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Comparison between Average Lifetime Earnings of Government and Private School Teachers

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Abstract

Education equips individuals with skills, enabling them to earn higher incomes than those without such qualifications. However, earnings are influenced by age/experience, indicating a significant connection between education, age, and earnings. The age-earnings profile serves as a tool to understand the lifetime earnings distribution of individuals within specific education groups, aiding in retirement decisions. In this context, the study's objectives are to estimate the average lifetime earnings of government and private school teachers and compare the age-earnings profiles, before and after tax, among these groups. The study, conducted in Kathmandu district, Nepal, focuses on estimating average lifetime earnings and comparing before-and after-tax age-earnings profiles of government and private school teachers. The post-positivism philosophy was adopted, using a cross-sectional survey design with 100 school teachers as the study unit. Results reveal differences in earning patterns between private and government school teachers, indicating that higher education correlates with higher earnings in both settings. Notably, private school teachers earn less than their government counterparts, suggesting disparities in salary facilities between Kathmandu's two types of schools.

Introduction

The age-earning profile measures the distribution of individual income serving as a crucial tool for comprehending the labor market dynamics (Klevmarken, 1982). This profile plays a pivotal role in explaining the personal distribution of income shedding light on factors influencing retirement decisions. Employees weigh the relative value of work

against leisure, because retirement options are often tied to financial incentives such as private pensions and social security. As a result, the income profile significantly affects pension accumulation by assuming a downward slope to the current discounted values of private pensions and social security benefits for non-retirees (Casanova, 2012). An integral aspect of the profile is the lifetime age-earnings which represents the conclusive or predictable component of earnings. According to labor supply theory, workers' earnings exhibit an inverted U shape, with an early increase, a flattening in the middle stage, and a subsequent decline in the retirement stage, indicating a smooth decrease in earnings with age (Blundell & MaCurdy, 1998)

Age earnings profiles measure the influence of two variables on earnings: first is level of education can be measured by years of schooling, and second is age can be served as a proxy for years of work experience (Woodhall, 2004). There are four relations between earnings and age, and they are as follows: (a) earnings are highly correlated with education; at every age, the highly educated earn more than workers with less education, and there is no crossing of profiles, (b) earnings increase with age up to a peak at middle age and then flatten or even decline, up to the age of retirement, (c) the profiles of highly educated workers are steeper than those of the less educated; the peak earnings of an educated worker are higher, concerning initial earnings than the peak earnings of the less educated, and (d) the age at which earnings reach their peak is later for highly educated than for less-educated workers; in a few cases the earnings of highly qualified human resources continue to rise until retirement (Psacharopoulos & Woodhall, 1995; Woodhall, 1992).

Lifetime income estimation involves categorizing educational levels and considering mean income across different age groups. Education is viewed as an investment, with returns calculated based on costs and benefits. Private benefits include additional income over a lifetime, both direct (monetary) and indirect (non-monetary) such as career prospects and well-being (Heise & Meyer, 2004). Social benefits encompass increased government income through taxes from well-educated individuals (US Bureau of Census, 1970). From an investment perspective, education is considered an investment in human capital, delivering benefits at individual, state, and societal levels (Pandit, 1998). The rate of return to education is central to the age-earnings profile, encompassing the benefits and costs of education.

Private benefits, both direct and indirect, contribute to the overall impact of education (Owings & Kaplan, 2019). Direct private benefits encompass monetary or material gains, such as current income, future income, and lifetime income, accrued by individuals participating in education (Institute for Higher Education Policy, 1998; Leslie & Brinkman, 1988). The most apparent direct benefit is that educated workers earn higher incomes than their less-educated counterparts, leading to increased lifetime earnings (Psacharopoulos & Woodhall, 1995).

Indirect private benefits include non-monetary advantages like enhanced career prospects, job security, and job adequacy. Additionally, they provide non-material benefits such as improved health, quality of life, social and cultural participation, personal well-being, increased life expectancy, higher chances of marriage, and involvement in honorary activities (Heise & Meyer, 2004). These

benefits are not directly linked to monetary gains like consumption and quality of life, making them challenging to quantify but crucial for a comprehensive understanding of education's benefits (Hansen & Weisbrod, 1969; Williams & Swail, 2005). Moreover, well-educated individuals with higher skills and productivity can secure better jobs, reducing unemployment and contributing to healthier lives, as well as facilitating the better education of their children (Becker, 1975; Hansen & Weisbrod, 1969; Herndon, 2008; Lochner & Moretti, 2004).

Social benefits materialize in the form of government income received through taxes. Governments generate more tax revenue from higher-income groups and less from lower-income groups. Well-educated individuals contribute more to taxes, strengthening the social benefit of education (Galindo-Rueda & Vignoles, 2005; Holland et al., 2013; McMahon, 2009; O'dubhslainé, 2006). These social benefits can be analyzed in terms of direct and indirect aspects. Direct social benefits involve monetary income for the government, society, or institutions, measurable in monetary terms. Indirect social benefits encompass externalities and spill-over effects of education. Quantifying these externalities, which signify the impacts of education on societal development, has proven challenging (McMahon, 2004). Externalities or spill-over benefits also contribute to increasing other individuals' income. Various studies have attempted to identify and quantify externalities, including contributions to democracy, human rights, political stability, crime reduction, poverty alleviation, environmental benefits, and technology use and adaptation (McMahon, 2004, 2009, 2010, 2017).

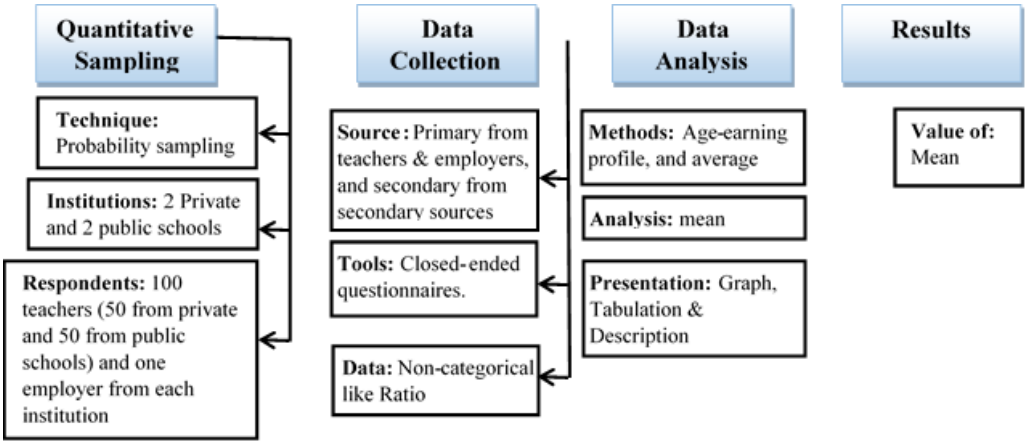
The benefits of education can be analyzed based on the level of education, with higher levels providing higher private benefits, while school-level education contributes more to social benefits. Studies indicate that higher education levels correlate with higher private returns. For example, hourly wages increase with higher education levels in the United States and Australia (Sinning, 2014; Tansel & Bircan, 2011). Additionally, research demonstrates the higher earning potential of individuals with postgraduate degrees, bachelor's degrees, and advanced diplomas (Böckerman et al., 2019; Ferreyra et al., 2017; Yubilianto, 2020). However, the benefits of education vary across countries, age groups, regions, and job sectors. Factors such as color, race, and gender also contribute to wage differentials among equally qualified employees. Studies from different regions, including the UK, Iraq, Africa, and Australia, reveal variations in wages based on education levels, age, and gender (Choi, 2021; Hout, 2012; Jepsen et al., 2014; Lewis & Lee, 2020; UNICEF, 2017). The findings suggest that education contributes significantly to economic returns, with variations influenced by diverse factors (Peet et al., 2015). Moreover, social benefits of education extend beyond monetary gains (Arshad & Ghani, 2015). Elite college degree, for instance, increase marriage prospects and affect the likelihood of marrying individuals with high incomes or privileged backgrounds (Hout, 2012). Social benefits are challenging to quantify in monetary terms but include positive impacts on family activities and participation in social and political activities (Khan et al., 2012).

It is seen in the case of Nepal that numerical achievement of education clearly shows that the number of schools, universities, and students is gradually increasing every year (Paudel, 2021). In absolute figures, the

total number of schools grew significantly from 17,816 in 1987 AD to 35,876 in 2024 AD, and over the same period, students grew from 2.53 million to 7.14 million. Likewise, over the same period, universities grew from 5 to 19, and students grew from 82.96 thousand to 739.94 thousand (MOF, 2017, 2024). Likewise, the government of Nepal has mainly focused on school education (Paudel, 2008) and allocated 80 to 85 percent of education budget in different fiscal years (MoF, 2023) without analyzing the costs and benefits of education. Therefore, the study aims to estimate average lifetime earnings of government and private school teacher, comparing before and after-tax unadjusted age-earnings profiles in Kathmandu district. The findings are anticipated to inform educational programs, policies, and investment decisions.

Methods

This study is based on the quantitative research approach, post-positivism philosophical understanding and cross-sectional survey design. The following design has been used in the study.



Source: Author's creation.

The universe of study is the total number of school teachers in the Kathmandu district, and their ages range from 19 to 60 years. Primary and secondary data have been collected from schools' teachers and head teachers and the Nepal government's publication, respectively. Simple random and stratified sampling techniques have been used to extract the sample size from the population. The close-ended questionnaire has been used for data collection. The data validation exercise was more rigorous. The data were checked thoroughly at the end of the survey day, and informal discussion with the head teacher of the schools was done to ensure that there were no omissions, errors, or ambiguities. After collecting teachers' earnings, after-tax and before-tax unadjusted earnings profiles have been prepared, and average lifetime earnings have been calculated. All types of this information have been presented in tables and figures and interpreted in the textual description. Ethical considerations have been strictly followed in this study.

Result

In government-based schools, wages or salaries are paid to the teacher according to the fixed pay scales determined by the state government of Nepal. The basic pay scale of the school teacher differs according to the designation level. In the field, net payment

differs due to different types of designation, such as permanent and temporary, and the number of grades. For example, if the teacher is permanent and has consumed higher grades, his net payment is higher than others in the same designation. The basic salary in the government-based school in Nepal is presented in Table 1.

Table 1

Basic Monthly Salary in the Government-based School of Nepal – 2022.

Designation	Primary level teacher (NPR)	Lower-secondary level teacher (NPR)	Secondary level teacher (NPR)	Higher secondary level teacher (NPR)
Basic salary	24,010.00	28,610.00	37,990.00	42,380.00

Table 1 shows that government-based school teachers, for the designation of primary level teacher, lower-secondary level teacher, secondary level teacher, and higher secondary level teacher, get monthly salaries of NPR 24,010.00, 28,610.00, 37,990.00, and 42,380.00 respectively. Likewise, they get NPR 2,000.00 for dearness allowance and NPR 834.00 for uniform allowance monthly (MOF, 2022). However, there is no rule of payment in private schools.

Respondents' basic characteristics

The required data regarding benefits of higher education have been gathered from employees currently working as school teacher in government-based and private schools. The require qualifications for school level teaching profession are proficiency certificate level to master level, across primary level to higher secondary level.

Table 2

Basic characteristics of respondents

Variables		Female	Male	Total
Age	30<	16	16	32
	30-50	26	20	46
	50>	10	12	22
School	Government funded	26	24	50
	Private funded	26	24	50
Education qualification	PCL/+2 level	8	10	18
	Bachelor level	12	8	20
	Master level	32	28	60
	Mphill level	0	2	2
Position	Primary teacher	16	6	22
	L. secondary teacher	16	14	30
	Secondary teacher	12	14	26
	Higher secondary teacher	8	14	22
Type of Education	Faculty of Education	16	18	34
	Faculty of Humanities	12	14	26
	Faculty of Management	8	6	14
	Faculty of Science	16	10	26

Table 2 indicates that the gender distribution among participants is nearly equal, with males representing 48 percent and females 52 percent. Participants are evenly split between government-funded and privately-

funded schools. In terms of educational qualifications, 60 percent of the participants hold a master's degree, while 2 percent have an MPhil degree. The proportion of primary and higher secondary teachers is the same at 22 percent each, while 30 percent are lower secondary teachers, and 26 percent are secondary teachers. The majority, 34 percent, are from the faculty of education, whereas the smallest group, 14 percent, is from the faculty of management.

Before-tax unadjusted age-earnings profile

The objective of this study is to determine the average lifetime earnings of teachers in government and private schools. To achieve this, age-earnings profiles have been constructed for graduates with PCL/+2, bachelor's, and master's degrees. These profiles are based on earnings data from teachers occupying various positions, including primary, lower-secondary, secondary, and higher-secondary levels, where the minimum educational qualifications are PCL/+2, bachelor's, and master's degrees. In this study, a teacher's working age is considered to be between 19 and 60 years. Age is represented in both discrete and continuous series: ages 19 to 24 are plotted as a discrete series, while ages 25 to 60 are plotted as a continuous series. This distinction is made because employees with PCL/+2 qualifications typically begin working at age 19, those with bachelor's degrees at age 23, and those with master's degrees at age 25. Therefore, ages 19 to 24 have not been shown in a continuous series. This classification is used to facilitate data analysis. The before-tax age-earnings profile of teachers is presented in Table 3.

Table 3

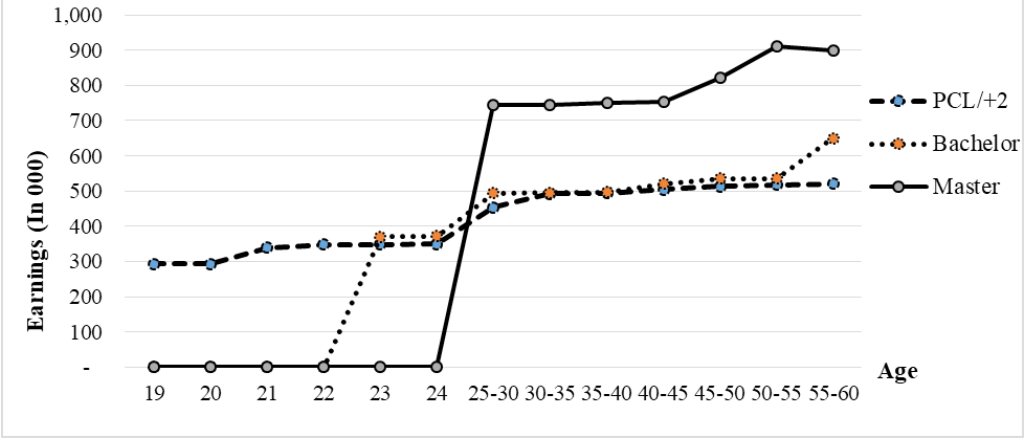
Before-tax Unadjusted Age-earnings Profiles – 2022 (In 000).

Age	Government schools			Private schools		
	PCL/+2	Bachelor	Master	PCL/+2	Bachelor	Master
19	294	-	-	205	-	-
20	294	-	-	205	-	-
21	340	-	-	213	-	-
22	348	-	-	213	-	-
23	349	371	-	236	286	-
24	350	372	-	236	286	-
25-30	454	494	744	267	330	669
30-35	493	495	745	267	341	670
35-40	494	497	751	290	345	720
40-45	505	520	752	293	413	753
45-50	514	535	821	343	415	758
50-55	518	536	912	342	467	899
55-60	520	650	899	340	462	900
Average lifetime earnings	445.91	494.81	768.94	269.99	359.17	719.82

Table 3 shows the pre-tax unadjusted age-income profile. It means that the amount of tax is not deducted from the taxable amount. The teachers who have graduated from PCL/+2 level and working as primary and lower secondary level teachers of government schools, their annual average lifetime earning is NPR 445,910. This type of earnings for bachelor graduated and master graduated are NPR 494,810 and NPR 758,940, respectively

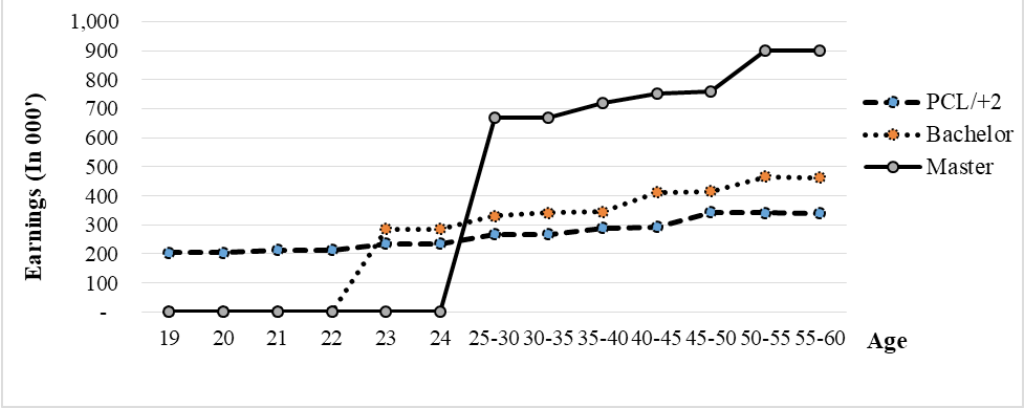
in the government-based schools. Likewise, teachers who graduated from PCL/+2 level, bachelor level and master level have gained NPR 269,990, NPR 359,170 and NPR 719,820, respectively in the private schools. These data have been presented in Figure 1 and Figure 2.

Figure 1



Before-tax unadjusted age-earnings profile of government-based school teachers.

Figure 2



Before-tax unadjusted age-earnings profile of private school teachers.

Figures 1 and 2 each display three lines representing different earnings levels. These lines correspond to the lifetime earnings of graduates with a master's degree, a bachelor's degree, and a PCL+2 qualification, respectively, across various ages. The overall pattern of these earnings levels is similar across the figures. However, the top line consistently indicates the highest earnings, while the bottom line shows the lowest.

After-tax unadjusted age-earnings profile

For the construction of unadjusted after-tax age-earnings profiles, the tax amount should be deducted from the taxable amount. For this, we need to know Nepal's income

(direct) tax system. The government of Nepal changes the income tax rate from time to time. However, Nepal's income tax policy for FY 2022/23 (Nepal Law Commission, 2022) has been used in the study to adjust teachers' earnings. The after-tax age-earnings profile of the government-based and private school teachers is presented in Table 4.

Table 4

After-tax Unadjusted Age-earnings Profiles – 2023.

Age	Government-based schools			Private schools		
	PCL/+2	Bachelor	Master	PCL/+2	Bachelor	Master
19	291.06	-	-	202.95	-	-
20	291.06	-	-	202.95	-	-
21	336.60	-	-	10.87	-	-
22	344.52	-	-	10.87	-	-
23	345.51	367.29	-	233.64	283.14	-
24	346.50	368.28	-	233.64	283.14	-
25-30	449.46	489.06	687.76	264.33	326.70	628.51
30-35	488.07	490.05	688.55	264.33	337.59	629.30
35-40	489.06	492.03	693.29	287.10	341.55	668.80
40-45	499.45	512.80	694.08	290.07	408.87	694.87
45-50	507.46	526.15	748.59	339.57	410.85	698.82
50-55	511.02	527.04	820.48	338.58	462.33	810.21
55-60	512.80	613.50	810.21	336.60	457.38	811.00
Average lifetime earnings	441.18	488.43	707.74	267.29	355.58	668.66

Table 4 clearly shows the after-tax unadjusted age-earnings profile of government-based school teachers and private school teachers. It means that the amount of tax is deducted from the taxable amount. The teachers who have graduated from PCL/+2 level and working as primary and lower secondary level teachers of government schools, their annual average lifetime earning is NPR 441,180. This type of earnings for bachelor graduated and master graduated are NPR 488,430 and NPR 707,740, respectively in the government-based schools. Likewise, teachers who graduated from PCL/+2 level, bachelor level and master level have gained NPR 267,290, NPR 355,580 and NPR 668,660, respectively in the private schools. These data have been presented in Figure 3 and Figure 4.

Figure 3

After-tax unadjusted age-earnings profile of government-based school teachers.

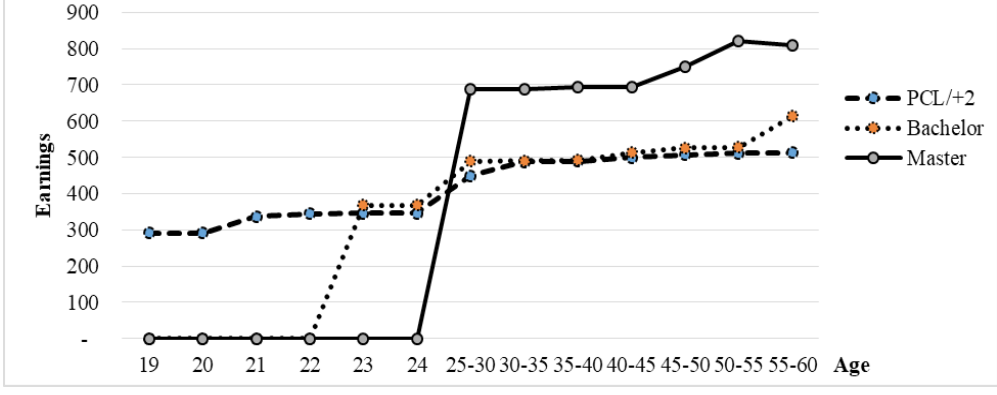
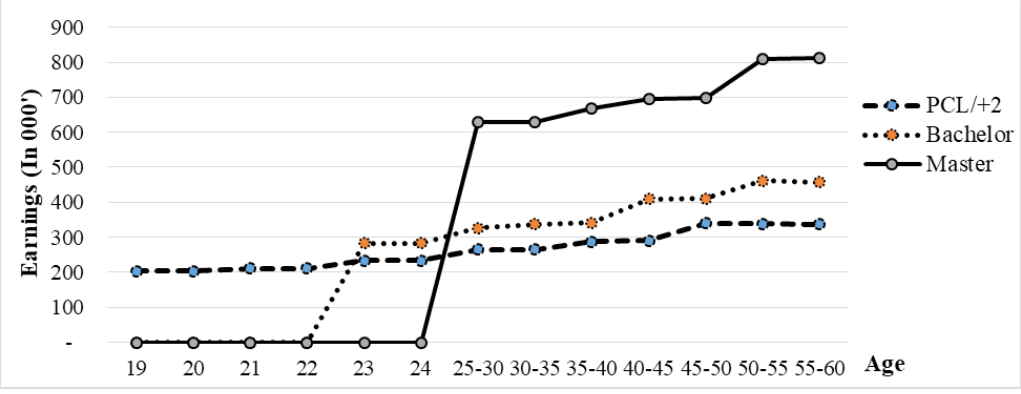


Figure 4



After-tax unadjusted age-earnings of private school teachers.

Figures 3 and 4 each display three lines representing different earnings levels. These lines correspond to the lifetime earnings of graduates with a master's degree, a bachelor's degree, and a PCL+2 qualification, respectively, across various ages. The overall pattern of these earnings levels is similar across the figures. However, the top line consistently indicates the highest earnings, while the bottom line shows the lowest.

Discussion

The adjusted age earnings profile separates education's contribution from total earnings, while the unadjusted version compiles income without isolating education's impact. Age earnings profiles can be categorized into adjusted and unadjusted formats, with education playing a crucial role in influencing earnings. The paper aims to create unadjusted before-tax and after-tax age earnings profiles for both government-based and private school teachers. Education provides both direct and indirect benefits to individuals and the government, with direct benefits being quantifiable in monetary terms and indirect benefits being unmeasurable (Melianova et al., 2020).

When an individual invests in education and enters the job market, earning a certain income, it is challenging to attribute that income solely to education. Various factors, including social, economic, family, school quality, and gender, also influence income (Mamun et al., 2021). Nonetheless, the unadjusted age-income profile assumes that education is the exclusive contributor to an individual's earnings, without excluding other influencing factors. The theoretical premise suggests a positive correlation between education level and earnings, with higher education corresponding to higher income (Psacharopoulos & Patrinos, 2018a). This theoretical understanding aligns with the findings of this study, as depicted in Figures 1 and 2 based on the data presented in Table 2. Notably, government school teachers tend to earn more than their private school counterparts. The income gap between the two is widest at the PCL+2 education level, followed by the graduation level and the master's level.

The earning patterns of private school teachers mirror those of government school teachers, indicating that higher education results in higher income for employees

in both sectors. This study specifically analyzes three education levels—PCL/+2, Bachelor's, and Master's—from an economic benefits standpoint. The results show that individuals who have completed the master's level receive the highest financial benefits, followed by those with a graduate degree and those with a PCL/+2 qualification. However, despite similar earning patterns, private school teachers generally earn less than their counterparts in government schools. Consequently, when comparing the earning curves of government and private school teachers, the curves of government school teachers consistently remain above those of their private school counterparts.

Additionally, besides salary, school teachers enjoy various facilities during their working period and retirement. These facilities may encompass economic perks such as allowances, interest on savings funds, and pensions, as well as non-economic benefits like health insurance. Teachers may also invest in shares of certain companies through the Employee Provident Fund and Citizen Investment Trust. However, the age-earnings profiles in this study do not incorporate these additional economic and non-economic benefits due to a lack of reliable data, potentially introducing a downward bias to the study.

Conclusion

The theoretical perspective suggests that higher education leads to higher earnings, while lower education results in lower earnings, demonstrating a positive relationship between education and earnings. This study confirms this relationship, showing that in government schools, teachers with PCL/+2, bachelor's, and master's degrees, working in primary, lower secondary, secondary, and higher secondary positions, earn an average annual lifetime income of NPR 441,180, NPR 488,430, and NPR 707,740, respectively. While the earnings patterns of private school teachers closely mirror those of government school teachers, private school teachers generally earn less. This discrepancy indicates that private schools in Nepal may not provide the same salary opportunities as government schools.

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