

Notes on the Piece-Work System Used for Group Work (1931 Article)

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Forward to the English edition:

This 1931 article explores the advantages and disadvantages of the group piece-rate system and the individual piece-rate system in the context of industrial work settings. According to Adamiecki, the group piece-rate system connects worker earnings and encourages self-organization among the group, but it has several drawbacks, including difficulty in calculating and verifying individual earnings and resistance to organizational changes. For this reason, he favored the individual piece-rate system, which allowed for easier calculations, adaptability, and transparency in worker earnings, fostering a "spirit of cooperation in industrial life."

It is worth noting that, while piecework is exceedingly rare today, during the first two-thirds of the 20th century, piecework pay systems were prevalent in manufacturing, particularly in engineering and metalworking industries [1]. Between the mid-1920s and the mid-1940s, the proportion of piece rate workers among skilled and semi-skilled blue-collar employees rose from 54% to a peak of 74%. Although Adamiecki was aware of the success of Fordism's daily wage system as an alternative compensation method, such alternatives are absent from his published works.

[1] Hart, R. A. "Piecework pay and hourly pay over the cycle" *Labour Economics* 15:5 (2008): 1006–1022.

Much has already been written about the piece-rate wage system, and it seems difficult to add anything new to the subject without boring the reader who deals with it. Nevertheless, I decided to outline a few of the following remarks because, in practice, the issue of the piece-rate system is still relevant, and I have become convinced that some important aspects of the piece-rate system should be emphasized more strongly, as they have not received enough attention so far.

The group piece-rate system is based on setting a certain rate for a unit of production for an entire group of workers engaged in this production, and then, when it comes to mass production, the total earnings (rate multiplied by production) for a certain period (e.g., 2 weeks) are divided among all participants proportionally to the number of daily wages they have earned and their basic daily wage, i.e., proportionally to the participants' earnings as if they were paid a daily wage. The total piece-rate earnings are shown to the worker in the calculated daily wage + an additional percentage calculated from this wage.

A characteristic feature of this system is that all workers of a given group are closely connected by their earnings: even the smallest change in the number of daily wages earned by individual workers or in the number of workers in the group or in the daily wages affects the amount of earnings of each participant. This participatory principle of earnings is considered by supporters of this system to be its main advantage, as they believe it encourages workers themselves to reduce the size of the group. Although such a view seems, at first glance, justified, in reality, it usually does not hold true. Workers almost never show a tendency to reduce the number of workers in the group because they fear that if the earnings of the remaining workers increase, the employer will try to reduce the rate. If workers sometimes agree to reduce the number or try to do so themselves, it almost exclusively happens only in temporary jobs, i.e., when the rate itself falls after the work is completed.

The second advantage of the group piece-rate system, as pointed out by its supporters, is that workers, being linked by their earnings, supposedly strive to organize their work among themselves in the best possible way. Such an effect can indeed sometimes be observed, but only for simple jobs and when all participants in the group perform more or less similar work, e.g., in manual digging, loading, transporting materials, etc. However, in cases of more complicated work involving diverse tasks, especially when the main work is performed by a device, machine, or apparatus, it is never observed that the group piece-rate system encourages workers to better organize their work. This is a matter too complex for workers to resolve on their own.

In reality, it turns out that in the group piece-rate system, any changes in the organization of work are greatly hindered because, even if they concern only part of the group, they always affect the material interests of all participants. Therefore, when a manager wants to introduce improvements in the organization of work paid according to the group piece-rate system, workers offer particularly strong resistance. Since the working conditions in metallurgical manufacturing are constantly changing, in order to achieve the highest possible production, it is often necessary to adapt the organization of work to these changing conditions (the variability of conditions is particularly noticeable in rolling mills, where the dimensions of the product constantly change). However, workers bound by the collective piece-rate system encounter the greatest resistance, which ultimately negatively affects production. It is definitely not possible to rely on workers organizing their work best on their own, because where the main work is performed by a device or machine and conditions are changing, the most important factor in good organization can only be intelligent management. If a manager, in order to avoid misunderstandings with workers, does not interfere with the organization of work and relies on the fact that the workers themselves, paid according to the collective piece-rate system, will do it best, it proves that they do not understand their main task. Such behavior and illusion may be very convenient for people without initiative spirit, but it is unacceptable for a manager. In fact, it is shifting one's responsibilities onto subordinates.

In general, it must be said that the aforementioned presumed advantages of the group piece-rate system do not hold up in reality, and even turn out to be disadvantages when the system becomes too heavy and inflexible when dealing with complex work and changing conditions, requiring frequent adaptation of the organization and changes in the number of workers in the group. Another particularly important drawback of the group piece-rate system is the fact that the calculation of individual earnings, as shares of the total sum, is too difficult to understand and almost impossible for workers to verify. In order for a worker to calculate or verify their earnings, they must know not only the total production for a given period, but also the daily wages and their own and all their colleagues' daily rates for the same period, and on top of that, they must have some understanding of arithmetic involving the rule of three. Therefore, workers can only guess what percentage of the daily wage should be added for a given production. Since it often happens for various reasons that the total sum of earnings calculated according to the daily rate changes independently of production, the percentage of the additional pay does not always increase simultaneously with production. Workers then become distrustful and suspicious, believing that the percentage is being deliberately cut. This, of course, negatively affects workers to a great extent and discourages them from increasing production, which means that the main goal of the piece-rate system is not achieved.

During my many years of working in the industrial field, I have been convinced many times that some unscrupulous and shortsighted employers have taken advantage of this difficulty in calculating and verifying individual earnings by workers in various ways, for example, by gradually and constantly decreasing the piece rate itself by a small fraction, without the workers' knowledge, who were not able

to notice this, not having the possibility of performing the entire calculation, especially since, with a constantly but slowly increasing production, noticing that the pace of earnings growth was slower than the pace of production growth was only possible after a longer period, e.g., 2-3 years.

I assume that this kind of policy is now a thing of the past and that it is impossible today. However, I must state that in the past such employers were not rare exceptions. I also noticed that they were particularly zealous supporters of the group piece-rate system, preaching about its imaginary advantages.

Looking at this issue today from the perspective of time, I can say that such behavior was highly detrimental and unwise, as the employer, achieving relatively small material gains in this way, created enemies from the workers, who, although unable to verify whether their calculations were correct, always felt that something was not right.

The sad but inevitable consequence was that workers transferred their justified mistrust and hostile attitude to those employers who acted fairly.

Another disadvantage of the group piece-rate system in mass production is that individual earnings can only be calculated after the end of the entire period, usually two weeks or monthly. This significantly weakens the encouraging effect of piece-rate pay on increasing production, as workers do not immediately see, during the work itself, how their daily effort affects their earnings. One of the most important principles of motivation requires that a person sees the results of their efforts immediately and as often as possible, while in the group piece-rate system, a worker only learns about the results of their efforts after a month or two weeks.

The aforementioned disadvantages do not exist in the individual piece-rate system, which requires that, in group work, each worker has their own piece-rate per unit of production, in an amount dependent on the type of activity they perform. In such a system, each worker is interested in the group's production being as high as possible, since their earnings depend neither on the number of workers in the group nor on their daily wages, nor on the number of daily rates earned by the group.

I have had the opportunity to see multiple times in practice that this system is incomparably better than the group piece-rate system. Every time I introduced this system instead of the group piece-rate, production increased within a very short time to an almost unexpected height. A very encouraging measure for workers was that the production of the previous day was announced daily, and everyone, knowing their rate, could immediately calculate how much they had earned.

Since a worker's earnings in this system do not depend on the number of participants in the group, some critics argue that workers under these conditions will constantly demand an increase in the size of the group and will protest when there is a need to reduce it. Judging superficially, one could indeed consider this a disadvantage of the individual piece-rate system compared to the group piece-rate. However, I have found in practice that this disadvantage is only apparent. Although workers are indeed inclined to demand an increase in their numbers if they know that it will not result in a decrease in their earnings, a manager who understands their role and can examine all the subtleties of the work process will not consider such demands as a disadvantage of this wage system. In my opinion, it is even an advantage, as such demands force the manager to examine the matter in detail.

If a manager constantly strives to improve the organization and methods of work, if they thoroughly investigate the matter and decisively reject unjustified demands while being able to prove that they are unjustified, and if they find that the workers are right and that this will lead to an increase or improvement in production, they will agree to increase the number of workers or even take the initiative themselves. After some time, workers gain trust in their supervisor and stop making unjustified demands. In my practical experience, I have found that with the individual piece-rate system applied to group work, there are far fewer reasons for misunderstandings with workers than with the group piece-rate system.

For a manager whom the workers trust, introducing changes and improvements in the organization with the individual piece-rate system is easier. Even changing individual rates is easier if there is a real need, as you only deal with those directly affected by the change, rather than the entire group.

As a particularly important advantage of the individual piece-rate system for group work, compared to the group piece-rate system, I finally consider the fact that various tricks on the part of the employer are impossible, as every worker, as long as they can multiply, can check at any time whether the calculation is correct.

In conclusion, I must add that I wrote the above remarks a long time ago, in 1906; however, I ask the reader to forgive me for bringing such old material from my archive into the public forum and to believe me that I am not doing this to fill a few pages of our journal and thus reduce the editorial difficulties, but because I recently found that even today, this old material may be useful for managers who strive to instill a spirit of cooperation in industrial life, in line with the main principle of organizational science. I will be extremely glad if the above remarks stimulate any of the readers to draw further practical conclusions or deeper reflection, and thus prevent them from making mistakes when applying the piece-rate system.