

# ***Research on the Relationship Between Teachers' Unconditional Payment Increase and Students' Performance***

**Lai Jiang<sup>1,a,\*</sup>**

*<sup>1</sup>Economics Department, University of Rochester, Rochester, NY, 14620, United States  
a. [ljiang12@u.rochester.edu](mailto:ljiang12@u.rochester.edu)*

*\*corresponding author*

**Abstract:** Many developing and developed countries have paid more and more attention to students' education. Important policy decisions reflect the relationship between teachers' and students' performance. Expanding school access to students in different financial situations, improving teachers' attendance rates, and increasing teachers' mobility are all examples of ongoing policies. Among all the policies, the most trending and attractive policy is to increase teachers' unconditional payment and thus increase students' performance. In this article, by reviewing research papers and case studies by economists, the articles found that increasing teachers' unconditional payment could increase students' performance to some extent because it increased teachers' job satisfaction, work performance in class, motivation, and qualification of professional skills. Some studies show a positive relationship between higher teachers' unconditional payment and students' performance. However, the effects of the policy are restricted to experienced teachers and top and wealthy students.

**Keywords:** Economics of Education, Unconditional Payment Increase, Students' performance

## **1. Introduction**

### **1.1. Research Background**

Teachers are the dominant characters in children's school life. Policymakers globally express a significant interest in the correlation between teacher salaries and the overall effectiveness of schools. The issue of how to make students gain the most and produce the most human capital with the help of teachers has also been a frequently discussed topic in educational economics. One trending policy is to increase teachers' unconditional wages to improve students' performance because people believe that higher teachers' income positively impacts teacher motivation, retention, and student performance.

Moreover, the importance of evaluating the effectiveness of the policy that raises teachers' unconditional income to improve students' performance is that people believe it has both social and business value. The social values are: (1) Increased unconditional teachers' income can attract and retain talented individuals in the teaching profession, leading to improved educational quality [1]. Teachers who receive fair and competitive unconditional payment are prone to be motivated, committed, and actively involved in their duties, positively impacting the learning experience for students. (2) Increased teacher salaries can reduce turnover rates [2,3]. High turnover negatively

impacts students, as it disrupts the continuity of education. Stable teaching staff fosters a sense of community within schools, allowing teachers to build lasting relationships with students, parents, and colleagues. (3) Higher teacher income can attract and retain educators, increase teacher mobility in underserved communities, and provide quality education to students facing economic and social challenges. This contributes to reducing educational inequalities and promoting equal opportunities for all. (4) Higher teacher income can increase teacher satisfaction and retention, fostering a stable and positive learning environment. This, in turn, strengthens the social fabric of communities and contributes to a more informed and engaged citizenry.

Besides the social values, the policies also contain business values that are worthy of investigation: (1) Produce graduates who are better prepared for the demands of the workforce in the future. This, in turn, enhances the pool of potential employees for businesses. (2) Quality education encourages critical thinking, problem-solving, and creativity. This fosters a future workforce that is adaptive, innovative, and capable of driving economic growth. (3) A well-educated population is essential for sustained economic growth. Businesses benefit from the long-term effects of an improved education system, as it provides a skilled workforce, reduces social inequalities, and creates a more stable and prosperous society. As a result, Governments, educational officials, teachers' unions, and parents care about deciding and carrying out policies that benefit teachers, students' performance, and society.

While most of the researchers focused on the effectiveness of increased unconditional payment and its relationship with students' performance, some researchers, on the contrary, focused on why increased unconditional payment failed in certain areas.

## **1.2. Research Framework**

This paper will first discuss the application ability of the policy, then examine the effect on teachers, then analyze the effect on students' performance to discuss the true effectiveness of implementing the policy of increasing teachers' unconditional payment and its influence on students' performance by comparing and contrasting several reviewed articles. Moreover, the paper will discuss whether the policy may succeed or fail to find the relationship between teachers' unconditional payment increase and students' performance in certain areas. Lastly, the paper will discuss why the policy may fail in certain regions.

## **2. Description of Relationship between Teachers' Unconditional Salary Increase and Students' Performance**

Before discussing the policy, understanding the definition of unconditional Payment Increase is needed. An unconditional Payment increase is a form of Income increase. Unlike the bonus paid teachers get when students get higher grades. However, an unconditional Payment Increase is an increase in income to all employees in one region regardless of the characteristics of employees. The first question that needs to be figured out is whether teachers ever respond to increased pay. In order to examine the policy's effectiveness, making sure teachers are sensitive to increased payment is important. According to the data sets from Jack Britton and Carol Popper's article, teachers respond to pay [1]. Jack Britton and Carol Popper examined the influence of teacher salary differences on school effectiveness and productivity in England by utilizing the centralized wage regulation system. Their findings indicate that a wider wage gap between the external labor market and teachers' salaries is linked to a lower overall school rating. Furthermore, this gap is also connected to a decline in teaching quality. Likewise, the research team of Duflo et al. employed a structural dynamic labor supply model to assess the responsiveness of teachers to financial incentives, revealing a significant impact [4]. All the results shown above suggest that teachers do respond to increased income. Since Unconditional Payment increase is a form of Income increase, a result that teachers respond to

unconditional income increase can be derived. That is to say, increasing teachers' income has some effectiveness for teachers.

With the findings above, a new problem needs to be examined: Do teachers lower turnover rates and become motivated because of high wages? As we all know, selecting an occupation is among the crucial decisions in the realm of human capital. Just as one of the social values predicted, increasing teachers' income will attract qualified workers who will originally choose other occupations to educational occupations. Moreover, the policy is anticipated to motivate newly hired and existing teachers to put more effort into students. In one research article, Sean et al. analyzed the teaching labor market will lose qualified teachers because of low wages in the future [4]. Christa Deneault employed administrative data from Texas and utilized two-way fixed-effects methods. The research revealed that local labor market fluctuations significantly shape career decisions long before individuals enter the labor market. Furthermore, she suggested that enhancing the relative economic attractiveness of teaching as a career can positively impact the future supply of teachers [5]. Joppe de Ree and his colleagues observed that a substantial increase in teachers' payments had noteworthy effects. This involved a significant enhancement in teachers' contentment with their earnings, a decline in the occurrence of teachers engaging in external employment, and a decrease in self-reported financial strain [2]. As a result, the government may be willing to increase teachers' salaries to retain and motivate good teachers. Only loss-averse workers demonstrate a decrease in effort in response to increases in wages [6]. Based on these results, a conclusion could form: teachers have lower turnover rates and become somewhat motivated by increased unconditional income.

Increasing teachers' unconditional wages seems to improve all teachers' effort, motivation, and quality. But it is not the full story of the results. One prevalent belief is that unconditional payment increases of a position could attract, retain, and motivate more quality workers. Nations occasionally introduce substantial raises in the salaries of school teachers to attract more qualified candidates and increase motivation for current staff. According to the research by Joppe de Ree and other research team members, the result provides that unconditional salary raises are improbable to serve as a qualified policy choice for enhancing the diligence of current employees in government job environments [2]. Joppe de Ree and his colleagues carried out a comprehensive randomized experiment with an ongoing policy in Indonesia. This policy leads to a long-lasting, almost permanent, twofold increase in the base salaries of Indonesian teachers. According to the study's results, the salary increases positively impacted the satisfaction of teachers in their professional roles and their capacity to focus more on teaching, as it diminished the need for supplementary employment. This, in turn, was expected to enhance the overall quality of teachers' performance in the classroom. However, Ree et al. also discovered limited evidence indicating that teachers in the treatment group exerted more effort in response to the salary increase. The comparison between treatment and control schools showed no discernible difference in scores on teachers' assessment tests or the probability of seeking additional education. This lack of distinction suggests that teachers did not utilize the extra time gained because of increased payment to enhance their skills.

Eric A. Hanushek and colleagues utilize matched panel data to investigate how salary alterations affect teachers' makeup in a specific area. The result of the article reveals that the basic estimates of teacher salary on 4th and 5th-grade achievement demonstrate minimal or no significant influence. Nonetheless, a noteworthy alteration is observed in the student-fixed effects in the final three columns, indicating that the salary incentivizes existing teachers to enhance their performance [7]. That is to say, the sole noteworthy correlation between unconditional salary increase and student performance and/or achievement in this research paper is observed for seasoned teachers, excluding newly hired or probationary teachers.

An increase in wages can attract high-quality workers to work as teachers, improve teaching quality, retain good teachers, and motivate teachers, But effectiveness is restricted to experienced

teachers. It is essential to explore and provide insights into a novel inquiry: the ways in which these impacts on teachers ultimately enhance student performance. Tin-Chun Lin suggested that the empirical findings from her research supported the hypothesis, indicating a positive and statistically notable correlation between teachers' unconditional salaries increase and students' performance. This suggests that increased teacher salaries draw in more highly qualified educators, thereby positively influencing student academic performance and improving overall student achievement [8]. Similarly, Richard et al. suggest that teacher pay and quality positively impact school performance. Likewise, Richard and other researchers propose that teacher pay and quality have favorable effects on school performance. In fact, a shift from the lowest to the highest levels of both teacher pay and teacher quality, all else being equal, results in high school academic achievement (performance) improvements (approximately 3% and 6%) [9]. However, contrasting findings emerge in reports from other researchers.

Todd Pugatch and Elizabeth Schroeder also examine the effectiveness of unconditional salary increases in Gambia. Under the Gambian hardship allowance system, teachers in economically disadvantaged regions receive wages that are higher than those in other areas. Pugatch and Schroeder observed no discernible impact of the Gambian Hardship policy on students' typical test results [10]. However, their results indicate that there was probably an improvement in student's performance at the higher range of the test score distribution, accompanied by a decline at the lower end [10]. Similarly, Brian D. Yontz and Rachel E. Wilson analyzed data sets encompassing Ohio student achievement and teachers' salaries during the 2013-2014 academic year. Their research indicates that when they categorize their sample into quintiles based on poverty levels, the significance of teacher salary is observed only in the top quintiles, specifically for wealthier students. Furthermore, their findings suggest that in certain districts, particularly affluent ones, the influence of teacher salaries on student performance can be managed. In contrast, for other districts, particularly those with lower economic status, teachers; unconditional payment increases are a factor that shows no association with student performance [11]. The results from both articles suggest that teachers' significant and unconditional salary increases had minimal to no impact on the performance of average and/or economically disadvantaged students, with improvements observed primarily among the top-performing and/or affluent students.

The discussion above shows some limitations to the policy of increasing teachers' unconditional payment to improve students' performance. Only teachers who have stayed in this occupation for some time benefit from this policy. However, there are different results about whether increasing teachers' unconditional payment could improve students' performance. Some researchers proposed that higher teachers' salaries positively impact students' performance, while others suggest that the positive impact only exists for top and wealthy students. The failure to find the relationship between teachers' sales and students' performance by implementing this policy in some areas may be due to, or part of, the difference in study design. So, it is necessary to examine what and why these differences exist.

### **3. Comparison of Relationship between Teachers 'Unconditional Salary Increase and Students 'Performance**

The similarities between the studies are clear by comparing and contrasting these papers. (1) These studies are all done in public sectors (public schools); (2) Control and treatment groups are randomly assigned.

The differences in the studies are also found: (1) Some researchers used panel data, some used case studies, and others used standardized experiments; (2) Some experimental locations are in developed countries, while others are in developing countries; (3) The controlled elements are different.

#### 4. Plausible Reasons for Relationship between Teachers' Unconditional Salary Increase and Students' Performance

The similarities and differences that were just analyzed above help to find that the method of collecting data, the location of the experiment, and control elements may be the key elements to solve why the results in various articles are different. Tin-Chun Lin and Cebula et al. All conducted the study in the United States, and all their findings are the same—higher teachers' salaries can improve student performance. In contrast, Ree et al. conducted the study in Indonesia. Pugatch and Schroeder conducted the study in Gambia. These two countries are all developing countries. The teachers' and students' base quality differs from that of American students. The income gap between families in Indonesia and Gambia can be larger than that of American families. Those reasons may account for the result differences.

Additionally, previous researchers have struggled to consistently demonstrate that teachers' unconditional payment increase significantly impacts student outcomes. These studies typically overlook non-pecuniary job attributes and alternative wage opportunities, neglecting the influence on the opportunity cost associated with teaching. Susanna Loeb and Marianne E. Page, leading their research team, replicated the methodology of earlier studies and obtained similar results. Nevertheless, upon taking into account labor market factors, they found that a 10% raise in teachers' unconditional payment is linked to a reduction (approximately 3% to 4%) in high school dropout rates. Their results imply that earlier studies lacked robust estimates due to inadequate controls for non-monetary aspects of the educational profession and variations in alternative job offers across different markets [12].

#### 5. Conclusion

In conclusion, many developing and developed nations have increasingly focused on enhancing students' education, with pivotal policy decisions hinging on the correlation between teachers and student performance. Ongoing initiatives encompass widening school accessibility across various financial backgrounds, improving teachers' attendance rates, and bolstering teacher mobility. Notably, a prevailing and appealing policy involves augmenting teachers' unconditional compensation, positively influencing students' performance.

This article, through an examination of economists' research papers and case studies, discerns that elevating teachers' unconditional payment has the potential to enhance students' performance. This effect is attributed to heightened job satisfaction, improved in-class performance, heightened motivation, and enhanced professional skills qualifications among teachers.

Several studies indicate a positive association between increased unconditional payment for teachers and enhanced student performance. However, it's noteworthy that the impacts of this policy tend to be more pronounced among experienced teachers and students from affluent backgrounds.

#### References

- [1] Jack, B., Carol, P. (2015). *Teacher pay and school productivity: Exploiting wage regulation*, *Journal of Public Economics*, Volume 133, 2016, Pages 75-89, ISSN 0047-2727, <https://doi.org/10.1016/j.jpubeco>.
- [2] Joppe, D. R., Karthik, M., Menno, P., Halsey, R. (2018). *Double for Nothing? Experimental Evidence on an Unconditional Teacher Salary Increase in Indonesia*, *The Quarterly Journal of Economics*, Volume 133, Issue 2, Pages 993–1039, <https://doi-org.ezp.lib.rochester.edu/10.1093/qje/qjx040>
- [3] Corcoran, S. P., Evans, W. N., & Schwab, R. M. (2004). *Women, the labor market, and the declining relative quality of teachers*. *Journal of Policy Analysis and Management*, 23(3), 449–470. <https://doi.org/10.1002/pam.20021>
- [4] Duflo, E., Hanna, R., & Ryan, S. (2012). *Incentives work: Getting teachers to come to school*. *The American Economic Review*, 102(4), 1241–1278. <https://doi.org/10.1257/aer.102.4.1241>
- [5] Deneault, C. (2023). *Local Labor Markets and Selection into the Teaching Profession*. *Working Paper*.
- [6] Fehr, E., & Goette, L. (2007). *Do Workers Work More if Wages Are High? Evidence from a Randomized Field Experiment*. *The American Economic Review*, 97(1), 298–317. <https://doi.org/10.1257/aer.97.1.298>

- [7] Kain, J., Hanushek, E. A., & Rivkin, S. G. (1999). *Do Higher Salaries Buy Better Teachers?* NBER Working Paper Series, 7082-. <https://doi.org/10.3386/w7082>
- [8] Lin, T.-C. (2010). *Teacher salaries and student achievement: the case of Pennsylvania*. *Applied Economics Letters*, 17(6), 547–550. <https://doi.org/10.1080/13504850802167223>
- [9] Cebula, R. J., Mixon, F. G., & Montez, M. A. (2015). *Teachers' salaries and human capital, and their effects on academic performance: an institution-level analysis of Los Angeles County high schools*. *Journal of Economics and Finance*, 39(2), 347–356. <https://doi.org/10.1007/s12197-013-9261-3>
- [10] Pugatch, T., & Schroeder, E. (2014). *Teacher Pay and Student Performance: Evidence from the Gambian Hardship Allowance*. *IZA Discussion Papers*, 8621.
- [11] Yontz, B. D., & Wilson, R. E. (2021). *Teacher Salary Differentials and Student Performance: Are They Connected?* *Journal of Educational Issues*, 7(1), 168-. <https://doi.org/10.5296/jei.v7i1.18400>
- [12] Susanna, L., Marianne, E. (2000). *Examining the Link between Teacher Wages and Student Outcomes: The Importance of Alternative Labor Market Opportunities and Non-Pecuniary Variation*. *The Review of Economics and Statistics*; 82 (3): 393–408. doi: <https://doi-org.ezp.lib.rochester.edu/10.1162/003465300558894>