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Exploring the impact of social factors on graduate earnings in Kerala

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Abstract

This study examines the influence of social factors on the earnings of graduates in Kerala, India. Analyzing both IHDS 2011 data and primary data from Kozhikode district, the research explores the impact of gender, caste, parental education, field of study, and employment type on earnings. Findings indicate a significant gender wage gap and the influence of parental socio-economic status on graduate earnings. The study also highlights shifts in the relative economic value of different educational streams and the crucial role of early academic performance. It suggests the need for policy interventions addressing these disparities, particularly for first-generation students and in addressing gender biases in the workforce.

Keywords: *Graduate Earnings Kerala, Socio-Economic Factors in Education, Gender Wage Gap in Kerala, Educational Impact on Employment, Higher Education and Earnings, Social Class and Graduate Income, Educational Streams and Earnings, Family Background and Graduate Success, Labour Market Kerala, and Gender Disparity in Employment.*

Introduction

Education is pivotal for individual and societal advancement, fostering scientific and technological growth essential for national development. Especially in higher education, it significantly impacts employment opportunities and earnings. Typically, workers with lower

education levels find employment in less complex or manual jobs, whereas those with higher education occupy specialized roles demanding greater complexity. Education is often seen as a conduit for social mobility, an aspect particularly noticeable in Kerala, a state distinguished for its high Human Development Index largely due to educational factors. However, in Kerala, the effect of social aspects like gender, caste, parental education, and study disciplines on earnings has been under-explored. This study addresses this gap by examining the influence of these variables on the income of higher-educated individuals, using both the IHDS 2011 dataset and primary data from graduates in Kozhikode district.

Several international studies have examined the factors influencing graduate earnings. Crawford and Vignoles (2014) found a notable difference in earnings between UK private and state school graduates. Robin, Smith, and McKnight (2002) highlighted how various factors, including gender, course characteristics, social class, and student traits, affect graduate incomes in the UK, analyzing data from the 1993 cohort of 'old' UK universities. Walker and Zhu (2010) focused on the impact of graduation subjects on earnings in the UK, observing significant gender disparities in this influence. Macmillan, Tyler, and Vignoles (2013) explored the connection between family background and early career success in top jobs, utilizing data from the Destinations of Leavers from Higher Education and HESA surveys to investigate the role of family backgrounds and networks in securing higher-status occupations. The study reveals that graduates from private schools are more likely to secure high-status jobs than their counterparts from state schools in similar socio-economic conditions. Machin and Puhani's (2005) research in Britain, France, and Germany focuses on how the choice of degree subject contributes to the gender wage gap among university graduates. Arnaud Chevalier's (2011) study examines the varied earnings of UK graduates from different disciplines, noting significant gender wage disparities within the same subjects. Meraz’s (1983) research at the Durango Institute of Technology, Mexico, using data from senior engineering students, found that socioeconomic status alone didn't significantly influence academic achievement, suggesting that a mix of socio-economic and school factors contribute to this, though they only account for a small portion of the variance in achievement.

Sharma's 2016 study using NSSO data from 2011-12 delves into the link between education levels and employment patterns in India, uncovering a significant, positive relationship between educational attainment and employment status. It highlights that higher education

increases the likelihood of regular employment while decreasing the probability of casual jobs. While numerous studies outside India have investigated the determinants of graduate productivity and earnings, such research is lacking in Kerala. This gap is what the current study aims to address.

The IHDS 2011-12 data set includes 400 graduates aged 25 to 45, with a gender distribution of 42.5% males and 57.5% females. Among these individuals, 229 are employed, comprising 149 males and 80 females. To supplement these findings with more recent data, additional research was conducted on graduates from 2007 to 2010 batches in three colleges in Kozhikode district. This primary research, conducted in 2021, gathered data from 108 working individuals, consisting of 78 males and 30 females.

Determinants of earnings of graduates in Kerala by using IHDS data

This section delves into examining the primary occupational status of graduates and the factors that influence the earnings of those who are employed. Understanding the work status of graduates is crucial, especially since the study's core objective is to assess the impact of social factors on earnings. It's essential to focus on those who are actively working, as analyzing the non-working graduates won't yield relevant insights for this study's purpose. Therefore, exploring the employment status of these young graduates is a key part of the research.

Table 1 - Activity status of the young graduates of Kerala(IHDS 2011-12 data) Per cent

Primary activity status	Sex		Individual
	Male	Female	
Employed	87.6	34.8	57.2
Unemployed	6.5	3.9	5
Students	4.1	3.5	3.8
Housework	0.6	56.1	32.5
Others	1.2	1.7	1.5

Source: IHDS data 2011-12

Table 1 highlight that only 57.2% of young graduates in Kerala are employed, with a 5% unemployment rate. Gender disparities are evident, as only 34.8% of young female graduates are employed compared to 87.6% of their male counterparts. A striking 56.1% of female graduates are primarily engaged in household work, contrasting sharply with just 0.6% of males, indicating persistent gendered labor divisions despite educational advancements. The majority of females, regardless of education, remain outside the paid labor market. Among

those employed, there's a preference for regular salaried jobs among females (93.8%) compared to a more diverse employment pattern among males, including casual jobs and self-employment. This echoes Mathew's (1995) findings that higher-educated individuals tend toward regular salaried work over casual or self-employment. Understanding these gender differences in employment and earnings is crucial in analyzing the determinants of earnings among educated individuals.

Table 2 - Gender difference in type of employment of the graduates in Kerala (per cent)

Employment status	Sex	
	Male	Female
Regular salaried	69.1	93.8
self-employment	18.8	3.8
Casual labour	12.1	2.5
Source: IHDS data 2011-12		

Table 3 reveals a significant gender disparity in both employment type and earnings among Kerala graduates. While a high percentage of employed women hold regular salaried positions, their earnings are substantially lower than their male counterparts. On average, male graduates earn significantly more than female graduates, indicating a gender wage gap. This disparity suggests that economic factors heavily influence women's participation in the labor market, with men being more likely to engage in market work due to perceived higher productivity, while women are more involved in domestic roles. This situation reflects deeper socio-economic dynamics affecting gender roles in employment and income in Kerala.

Table 3 - Gender difference in earnings(Rs. per year)

Sex	Mean
Male	141875
Female	97671
Source: IHDS data 2011-12	

Table 3 illustrates a clear gender gap in earnings among graduates in Kerala, with males earning an average of Rs. 141,875 per year compared to females who earn Rs. 97,671. This data highlights a significant wage disparity based on gender.

Furthermore, the study suggests that caste continues to be a significant factor in the wage labor market in India, as evidenced by Das and Dutta (2007). In Kerala, which is often viewed as a progressive society, caste still influences earnings. Graduates from the general caste category tend to earn more than those from the OBC and SC categories, with the SC

caste graduates earning the least. The earnings gap between the general and OBC categories is less pronounced. This data points to persistent social stratifications impacting economic outcomes, even in regions with advanced social indices.

Table 4 - Social class-wise difference in average earnings (Rs per year)	
Social class	Mean
General	127291
OBC	126125
SC&ST	100158
Source: IHDS data 2011-12	

The data presented in Table 5 indicates a relationship between the field of study and earnings among graduates, supporting the findings of Machin & Puhani (2005). Science graduates, regardless of gender, tend to earn more than those in commerce and arts. Interestingly, male commerce graduates earn less compared to their counterparts in arts and science, whereas for female graduates, commerce seems to offer better earnings than arts and science. This suggests a nuanced interaction between the field of study and earnings, influenced by gender.

Table 5 - Gender wise earning difference based on the stream of study (Rs. Per year)			
Stream of study	All person	Male	Female
Arts	124513	139175	87290.91
Commerce	117791	124371.8	95200
Science	139302	169686.7	106912
Source: IHDS data 2011-12			

This analysis clearly demonstrates that the subject of study is a significant determinant of earnings, with science graduates generally earning higher salaries than their peers in other fields during the 2011-12 period. This trend holds true irrespective of gender, indicating a consistent value placed on science education in the context of earnings.

Table 6 suggests that, on average, regular salaried work yields higher earnings for both genders, with a notable difference for males. Interestingly, for females, self-employment appears more lucrative than either regular salaried work or casual labor. The earnings gap between genders is prominent, with female regular workers earning significantly less than their male counterparts. The disparity is even more acute in casual labor. However, in self-employment, women tend to earn more than men, indicating their potential for higher income in entrepreneurial roles. This highlights the importance of exploring gender-based earning

differences, particularly in the context of employment types, to address potential discrimination.

Table 6 - Type of Employment and Mean Annual Earnings (Rs. Per year)			
Stream of study	All person	Male	Female
Regular salaried workers	128228	145491.1	98160.56
Self-employed workers	101640	94000	125000
Casual workers	100033	109193.8	22000
Source: IHDS data 2011-12			

While the regular salaried sector generally offers higher salaries for men, and the majority of women are employed in this sector, the specific sector of employment plays a crucial role in determining earnings. The preference for government sector jobs is often cited as a reason for high unemployment in Kerala, highlighting the need to examine how the sector of employment affects earnings. This aspect is particularly important in understanding the broader employment and economic landscape of the region.

Table7 - Gender gap in earnings by the sector of employment of young graduates in Kerala (per cent)			
Sector	Person	Male	Female
Government	160927	166232.4	142109.6
Private	100449	119161.8	51800
Source: IHDS data 2011-12			

Table 7 sheds light on the earnings gap based on employment sector, revealing a significant disparity. Government jobs, favored for their higher pay, are more lucrative for both genders, particularly for women. The data shows a female in the private sector earns significantly less than her government-employed counterpart, more so than the disparity seen in men. This difference in earnings by sector clarifies reasons for lower female workforce participation. The analysis suggests that gender, field of study, employment sector, and job type are key factors in determining earnings for educated individuals in Kerala. Further regression analysis would provide deeper insights into these relationships.

In the study, the logarithm of monthly earnings is the dependent variable, with independent variables categorized into demographic, educational, and employment-related factors. The resulting wage equation, which includes variables like gender, caste (OBC), marital status, field of study (Science, Commerce), and sector of employment (government or private), provides a detailed insight into the determinants of earnings.

The model summary presented in Table 8 indicates an R value of .743 and an R Square of 553. This suggests that about 55.3% of the variation in the logarithm of monthly earnings can be explained by the included independent variables. The adjusted R Square, at .518, accounts for the number of predictors in the model, and the standard error of estimate at .52702 reflects the average distance that the observed values fall from the regression line. These results provide valuable insights into how different factors contribute to earnings disparities.

ln E = α + B1Mi+ B2Gen + B3 OBC + B4 married +B5 Sci +B7Com + B8 sec + B9 Wm + εi

The result of the wage equation is given in the below tables

Table 8 - Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.743[a]	.553	.518	.52702

a) Predictors: (Constant), Working days in month -person total, Dsci, Dummy OBC, D married, dummy male, Dgovtsector, DCOM, Dummy general

The model summary of the earnings equation in Table 8, with an R square value of 0.553, suggests that 55.3% of the variance in graduates' earnings is accounted for by the model's variables. Following this, Table 9's results, featuring an F value of 15.9 and a P value of .000 (less than .05), reinforce the model's significance in predicting earnings. These findings together indicate a robust model that effectively captures key factors impacting the earnings of graduates.

Table 9 - ANOVAa

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	35.348	8	4.419	15.908	.000b
	Residual	28.608	103	.278		
	Total	63.956	111			

a. Dependent Variable: LNYEARLYEARNING

b. Predictors: (Constant), Working days in month -person total, Dsci, Dummy OBC, D married, dummy male, Dgovtsector, DCOM, Dummy general

Table 10 - Estimated results of the wage equation

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.600	.333		25.820	.000
	Dummy male	.482	.110	.307	4.361	.000
	Dummy general	.291	.192	.188	1.513	.133
	Dummy OBC	.310	.184	.205	1.685	.095
	D married	.270	.130	.146	2.077	.040
	Dcom	-.132	.131	-.074	-1.011	.315
	Dsci	.169	.117	.105	1.443	.152
	Dgovtsector	.470	.108	.308	4.347	.000
	Working months in a year	.174	.024	.489	7.130	.000

a. Dependent Variable: LNYEARLYEARNING

The analysis of the wage equation, as shown in Tables 8 and 10, offers insightful revelations about factors influencing earnings. Key findings include the significant impact of gender on earnings, with male workers earning considerably more than their female counterparts. Marital status also plays a role, with married employees earning more, potentially due to greater financial responsibilities. Employment sector emerges as another crucial factor, with government sector employees out-earning those in the private sector. Additionally, the number of working months significantly affects earnings. These factors collectively highlight the complex interplay of gender, marital status, employment sector, and work duration in determining earnings. It's noted that the IHDS data from 2011-12 is dated, prompting the need for more current data, which the next session aims to address with the 2021 dataset, incorporating additional social variables not covered in the IHDS data.

Determinants of Earnings of graduates in Kozhikode district.

In this section, the study uses a wage equation to examine how a graduate's family socio-economic status influences their earnings. The dependent variable is the logarithm of annual earnings, and independent variables include gender, social class, study stream, and educational and employment status of the father. The model's R square value of 35.9% indicates that these factors predict 35.9% of the variance in earnings. The ANOVA results, with an F value of 7.6 and a P value of .000, demonstrate the model's statistical significance in capturing these socio-economic influences on graduate earnings.

Table 11 - Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.643[a]	.414	.359	.40414
a. Predictors: (Constant), Dfatempltsala, Dobc, Dfathersec, Dmale, % Mark in degree, Dcommerce, Dscience, Dgeneral, Dfatherednhigher				

Table 12- ANOVAa						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	11.185	9	1.243	7.609	.000[b]
	Residual	15.843	97	.163		
	Total	27.029	106			
a. Dependent Variable: Lnincome						
b. Predictors: (Constant), Dfatempltsala, Dobc, Dfathersec, Dmale, % Mark in degree, Dcommerce, Dscience, Dgeneral, Dfatherednhigher						

Table 13 - Coefficientsa						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.985	.273		32.867	.000
	Dmale	.404	.093	.358	4.355	.000
	Dgeneral	.232	.149	.165	1.562	.122
	Dobc	.070	.108	.066	.644	.521
	Dscience	-.009	.116	-.008	-.076	.939
	Dcommerce	.250	.099	.231	2.510	.014
	% Mark in degree	.008	.004	.161	1.937	.056
	Dfathersec	.269	.113	.240	2.390	.019
	Dfatherednhigher	.271	.123	.247	2.204	.030
	Dfatempltsala	.265	.105	.223	2.527	.013
a. Dependent Variable: Lnincome						

The data in Table 11 and Table 12, when combined, show a comprehensive picture of the factors influencing graduate earnings. The model's R Square value of 0.414 in Table 11 indicates that over 40% of the variation in earnings is explained by the factors included in the model. This is significant, as shown by the ANOVA results in Table 12, where the model achieves an F value of 7.609 and a significant P value.

Table 13 provides detailed coefficients for each variable. It suggests gender is a significant determinant of income, with male graduates earning more. The influence of the graduate's social class and the father's education and employment status also appear relevant, along with the graduate's academic performance and field of study. These factors collectively provide a nuanced understanding of what influences graduate earnings in this context.

The findings from Table 13 highlight the significance of gender, educational stream, and parental background in influencing graduate earnings. The data indicates a substantial gender wage gap, with males earning considerably more than females, a disparity that hasn't shown much improvement over the past decade in Kerala. This gender wage gap might contribute to lower female participation in the labor market. The analysis underscores that merely having an education does not necessarily equate to equal productivity gains in the market, especially for women. These insights align with previous studies, underlining the ongoing challenges in achieving gender parity in the workforce.

The shift in the relative earning capacity of graduates from different streams over the past decade is noteworthy. Commerce graduates now earn significantly more than their counterparts in humanities, marking a change from the previous trend where science graduates dominated earnings. This shift highlights the evolving nature of job market demands and the varying economic value of different educational streams over time.

The study reveals that a father's education level is a significant factor in influencing a graduate's earnings. Graduates with fathers who have secondary or higher education tend to earn considerably more than those whose fathers have lower levels of education. This suggests that higher educational levels in parents might lead to better awareness of lucrative job opportunities for their children. The employment status of the father also plays a crucial role; children of salaried fathers earn more than those whose fathers are in casual work. This insight highlights the need for increased focus on first-generation students to bridge these socio-economic gaps.

The analysis indicates that academic performance in higher secondary education (plus two) has a quantifiable impact on earnings, with every 1% increase in marks correlating to a 1.1% increase in monthly earnings. However, there's no substantial evidence suggesting that graduation marks significantly influence earnings in the early thirties. This points to the importance of early academic performance over later academic achievements in determining income potential.

Conclusions

The study concludes that while education significantly influences earnings, other factors like gender, caste, field of study, employment type, and sector also play crucial roles. In the

private sector, women's earnings are markedly lower, indicating that government jobs or self-employment might be more viable for women seeking equitable pay. The limited participation of women in casual jobs could be attributed to lower salaries in these roles. The findings emphasize the importance of considering gender, parental education, and employment in developing policies and support systems to aid first-generation students and address gender disparities in the workforce.

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