the increase of capital and the method of production is not improved and consequently the productivity does not rise, or when the increase of population takes place in a larger degree than the increase of capital and the rise of productivity. But this is in general not the case. In general the increase of capital keeps at least equal step with the increase of population. Hence the increase of the supplied labour goes in the same degree parallel the demand for labour and it can change nothing on the distribution of the returns of production, consequently on the relative share of labour on it. If then at the same time the productivity rises, so the absolute price of labour as well as the absolute price of capital must rise. It means then the rise of the individual as well as the whole wage income and the average income of labourers. Now if, what is alike possible and also can be regarded as a practically real case, the increase of capital takes place in larger degree than the increase of population, so the interest of capital will fall as a result of the increase of the supply of capital against the demand for capital and consequently the proportion of distribution of products between capital and labour will shift favourably to labour. The share of wages on the whole products, consequently the relative height of wages also will rise. Then naturally the rise of the absolute wages will be larger in the same degree. Hence the level of wages must, apart from the unlimited increase of population, in the process of the general economic development, at least in regard to its absolute height, necessarily rise."

Sternberg who is known as a marxist also, in his "the Imperialism and its Critics" published in 1929, asserts that the economic growth due to "the advance of imperialism leads to the decrease of "the relative surplus population" caused by the rise of proportion of the "constant capital" to the "variable capital" and consequently to the rise of wages in opposition to the aforesaid Marx's view, and states as follows.

"The second method of extensive expansion of the capitalistic method of production the imperialistic advance, could decrease the relative surplus population through long time. This had the following consequences:

The temporary overcompensation of the Marx's law, according to which in the process of the capitalistic method of production the relative surplus population must grow, the number of the unemployed in comparison with the employed must rise, this overcompensation included in it further the possibility to continue to act in the same direction after once it was there long time. This depends on the correlation between the relative surplus population and the formation of the real wages. Only because the relative surplus population in a certain historical situation did not increased but decreased, only because the large rise of wages were possible in the second half of

the 19th century. Now the large rise of wages had the results which were expressed very often by the burgher's theory of compensation: If the wages of the English labourers had become double, so the investment of large English capital in the inland is possible under the realization of average profit: as this was possible, the new investment gave the possibility to employ the larger mass of labourers. Thus the correlation is this: As the capitalistic invasion in the ante-capitalistically producing territories was not immediately followed by the creation of the colonial proletariat there, as further in the same times the colonization of the region was performed which took in the large part of the European surplus population, so the overcompensation, the decrease of the relative surplus population was possible. As it was temporarily possible, on the one side the accumulation of capital, on the other side the accumulation of poverty did not continue; to the contrary the real wages of the labourers rose. As the real wages rose, by way of the increased investment of capital in inland the increased employment of labourers, the new absorption of the relative surplus population was possible. The causes of the absolute poverty was temporarily compensated."

Lastly, Schulze also, in his "Large Industry, an economic and social progress" published in 1892, depending on the results of his study on the English cotton industry, maintains that the economic progress, especially the progress of the large capitalistic industry leads to the rise of wages, and states in regard to "the meaning of the progress of large industry for the distribution of the national income" as follows.

"In what degree gets each class of the society the share of fruits of that immense increase of production which the method of management of large industry brings about? Here in opposition to a view which is widely spread at least in Germany is a view of the few: the large industry makes the society proletariat and destroys the middle class. The poor would be poorer and the rich richer.

The antagonistic view is here like everywhere so refuted that man see it as relatively justified as the outcome of a certain stage of development. Before the large enterprise seized the industry the distribution of the national income was regulated by custom or law. The selling price of the industrial product and consequently the profit was fixed. Wages and working hours were alike regulated by guild or government, at least by custom. The reward to be paid to the landowner for the use of land also was fixed by the authority. The interest of capital existed still few, because a large investment of capital in the industrial enterprise was not required. It was prohibited at first. The whole products of labour of the society which was few in comparison with to-day were distributed on the labourers and entrepreneurs, but no more gave the satisfactory existence to both and on the landowners who economically obtained the surplus like socially maintained predominance. Different when prepared through commerce with organization of the individual economies the large enterprise started. This depended originally on the competition and demanded the abolishment of the old order of law and custom.

What is on this stage where the large industry entered into the economic conditions regulated by custom its effect on the distribution of the national income? In regard to wages the so-called minimum living prevailed because the labourer psychologically still belonged to the old times. When the activity of business is rising wages can rise only a few over it, because the increase of marriage and birth cares for the succession of that

relative surplus population, which soon flows in and reduces wages on the old level. When the activity is falling wages can fall even under the minimum living, in which case the deficit is often made up by the relief of the poor, evile, crime and so on. On the other hand, as the growing industry needs capital but it still exists few, the rate of interest stands remarkably high against later.

The difference between the price on the one hand and the wage and the interest of capital on the other hand is received by the entrepreneur. He used in fact, as the prevalent doctrine in general assumes, labour like capital for the fixed reward. On such stage the profit is high not because the cost of production is low—this is rather very high against later—but because the price is high. The industry stands still in the state of monopoly against the domestic small industry as well as the foreign countries, like man creates the similar conditions by the protective tariff in order to bring forth the industry. Therefore the large fortune quickly gathers together in the hand of the few.

On that stage of the industrial development that concentration of fortune in the hands of the individuals is surely justified, because otherwise the capital required for the first large industry would not gather together on account of the few fortune of the masses: the psychological premise of the company form of enterprise still lacks. That high profit has a further justification. Political power and honor still concentrates in the hands of the landowners who look down upon the men of industrial calling as new men. Still a career of officer gets higher respect than even the most succeeded industrial career. Certainly man in England in about 1800 questioned whether the representative of the large industry is to be given the title as gentleman or not. Hence the incentive of high profit is required to get the able men for the industrial calling, while they later on flows in surely on account of the honour and the influence which is given to this status.

Further from a social reason also this concentration of fortune first in the class of burgher had its justification. A class which is able to devote itself to the public affair independently from the state is the premise of the social progress of a nation. Formerly the great figures of English parliament depended on the existence of this class of country gentlemen. After the foundation of the economic life became that of industry, in the first place a similar class of burgher proprietors had to grow to assume the political and social duty. The existence of such independent elements had later on powerfully promoted the social development in England after it became the public opinion widely in the society, that—in so far as it does not serve the productive purpose—only in so far as and the same degree as its owner serves the improvement movement of the unpropertied the property is justified.

But in opposition to the former distribution of the national income based on custom, or law, the new development led to first without doubt the enlargement of the difference of property. Ricardo had such conditions before his eyes in the formulation of his law of wages, Marx learnt such conditions in the English blue books of the thirty and forty years of the 19th century which were studied by him. The labourers in such times held together powerlessly and hopelessly to that radical party of labourers which is placed outside of the state and consequently lacks any importance in the state. Man hoped to seize the state in order to organize it in his own interest. As if this succeeds through an unexpected attack, while certainly the influence in the state depends completely

on the distribution of the economic power between the classes of society. But this movement is not unuseful. It promoted the technical-economic development because it induced the ruling classes and first often the agrarian power to the legislation of the protection of labourer.

We summarize the characteristics of that first stage of large industry. Economically observed these are the high cost of production due to dear, because of the large quantity of used, labour and dear capital, high price and high profit due to monopoly. Socially observed the minimum living on the one side, the concentration of property on the other side, the struggle of classes.

The international competition compelled the further progress. The incessant reduction of the cost of production became the leading thought. That compulsion to a reduction of the cost of production ruled the whole development of large industry. Without an incessant reduction of its cost of production no industry can maintain the world market.

Now we inquire, what are the effects of this development on the distribution of the national income?

The reduction of the cost of production concerns with the cost of equipment and the cost of management, under the latter again all individual items: raw material, labour, cost of management, interest, profit and so on. However as the cost of equipment and the cost of management dissolves in the cost of labour, the interest of capital and the profit of entrepreneur, apart from the raw materials, in fact only those three named elements remain which are open to an incessant reduction.

We can here disregard the raw materials. In its price also only the cost of labour, the interest of capital and the profit of entrepreneur is included, in so far as a rent of priority or land is not included in it. Hence, apart from the latter, the whole outcome of labour of a nation like any individual product will be divided between labour and capital, because the so-called profit of entrepreneur, as above discussed, is twofold nature and a part is included in the one category, a part is included in the other category. As we under return to it, we affirm at present for the development of large industry that within a given product, e.g. 1 pound yarn, 1 yard cloth, 1 ton iron the amount which falls on labour as the amount which falls on capital incessantly decreases: the cost of labour because this is in succession replaced by capital, the cost of capital because the equal capital becomes more and more productive by the technical progress, becomes more and more cheaper through the progress of the national economy. The poor consumer, the labourer, for whom this reduction of the price of national economic commodities produces the same effect as the rise of wages, had the benefit.

But, we must further inquire, does decrease the amount which falls on labour and capital in a same proportion? Or does the development of large industry shift the proportion so that within a certain product the amounts which fall on both items absolutely decrease but the one increases relatively against the other? The answer on this question is given already by the following consideration. A equal capital produces in consequence of the technical progress to-day more than before 50 years, yet the interest and profit which is expected by the capital remains equal or moreover falls, consequently the plus must fall on the labour.

The reasons of this state of things is understood by the replacement of labour through

capital in the cotton industry.

A capital of 20 mark produces a commodity A: in order to cover 15% interest and profit, 3 sh. must be given to the capital from the sale-price. After 30 years the same capital produces 6 A: in order to yield 15%, only still  $3/6=1/2$  mark in the cost of production of 1 A is to be reserved to the capital. But the rate of interest and consequently the premium of risk which is included in profit falls as a result of the rise of the power and quantity of production.  $7\frac{1}{2}\%$  suffices in order that the capital seeks investment in the industry. Hence in the cost of production of A only  $1/4$  mark is required for interest and profit.

A worker produces daily a commodity B for a wage of 3 mark, but after thirty years daily 6 B. In order to be possible the weekly wage to remain equal, only  $1/2$  mark needs to be paid for the production of B. If the worker before 30 years a skilled hand worker whose skill is made useless by the machine, so a higher wage is not necessary, moreover under some circumstances a lower is possible. On the contrary if the industry depended on the machine already before 30 years and the increase of production was brought about through the improvement and acceleration of machine, more and valuably capital was applied, the labour was replaced through the more complicated thought of the technique and of the natural science, so the responsibility of the worker who watches the machine is larger. To it is necessary a better worker to whom a weekly of 24 mark instead of 20 mark must be given. As a result of it the piece wage for B can fall only to  $2/3$  mark.

As the control on the nature which is continuously risen by the progress of the spirit of man and consequently the growing production power of capital thus takes part in the circumstances which accelerate the decrease of the share of capital, so the nature of a man as a organism, of which the higher efficiency for a certain direction is possible only when the whole conditions are risen, takes part in the circumstances which delay the decrease of the cost of labour. Therefore the proportion of the two shifts in the process of development in favour of the labour. This means nothing other than that the cost of production of a certain commodity falls, that on the contrary within the lesser cost of production falls relatively more on the labour and less on the capital. Example is as follows. It relates to the same factory, a factory which unites together spinning and weaving of cotton, the invested capital of which in 1883 was the same as in 1840 in value. Here from 1840 to 1883 fell the price of one yard of calico of exactly same quality as much as 22%, the cost of labour per yard as much as 41%, nevertheless the weekly income of worker rose as much as 64%.

What was true of an individual product had application on the whole national production so far as it depends on the base of large industry. The method of management of the large industry means a such increase of product that as in the cost of production of an individual commodity the amount for labour as well as for capital absolutely decreases, so in respect to the enormously increased whole production both amounts absolutely increase. An absolutely larger amount falls on labour as well as on capital.

An exception arises in so far as the exceptional skill is replaced by the machine. Because the demands placed on labour becomes more uniform, wages also comes near an equal level. Hence according to the experience usually the middle wages rise more than the highest wages, the latter in part falls, as for example the wages of the mule-

spinner for finest yarn formerly amounted to the double as for the ordinary yarn: to-day the proportion of wages of the two comes very nearer.

To this special ability which formerly was paid higher than later on because it in part became less necessary, in part became more often, belongs above all the part of profit which is named as a proper wage of entrepreneur. We have already above stated the reasons for it.

In this respect the joint stock company, which to-day includes 1/10 of all businesses in Great Britain, has the extremely big influence. Only a few large owners of capital are able to act as an industrial entrepreneur because the scale of an individual management grew enormously. The joint stock company puts all the technical and commercial talents, who are able to acquire the necessary knowledge of business without the possession of large capital, in competition with them. This group grows continuously with the growing wealth of the middle class and the advance of labourer. An individual labourer is scarcely more possible to advance to an individual entrepreneur because of the progress of development of the large industry, while the most great and famous pioneer appeared immediately from the class of labourer. On the other hand he can become a staff of a large company owing to the necessary dispositions which require character and faith besides talent, while that first generation of manufacturers besides talent often thanked his success to trick and recklessness.

In that second period in addition to this growing competition for the industrial supremacy, the pressure from under which, as Brentano for the first time shows in his "Present Guild of Labourer" is done by the advancing class of labourers arises. There two on this stage of development pressed back the profit on the minimum under which it can not fall without the injury of industry. On the first stage of development of large industry the entrepreneur obtains the rest after the loan capital and the labourer was paid, now the labour obtains the rest after the interest and the administration wage was paid. In insight of this state of things the leader of English spinner said to me: man must secure to entrepreneur a certain height of profit which can not be decreased without a damage for the labourers in favour of wages. A labourer of high rank must think to bring intelligence in the industry and hold it, if possible more intelligence than the competing industries of foreign countries have: the labourer must pay for it that he finds the most able employer.

While the profit thus comes near the minimum limit, the wages the height of which depends on the price, becomes more and more dependent on the conditions of the world market. While in the former stage of development the measures of law could accelerate that aforesaid shift in favour of the labour, now tends the profit like the interest to become a constant amount, but the wage to rise through the increase of whole production. The measures of law can not create this surplus. While the industrial fluctuation in part is shuffled off on the wages, the premium of risk which is included in the profit falls alike.

Man can summarize what is said in the following propositions.

- a) Within a certain product the amount which falls on capital and labour decreases absolutely with the development of the large industry: a reduction of the price of product in favour of the consumer.
- b) The amount which falls on the capital within a certain product decreases not

only absolutely, but also relatively in proportion to labour.

c) The amount which falls on the labour within a certain product decreases absolutely, on the contrary increases relatively.

d) The increase of the whole national production enables the amount for labour and capital to increase absolutely, on the contrary the share of capital decreases relatively, that of labor increases relatively.

The labour obtains a more and more larger part of the whole national production. It obtains more and more the rest which is left over after the amount which falls on interest and profit is paid.

The social result of the described economic development is the leveling of the differences of properties. Far from that the rich becomes richer and the poor becomes poorer, just the reverse is the case as is proved statistically for England. In the times when the industrial employer captures the first status socially and politically, behind them the middle class begins to advance, which gets at first economically, then politically importance. That in fact on this later stage of development the labourers of the large industry are included in the middle class is proved satisfactorily by the fact that the important occupational groups which man hitherto in general has included in the middle class, especially the large part of the groups of teacher and regionist stands in income deep under the level of the class of labourer of large industry in New England."

This above-described change of the opinion on the effects of economic progress on the height of wages in the process of time, we may say, is due to, on the one hand, the fact that the thought of so-called "the living befitting status" which prevailed in general widely in the early stage of the development of capitalistic economy declined in the process of time and the wish to improve their living has in general widely spread among the labourers, on the other hand, the fact that the advancement of productivity in the industry in consequence of the economic progress has required the labour power of higher quality.

That the thought of so-called "the living befitting status" prevailed in general widely in the early stage of the development of capitalistic economy and consequently when higher wages or cheaper means of subsistence enable the labourers to do this "living befitting status" by less labour they worked so much less because they have no desire to improve their conditions, is indicated by many writers in that times.

For example in England William Petty indicates it in his "Political Arithmetic" published in 1691. Besides the view that when the price of the means of subsistence is high men spend their money in the more durable goods, he adduces the following experience which is made by the employers in the weaving industry who employ wage-labourers as the ground of this proposition.: When the corn is cheap the labour is usually dear because in such time labourers are so licentious that they think of only eating and drinking. Therefore, he maintains, a good harvest is a misfortune for the people if the government does not care for the maintenance of high price of corn. But, according to Petty, this is true especially of Ireland. There the standard of living of the masses, especially after the introduction of potato, is so low that the two hours daily labour suffices to satisfy all customary needs. A system of heavy taxation, he says, is necessary to make the Irish people industrious. Petty, in his "Political Survey of Ireland" published in 1719 also, demands to make the living of the people difficult in interest of the economic progress. The working hours in that times

amounted to 12 hours daily including the noon recess of 2 hours, therefore in fact 10 hours and three meal times in a day was usual. Petty demands to make the hour of noon recess shorter as much as 1/2 hour and to do a fast in Friday and maintains that the English people would become richer and the income of the state would grow through these measures.

William Temple also insists that it is necessary to become the living difficult by the rise of price of the means of subsistence in order to make the people industrious. He says in his "United Provinces of the Netherlands" published in 1770 as follows: "I conceive the true original and ground of trade to be a great multitude of people crowded into small compass of land, whereby all things necessary to life become dear, and all men who have possessions are induced to parsimony: but those who have none are forced to industry and labour or else to want. Bodies that are vigorous fall to labour: such, as are not, supply that defect by some sort of inventions or ingenuity. These customs arise first from necessity, but increase by imitation and grow in time to be habitual in a country."

John Houghton shows the ground of this view most in detail in his "a Collection of letters for the Improvement of Husbandry and Trade" published in 1683. As a result of many bad crops in that time the price of corn had risen remarkably. This is, Houghton thinks, never disadvantage but an economic advantage: If the price of corn was lower, so the poor would work less because they could gain their means of living by less work. This is proved by a general psychological experiences. The country gentleman spends his time mainly with recreation and sport instead of work because he has the means to eat, to drink and to maintain himself for many years. But if one of his fellows fell in the bad conditions of property, so he soon strives to acquire some office and work. The rich merchant ceases to work if he succeeded to be taken in the class of country gentleman. On the contrary the poor manufacturer who can not to hope name a property of 10 pound as his own scarcely strives to get 10 sh. at a time. If he could get in three days so much as he can do his customary way of living during a week, so he does not work during the other four days. The same true of the labourer who does not work no more than is necessary to get his bare livelihood. The embroiderers and the stockmakers are the examples. When their wages are high they work seldom on Monday and Tuesday, moreover on Wednesday and Thursday. They spend these days in the bar and with the low-grade licence. When wages are high and the means of subsistence are cheap the same is true of the majority of labourers who are employed in various handicrafts. On the contrary in no time they work so much as in the time of high prices: through nothing the invention of the useful tools which save labour would be promoted: through nothing the labourers would be equally obedient servants. Moreover in such time the competition among labourers brings about even cheap wages. If leave alone the development moves in a circle, cheap price of the means of subsistence brings about idleness, want and high price of it brings about industry and the surplus of labourers. On the contrary if the government could maintain continuously the high price of the means of subsistence through the wise measures, so this would incessantly compel the industry also and consequently the permanent surplus of production will be obtained, which opens the opportunity to occupy the foreign market.

However in that times also there were the opponents to this insistence on the necessity of maintenance of the high price of the means of subsistence or the low wages.

For example Josiah Child, in his "New Discourse of Trade" published in 1693,

opposes to the custom of fixation of wages which would be made in interest of low wages: This was possible so long as England was not an industrial land. On the contrary low wages bring forth the emigration of the skilled workers for the land of higher wages, as in fact English seamen went for Holland.

Vanderlint also in his "Money answers all things" published in 1734 opposes to the maintenance of low wages. Different from Child he, depending on the view that the existence of many peoples able to purchase is required for the development of industry, insists that the cause of depression of industry is the want of purchasing power of the large mass of consumers instead of the rise of desire of the lower class of society which was blamed as a luxury in that times. Moreover he maintains that higher wages are an incentive to more work for the labourers.

Further Postlethwait also alike, in his "Great Britain's Commercial Interest explained and improved" published in 1775, depending on the view that where the poors are many the home market for industrial goods is small, that the luxury of the few can never take place of the consumption of the many and consequently too large inequality of property is contrary to the industrial interest of the land, demands high wages and low price of the means of subsistence. Moreover he indicates that the latter brings about the increase of population and consequently of the quantity of supplied labor. In addition he asserts also that the idleness of labourer depends not on his inborn defect rather on the lack of incentive to work to him and consequently in order to make him work more man must move the motive of improvement of his conditions. He alike defends that a reasonable rest time is given to the labourers.

Lastly Foster who is evidently influenced by Mirabeau, Rousseau and so on represents a similar view in his "Enquiry into the Causes of the present high prices of provisions" published in 1768. Depending on the psychological experiment of the peasant in the European continent that the want incites to work but only the want which can be satisfied through working, consequently a man who the more works is imposed the more tax, according to the experience, works so less as possible, he asserts that the policy of government of fixation of wages or raising of the price of means of subsistence must lead to a general dullness and idleness. And he refutes that proposition that the labourer would work less if wages are high and prices are low, and argues that surely a sudden rise of wages in individual cases leads to less work, however in general the more a labourer can improve his conditions through it he will work with the more power and love.

However these writers did not represent the prevalent opinion of that times. Rather they called forth severe oppositions. Many anonymous books, for example "Essay on Trade and Commerce" published in 1770 and "Considerations on Taxes" published in 1765 refutes Postlethwait as follows: The most common knowledge of man teaches that the English labourers work only for the bare living. Therefore only high prices compel them to work. When prices are low the working time is shorter and yet would work less industriously than when prices are high and wages are low because in the latter time the labourers must strive to satisfy their employers. The French labourers work more though they do not eat meat and drink wine on which the English labourers believe to have an inborn right. The latter are the most idle labourers. In order to improve them it is essential to raise the price of means of subsistence so higher that they can not earn more than the bare livelihood by the continuous work of six hours. Moreover these writers demand the fixation of

maximum wages and minimum working hours through the government.

Arther Young also represents the same standpoint in his "Six Month's Tour in the North of England" published in 1770. He reports that merchants and manufacturers in Manchester wish the high price of corn rather than the low price of it because the woollen goods manufacturers ruined owing to a too large cheapness of corn. He also demands a raising of the price of means of subsistence and a lowering of wages. However Young on the other hand thinks the rise of customary desire of labourers also as an incentive to more work. But Houghton refutes this view and insists that the rise of the standard of living of labourer is impossible, a surplus of wages over the necessary livelihood means only more drinking, more smoking, more headache and less work.

If in the early stage of the development of the capitalistic economy, as these writers maintain, the labourers in general widely had the thought of "living befitting status" and had not the desire to raise their standards of living and consequently when higher wages or cheaper means of subsistence had enabled the labourers to earn the livelihood required to do this "living befitting status" by less labour they work less, then it is evident that in order to make the labourers work more, it is necessary to make this "living befitting status" impossible without that they work more, and that the rise of productivity in consequence of the economic progress can not lead to a rise of wages. It depends on this fact that the advocaters of the theory of cost of reproduction of labour power, such as Ricardo, Lassalle and Marx think the height of wages to be determined by "the quantity of food, necessaries and conveniences become essential to the labourer from habit" (Ricardo) the quantity of "necessaries of life required by custom" (Lassalle) the quantity of the means of subsistence depended on "the custom and need of life of the class of free labourer" (Marx) in other words, the quantity of those required to do "the living befitting status", that men of that times depending on this theory thought that the economic progress and the rise of productivity does not lead to the rise of wages. Hence we must think it as the result of the emancipation of labourers from that thought of "living befitting status" and the growth of the desire to raise their livings unlimitedly in the later stage of the development of capitalistic economy, that in this stage the theory which maintains that wages are not by the cost of reproduction of labour power but by the marginal product of labour has prevailed, and that depending on this latter theory, the view which maintains that the economic progress and the rise of productivity leads to the rise of wages has been acknowledged widely.

Schulze in the above-mentioned book states on this development in the English cotton industry as follows.

"Till in 19th century the standard of living of labourers, the quantity of labour and the sum of wages was fixed by authority. If he earned as much as sufficient to do the customary living for six days by the work for three days, so he did not work in the other three days. Therefore the merchant of Manchester said to A. Young that the high price of the means of subsistence is more desirable than the low price of it, because only the former compells the labourers to work.

The foundation of this customary living fell with the generation of the modern industrial system. Reduced peasants and house-manufacturers, poor children, displaced soldiers, in short, the poorest of the poors were placed on the new-invented machine:

It is well known that only the labourer who had fallen into the extreme poverty determined to do the work of factory, the regularity and iron discipline of which seemed as worse than even the unlimited poverty of the house-manufacturers. These elements were compelled to work regularly only through the lowest wages. This reduction was done with so less resistance as the first worker of large industry was now for the first time deprived the customary conditions, on the other hand his employer had already realized the modern man. The strength of that first generation of English large manufacturers existed surely in the fact that they performed regardlessly the principle of economy. The principle: satisfy your needs with as least expense as possible, produce with lowest cost, was applied for them so much that the chorus of economists which plays for the drama declared it as the eternal law of human life.

“Man had spoken of “white slave” which the modern factory system has created. This is more than a hackneyed phrase. Because in spite of the outward difference surely the conditions of that proletariat of factory who was created by the large industry was inwardly equal to those of slave in the facts that it appeared to be hopelessly tied on the minimum living, that any interest of the worker on the work lacked. The observer of that times had inferred the iron law of wages from this. He saw, as we to-day see, only that industrial stage which belonged to the transition from small industry to large industry and was lengthened only where that transition was delayed. The large industry, on the other hand, which was no more perfectly in the position of monopoly against the declining handicraft required for the purpose of reduction of the cost of production gradually a similar elevation of the labour as that which in former times had led from unfreedom to freedom. That proletariat of factory the conditions of which reminded of unfreedom was removed by the growing large industry.

This arises surely from the fact that that first humble workers certainly did not work cheaply. As later on in every land where man introduced the factory system, in that times man in England had to struggle with the irregularity of labour. A judge who had the professional knowledge reported in about 1800 that it was impossible to make the spinner work regularly. “They often spent two or three days of the week in idleness and drinking and made the children who worked among them wait them in the bar till they determined to go to work. If they went to work, so they could often desperately work in day and night in order to pay the counting of their bars and to earn the new money for dissipation.” This description reminds of what the blue book to-day reports of the Indian spinning industry, the large industry with newest machines. In spite of all discipline is here not to prevent that the workers in their working go out, irregularly in the meantime eat and rest. Therefore man is compelled to hold a such number of workers that the working men can take place of unworking men: man permits under this premise that the men during the working time go out and smoke, the women give milk to their children, the workers often are absent in order to cultivate their fields in their homes and so on. On the other hand there is no long pause during which the machines stop, no free Sunday or only one in a month in order to clean the machines and the working hour amounts to from 12 to 14 hours.

In Lancashire, to-day the land of highest efficiency of labour, also in that times man had experienced a similar thing.

How few the machine still in that times had settled down in the consciousness of people is proved by the refusing, often hating attitude of the most writers, against whom Ure takes the more advanced standpoint. So a well-known doctor in Manchester grieves in that times the fate of the workers: "the people must work during the machine works. Men, women and children are in the yoke spanned with iron and steam. The animal machine—weak in the best case, open to thousand springs of pain, variable in every moment—is fastened with the iron machine which does not know any pain and fatigue." It is significant how here the machine as such is blamed for its unhumanity, the nearly mathematical exactness, which it requires of worker, appears as tyranny. In all movements of labourers in the first decade of 19th century the hate of the masses is directed to the machine.

But gradually arises a change, a change due to the economic progress. It was in the thirty years of 19th century that the international competition arose for the first time in the area of the eldest large industry. If England wished to win, so it must deduce the cost of production. How was this possible? No more through the repression of the labourers, because these stood in the minimum living. Hence the means of the economic victory was only the technical improvement as well as the decrease of the number of employed labourers in proportion to products. Both led to the continuous deduction of piece wage, what was decisive for the power in competition struggle, on the other hand to the increase of the weekly earnings of labourers. Like man could not give to the slave a better tools in the hand, the machine which continues to become more complex and expensive could not be committed to a poor proletariat of factory: A labourer of higher standard of living was required in order to raise the speed of spindle, to raise the number of spindle to be supervised, to decrease the number of labourer per a spinning factory of given scale.

This development corresponded to a psychological change similar to that which had brought forth the modern entrepreneur. While the man of middle age stood in his inborn standard of living, his needs were fixed by authority—a state which had been maintained long in the lower class of the society—the modern man now wakes in the workers of large industry. As the enterprising spirit of the employers captures the whole world "greedily" from the standpoint of the former order of society, so the limit of the economic effort of workers also falls. His needs hitherto limited by custom captures the whole outcome of the culture. He adds what he earns more than his bare living requires to his standard of living. He raises his output in order to satisfy his risen needs. He also by it as the last submits to the "Law of largest possible gain" which had captured first the merchant, then the industrial entrepreneur and brought forth the modern society. The best labourer of the world is to-day the labourer with highest needs, as the cotton labourers in Lowell and Fall River surpasses all their trade fellows in output, further in needs also.

Surely this development began for the first time in the thirty years of 19th century in England. It is proved by the report of the Blue Book that a later type of labourer also was generated. He came into the world as the mule-spinner of Lancashire. So for example the statement of Edwin Rose is indicated who in the twenty or thirty years of 19th century long worked in a spinning factory in Mulhausen. In the latter city at least the twofold labour power is required against in Lancashire. Hence the

labour is dearer in spite of lower wages. In Mulhausen in the case of lower number mostly three persons came on 200 reels, in England on from 600 to 800. Certainly according to Ure in Elsass in that time the number of spindle on each frame appeared to rise rapidly: nevertheless the output remained a lesser. The daily output from 800 spindles was in the case of yarn No. 40 66 pound in England, 48 pound in France. It is proved from many statements of entrepreneur on the named investigation committee and on that "on artisans and machinery" that the inquired manufacturers already saw the possession of better labourers as their main strength against the continental rivals. "A spinner in England does twofold as much as a French. The latter gets up at about 4 o'clock and works till 10 o'clock in night. But our spinner does in six hours what the latter does in ten hours."

In the same direction laid the statement of labourers that in spite of shorter working time the working is now much more earnest than at the former time: man complains of it that some labourers are caught by a dangerous sense of honour to work more than is right for the human nature. The same witness from Stockport reports that these labourers further develop the hitherto unknown needs also, for example in place of going to a bar, to read books and visit a school—all this in that times a quite exceptional phenomenon. They were possible only in a city where, as in Stockport, already in that times the second generation was spinning and into where especially many poor children were introduced to work in the factory. Because nothing promotes so much the development of the modern man as the compelled or voluntary migration to other lands."

Lujo Brentano explains the causes which had brought about such a change on the mind of workers as follows in his "Hours, Wages and Production" published in 1894.

"The change on the mind of worker has been and is everywhere produced by the fact that the pressure which the progressive economic development has exercised upon his personal circumstances has pushed him out of the traditional rut as regards alike his requirements and his productiveness. But it is not without difficulty that this change is brought about. As Dr. Samuel Johnson has said: "Established custom is not easily broken till some great event shakes the whole system of things and life seems to recommence upon new principles." This great event comes about for the working man;—

Either (1) by his leaving home and by the consequent necessity imposed upon him of gaining his living under entirely new conditions.

Or (2) by the pressure exercised on his energy, while he remains at home, by the growing competition and division of labour, in proportion as his own economic life becomes more and more involved with and absorbed into the economy of his nation and of the world.

The influence exerted by the renunciation of his home and of his accustomed surroundings in awaking the whole energy of a man may be gathered from the following facts.

Mackenzie Wallace tells us that the Russians are extremely conservative, so long as they are left in their original moral condition. But even the Russian peasant, when transferred by circumstances into a new sphere of activity, makes no difficulty, he says,

about accepting whatever he sees to be to his advantage. In agriculture it is extremely difficult to bring about a change in his method, even though it may promise him more. If, however, they gave up agriculture altogether, and went into the town to devote themselves to manual labour, as did many peasants under the Obrok system even in the days of serfdom, then they found themselves in a new world, in which none of their traditional ideas were applicable. Then there was no hesitation on their part to adopt new ideas and inventions; indeed they soon surpassed the Germans in active energy. Here we have the explanation of the contradiction between the descriptions of Russian peasants in the novels of Slatovraczky and Ouspensky respectively, both of which are declared by competent Russians to give an exact picture of the facts. The first describes a peasant who clings to the old order, the other a peasant who has broken loose from it.

We get the same lesson, only still more impressively, from Karger's book on migratory labour in Saxony. Labourers from Prussian Saxony itself, and from the immediately neighbouring provinces, are no longer available for the beetroot-growers of that province. The natives stream off to the urban industries, in which they get better wages and their places then are taken by imported labourers, chiefly from Upper Silesia. The latter have the worst possible character for idleness at home. Allured by the comparatively high wages offered them in Saxony, they migrate thither; and there, in a strange land they begin work early and leave it late, while the savings they send home are extremely large. They amount to an average of £7 10s. in a beetroot season, and in exceptional cases rise to almost double that sum. It should be observed that these labourers rest as a rule during the winter, as they are then without work.

In this case the comparatively high pay which for the Saxons themselves is an ordinary wage and therefore no longer an adequate inducement to keep them in the country for the extremely fatiguing labour of beetroot cultivation, is the attraction that brings the Upper Silesians into the district and, after they have broken loose from their traditional circumstances, from idle these latter become industrious. We can observe the same thing also in the case of the Italians who year after year throng into all parts of Germany as navvies and stone-masons. That they are not always hard working in their own country is well known; and the fewer their requirements are when they are at home, the harder it is to move them to exceptional exertion. On the other hand we are constantly amazed at the industry displayed and the work accomplished by the Italians who are employed every summer in Germany for a wage that we think a low one; and in their case also large savings are sent home. They stint themselves in every way they can.

Even with the highly developed labourers of our civilized countries we see the same thing. However much the production of the English labourers surpasses that of other Europeans, yet what they do at home is far behind what they do when they leave home and labour in the colonies; and thus the American labourer outdoes the English and the Australian the American. As Karger very justly says: "To one who has torn himself away from the old life of the home simply and solely with the object of earning money during a certain number of months by his labour, the mere fact of sojourn in a foreign country, among people who have all come there for a similar purpose, is alone enough to act upon him as an inner compulsion to more strenuous labour."

However the above-mentioned change of the general opinion on the effects of economic progress on wages in the course of development of the capitalistic economy is, as above stated, due to not only this change in the mind of labourers but also the fact that the advancement of efficiency in industries in consequence of the technical progress and the enhancement in the rate of utilization of the equipments of production such as machines or apparatuses, on the one hand, has enabled to enhance wages of labourers and, on the other hand, has required the labour power of higher quality. Because when the equipments of production such as machines or apparatuses are not used with full efficiency in consequence of lower quality of labourers the increase in employment of these things leads to a rise of the cost of production instead of a reduction of it and consequently the profitable enhancement of efficiency necessitates the employment of labourers of higher quality, with the result that wages must rise with the enhancement of productivity in the course of development of the capitalistic economy.

That the employment of the labourer of higher wages means not the higher but the lower cost of production is indicated by J.S. Mill in his "Principles of Political Economy" as follows.

"Wages, and the cost of labour; what labour brings in to the labourer and what it costs to the capitalist; are ideas quite distinct and which it is the utmost importance to keep so. For this purpose it is essential not to designate them, as is almost always done, by the same name. Wages, in public discussions, both oral and printed, being looked upon from the much oftener than that from the receivers, nothing is more common than to say that wages are high or low, meaning only that the cost of labour is high or low. The reverse of this would be oftener the truth: the cost of labour is frequently at its highest where wages are lowest.

We continually hear of the disadvantage under which the British producer labours, both in foreign markets and even in his own, through the lower wages paid by his foreign rivals. These lower wages, we are told, enable, or are always on the point of enabling them to sell at lower prices and to dislodge the English manufacturer from all markets in which he is not artificially protected.

Before examining this opinion on grounds of principle, it is worth while to bestow a moment's consideration upon it as a question of fact. Is it true that the wages of manufacturing labour are lower in foreign countries than in England in any sense in which low wages are an advantage to the capitalist? The artisan of Ghent or Lyons may earn less wages in a day, but does he not do less work? Degrees of efficiency considered, does his labour cost less to his employer? The wages may be lower on the Continent, is not the cost nearly the same? That it is so seems the opinion of competent judges and is confirmed by the very little difference in the rate of profit between England and the Continental countries. But, if so, the opinion is absurd that English producers can be undersold by their Continental rivals from this cause. It is only in America that the supposition is *prima facie* admissible. In America wages are much higher than in England if we mean by wages the daily earnings of a labourer; but the productive power of American labour is so great—its efficiency, combined with the favourable circumstances in which it is exerted, makes it worth so much to the purchaser—that the cost of labour is lower in America than in England; as is proved by the fact that the general rate of profits and of interest is very much higher.

General low wages never caused any country to undersell its rivals, nor did general high wages ever hinder it from doing so."

Alfred Marshall also in his "Principles of Economics" published in 1907 comments on the relation of wages and costs of labour as follows.

"We have hitherto supposed that it is a matter of indifference to the employer whether he employ few or many people to do a piece of work, provided his total wages-bill for the work is the same. But that is not the case. Those workers who earn most in a week when paid at a given rate for their work, are those who are cheapest to their employers (and ultimately to the community, unless indeed they overstrain themselves and work themselves out prematurely). For they use only the same amount of fixed capital as their slower fellow workers; and since they turn out more work each part of it has to bear a less charge on this account. The prime costs are equal in the two cases; but the total cost of that done by those who are more efficient and get the higher time-wages is lower than the total cost of that done by those who get the lower time-wages at the same rate of piece-work payment."

Further Seligman also in his "Principles of Economics" published in 1921 alike states the relation of wages and costs labour as follows.

"Economic production implies the turning out of the greatest product with the least cost. So far as the wages of labour form an element of cost it would seem to follow that low wages or cheap labour is a necessary condition of low cost. Before accepting this ostensibly self-evident proposition, however, it is necessary to pursue the analysis further.

In any single industry low wages do not necessarily mean low cost. The real cost of labour is to be measured by its productive efficiency. Just as the hundred-thousand-dollar railway president is cheap because an inferior and low-priced substitute would botch matters and increase expences, so in the case of the ordinary wage-earner the real cost is to be measured by the ratio of wages to the product of labour. In the Philippines the contractors find it in the end cheaper to hire the Chinamen in preference to the natives, although the former command larger wages; in the Southern cotton factories the white labourer is found more advantageous than the negro factory hand who can be hired at a materially lower wage. Furthermore in the same industry and with the same workmen neither an increase of wages nor a curtailment of labour time necessarily augments cost. Where a reduction of hours or an increase of wages succeeds in enhancing energy, care and sobriety the output may be greater than before. Especially where fine machinery is used and a high grade of intelligence is required to secure the best results we often find a true economy in high wages and a lower cost in shorter hours."

That the use of the equipments of production such as machine and apparatus with full efficiency requires the labourer of higher quality is indicated by Schulze in his above-mentioned book as follows.

"The enormous increase of production depends in the first place on the machine. The labour does not become more heavy in the degree of the increased production

rather the purely bodily labour becomes lesser. The mule-spinner does not work 2000 fold more than the industrious hand-weaver and yet his output surpasses the latter in the mentioned proportion." "In 1840," says Atkinson in a lecture before the cotton weaver, "the labour was heavy and incessant—13 hours daily; to-day you can comb your hair while the looms are moving almost automatically; the working time amounts to 10 hours.": To-day beside the labourer stands a powerful fellow of labour: the mental work of generations which lays in the machine.

Formerly the labourers who moved their hands most incessantly had the most large output. In the most completely mechanized factory the labourers who know to operate least with hands and to limit this operation to the shortest time produce most. Because the machine transforms the raw materials into the manufactured goods in the successive processes; the operation of labourer means the elimination of the interruption and of the decrease in output; what is essential is to limit the loss which arises from it and to make the working of machines more and more automatic.

The machine had thus replaced the hand work. The premise for this was the incorporation of individual economies in the world market which dissolved the old hand work into the large number of the individual operations in order to make cheaper the cost of production. The division of labour was the premise for it that individual operations, the more they become uniform, can be taken over by the machine. The machine emancipates by it the labourers from that far-reaching division of labour which threatens to make men the tool. The division of labour is transferred from the labourer to the machine. The more it becomes automatic the more the labour of its watch becomes uniform.

Nevertheless it is a mistake to think that the work has become easier against former. In so far as a comparison is possible rather the reverse is the case. A hand-weaver can work 13 hours daily; to make a weaver with six looms work 13 hours physically impossible. The nature of work becomes just an other. The watch of the machine, namely the mental tension takes place of the manual labour. Any one who had observed the mule-spinner in Oldham surrounded by 2 1/2 thousand roaring spindles or the weaver in Burnley utmost of 4 moreover 6 reels with the speed of 200 strokes in a minute knows how high grade of mental tension is required here.

In addition the machine which becomes more and more complex demands a certain warm-hearted operation, a sympathetic consent to the thought of technique which lays in it on the side of labourers. Like as the English pure-blooded horse wishes to be led with understanding and love and the raw treatment of an unexperienced stableman refuses an obediency, as that highly developed type of the factory labour itself wants a sympathetic consent to its property and the best results are produced where the employers offer to it a certain sympathy for its class movement, so the more delicate machines also do not endure an unwilling and unsympathetic treating. Even the wonderwork of the human spirit produces the best product where the labourers who work on it themselves rise in their mental labour.

A third comes in consideration. The machines become more and more expensive; the product per a labourer increases enormously. Hence the responsibility of an individual labourer grows. Man compares perhaps that refiner, simply on whose ability depends the output of his refinery oven with that man who is responsible for the whole

content of a Siemens-converter. Further the same holds good for the cotton industry; the responsibility of that labourer who watches 2 1/2 thousand self-acting spindles is surely much larger against the old hand mule-spinner, whose machine had only few hundred of spindles and who produced even in heavy labour per a spindle much less than his successors.

Now the physical alacity, the mental understanding and the bearing of responsibility is not expected from such ill-nourished factory proletariat as the large industry brought forth at its advent. These require a higher standard of living of the labourers and the reduction of the working time to a reasonable limit."

One of the reasons why the employers strive to secure the labourers of higher quality by paying the higher wages in order to use the equipments of production such as machines or apparatuses with a sufficient efficiency is the regular working by means of improvement of the rate of attendance of labourers. This is proved by the fact that the more machines or apparatuses are used the more larger effort is made in order to secure the labourers of higher quality by paying a higher wage. For Example the payment of higher wages in large enterprises of our cotton industry is due to the fact that a female labourer takes charge of 80 automatic looms in large enterprises while she takes care of only 2 or 3 ordinary power looms in small enterprise. Since a female labourer takes charge of 80 automatic looms, her absent in large enterprises brings forth the idleness of 80 automatic looms which means indeed 40 or 27 fold loss of that caused by the absent of a female labourer in small enterprises in which she takes charge of only 2 or 3 ordinary power looms.

However the reason why the employers strive to secure the labourers of higher quality by paying the higher wages is not only this security of regular working by means of improvement of the rate of attendance of labourers, but also the necessity of employment of the labourers of higher degree of education in order to utilize machines or apparatuses with higher efficiency. For instance a cotton spinning factory in Tientsin which I once visited was managed by a big Japanese cotton spinning company and was more improved in equipments than that managed by the same company in Japan. Nevertheless in this cotton spinning factory in Tientsin 3000 female labourers took care of 50 thousand of spindles and I thousand of automatic looms while in that managed by the same company in Japan 1000 female labourers took charge of the same number of spindles and automatic looms. This is evidently due to the fact that the female labourers in Tientsin did not receive a school training while Japanese female labourers had received it at least for 8 years.

However the most important reason why employers strive to secure the labourers of higher quality by paying the higher wages is the necessity of employment of the labourers of higher technical ability in order to perform most efficiently the work which requires a higher technical ability. The above-mentioned cotton industry, like other textile industries, does not require a higher technical ability from the nature of its work. In these industries the labourers are able to learn their work during two or three months provided they received an ordinary school training. Hence in these industries the reason why employers strive to secure the labourers of higher quality by paying a higher wage is the more efficient utilization of machines or apparatuses only by securing the labourers of more industry and of higher education. On the contrary in the so-called heavy industry such as

metal-working, machine-making, ship-building, chemical industry the nature of the work requires besides industry and education a higher technical ability.

Therefore we may say that the prevalence of the opinion that the economic progress leads to a rise of wages in the later stage of development of capitalistic economy is due to not only the fact that the rate of use of machines or apparatuses had risen in that stage while it was very low and the hand work prevailed in the earlier stage, but the fact that in the later stage had grown the so-called heavy industry which requires a higher technical ability than the so-called light industry such as textile industry while in the earlier stage the latter industry which requires less a technical ability prevailed.

It does not need to prove in detail that in the earlier stage of development of the capitalistic economy the textile industry and other so-called light industries predominated in the industrial world and at the same time in these industries the equipments such as machines or apparatuses were scarcely used. In these circumstances not only there is no necessity of entrepreneurs to employ the labourers of higher quality by payment of higher wages, but moreover a payment of higher wages leads to the so much rise in the cost of production and consequently weakens the competitive power of the enterprises or industries which pay that higher wages. We may say that the employment of many lowest paid child labourers of inferior quality in the early stage of development of the capitalistic economy as proved by the history of the English cotton industry is due to this fact. But things are different when the rate of use of the equipments of production such as machines or apparatuses had risen and at the same time the heavy industries which require in general a higher technical ability had grown in the course of development of the capitalistic economy. In such circumstances lower wages not only, as is indicated by Mill, Marshall, Seligman and others, do not always mean lower cost of labour or of production, but rather much oftener mean higher costs of labour or of production. Because, as shown for example by the afore-mentioned cotton spinning factory in Tientsin, when the production of the same quantity of product requires the treble labourers in consequence of inferior quality of them, even if their wages the half, not only the cost of labour is higher as much as 50% but since the production of the same quantity of product needs the treble equipment of production the cost due to the use of it amounts to the treble. It is only when the decrease in the cost of production due to lower wages exceeds the increase in the cost of production due to the employment of more labourers and equipments of production in consequence of inferior quality of labourers that lower wages mean lower cost of production. But it is naturally only when the equipments such as machines or apparatuses are used scarcely that thus the decrease in the cost of production due to lower wages exceeds the increase in it due to an inferior quality of labourers. Therefore in the later stage of development of the capitalistic economy where the rate of use of the equipments such as machines or apparatuses in general had become a very high and at the same time the heavy industries had predominated which requires a higher technical ability, since the employment of the low-paid labourers of inferior quality means rather higher cost of production than the employment of higher-paid labourers of superior quality, we can not but employ the higher-paid labourers of superior quality in order to reduce the cost of production by means of raising the productivity. This is the positive cause of the predominance of the opinion that the economic progress or the rise of productivity leads to the rise of wages in the later stage of development of the capitalistic economy.