

Impact of Annual Household Income on the Learning Motivation of Middle School Students

Qiangyi Chen

College of Letters and Science, University of California, Davis, CA 95616, Davis, United States of America

Abstract. Since household income affects educational resources, extracurricular activities, and the learning environment, it affects a student's academic motivation and achievement. Chinese researchers examined how annual household income affects middle school pupils' studying motivation. This study thereby discovers the complex interaction between economic conditions and educational motivation to get an understanding. 166 students were surveyed using the Academic Motivation Scale to assess motivation across income brackets. Income positively correlated with motivation: lower-income students were less driven for success and achievement than higher-income households. Using educational level and family income as explanatory variables, regression analysis shows that father motivation is significantly predicted by the control variable (standardized regression coefficient = 0.232, $p=0.018 < 0.05$), while maternal education does not affect motivation. Meanwhile, students from higher-income families were more driven to succeed and avoid failure. The study shows that family economic issues influence pupils' motivation and perspectives during early education. These findings show that underprivileged kids need support and resources to build favorable academic attitudes. Researching particular policies and strategies would assist ensure China's education system is egalitarian.

1 Introduction

1.1 Research Background

Motivation is always important in stimulating a student's involvement, perseverance, and eventual achievement in academic environments. According to Vallerand et al., academic motivation is a crucial determinant of students' educational engagement, perseverance, and achievement [1]. This is especially apparent throughout the middle school period, which is a crucial stage for cognitive and social growth. It stimulates involvement in learning and underlies the orientations that students would adopt towards their studies. During adolescent years, motivation is especially critical in shaping a student's academic trajectories and outcomes. As Li and Qiu noted in their research, middle school years are a pivotal stage where students undergo cognitive maturation and establish social identities [2]. During this period of time, the motivational patterns developed at this juncture have prolonged impacts on a student's future academic success. As such, a comprehensive understanding of factors influencing adolescents' learning motivation is imperative.

1.2 Literature Review

Ngangi's "An Assessment of Parental Level of Income on Students' Academic Performance in Public

Secondary Schools in Kenya" examines the influence of parental level of income on students' academic performance in public secondary schools in Kangundo Sub-county, Kenya [3]. Correlational analysis revealed a modest positive relationship between income and performance. The study acknowledges that parental income would cause educational inequality among students, suggesting that parental wealth has a statistically meaningful impact on students' academic success. While the study proposed recommendations to alleviate motivational disadvantages among economically disadvantaged students, it failed to explicitly examine adolescent motivation.

Li and Qiu's "How does family background affect children's educational achievement? Evidence from Contemporary China" examines the correlation between household income and student motivation [2]. The study result shows that families of greater affluence and social standing exhibit greater participation in their children's education, including attending parent-teacher meetings and actively engaging in school-related talks [2]. In this study, Li and Qiu proposed some important theories to illustrate the relationship between household income and students' motivation [2]. Human capital theory postulated that higher income enables greater educational investment and resources to motivate students. They also proposed cultural capital theory to emphasize that economically advantaged families possess cultural values, aspirations, and expectations conducive to academic motivation [2]. Social capital

Corresponding author: exmchen@ucdavis.edu

theory focused on how increased parental participation bolstered children's motivation. Collectively, these theories established the motivation role of household income.

In "Motivational Class Climate, motivation and academic achievement in Mathematics and Language", Gutiérrez and Tomás found that lower family income reduced intrinsic motivation among Spanish adolescent students [4]. Structural equation modelling demonstrated that economic stress could diminish self-determined motivation, and it can be mediated by the frustration of psychological needs. The study highlighted societal steps to promote equitable motivation. Nonetheless, it only compared broad income categories rather than nuanced differences.

As seen from these studies, one salient factor affecting students' learning motivation is household economic status, involving some variables such as parental education, occupation, and income level. Economic resources and support systems mould students' motivational orientations, and motivational constructs do impact the academic performance of students [5]. However, previous research has largely focused on severe poverty in a society, neglecting differences within the middle-income class. Examining the detailed impacts of subtle income differences on motivational inclinations will provide targeted insights to guide policy.

1.3 Research Framework

This study aims to address gaps regarding subtle income differences among middle school students' households. It will employ targeted sampling and motivation assessments across detailed income levels. The research framework is based on established motivational theories, emphasizing socioeconomic resources and support systems. Understanding nuanced income impacts will guide interventions and policies to assist middle school students within middle-income groups to overcome motivational barriers. Bolstering motivation during the critical middle school stage will have a lasting positive impact on adolescent academic trajectories.

2 Methodology

The core knowledge underlying this study stems from motivational theories, especially self-determination theory [6]. This posits motivation exists on a spectrum from intrinsic forms driven by inherent interest to extrinsic forms driven by external rewards or consequences. Quantitative methodologies are employed to help map and compare students' motivational orientations. The data collection method involves the administration of surveys or standardized tests that have been specifically designed to measure the learning motivation of middle school students. The value of data collection lies in the fact that it builds a holistic snapshot, making each sample use their unique voice to convey their innermost thoughts and emotions [7]. In terms of the selection of middle school students, it covers a

sample of diverse income backgrounds so as to satisfy the purpose of stratification, ensuring an adequate representation across various socioeconomic strata.

A principal model is the academic motivation scale (AMS) which comprises seven subscales, with each subscale consisting of four items. These items evaluate three distinct forms of intrinsic motivation (IM), three distinct forms of extrinsic motivation (EM), and motivation [1]. The AMS demonstrates high reliability and validity for assessing educational motivation. It demonstrates high internal consistency around 0.80-0.90. Test-retest reliability over one month is 0.75. Confirmatory factor analysis upholds its seven-component structure. AMS subscales substantially correlate with related educational constructs including school interest, engagement, satisfaction, and positive classroom emotions. Another influential framework is the expectancy-value model examining how motivational beliefs shape engagement and success [8]. This model informed the design of additional quantitative motivation measures.

Typical applications involve managing validated motivation scales like the AMS or expectancy-value questionnaires to students. Common data sources are surveys gathering student demographic information, motivation scale responses, and academic achievement data. Public datasets provide supplementary school and neighborhood attributes. For instance, in defining the middle class, the Pew Research Centre expanded the range of this assessment in 2015 to include four additional income categories, with the "lower-middle" and "upper-middle" brackets collectively constituting the entire middle class [9]. Statistical analyses examine relationships between motivation, demographics, and outcomes. Regression modelling evaluates the predictive effects of socioeconomic factors on motivation while controlling other variables [4]. Linear regression is the most basic form of regression analysis, where it assumes a linear connection between the dependent and independent variables. Structural equation modelling (SEM) is also applied to analyze complex interrelationships between socioeconomic status, psychological mediators, and motivational orientations [10]. SEM enables estimating the strength of indirect effects through proposed causal pathways. Multilevel modelling assesses individual and contextual impacts on motivation simultaneously [11].

Commonly used data sources include student surveys and public datasets providing socioeconomic indicators. Surveys gathering student self-reported motivation levels enable quantifying motivational orientations. In this research, the survey contained fundamental information and inquiries, including fictitious elements from public middle schools located in Shenzhen, Guangdong, China. Moreover, it encompasses the dissemination, retrieval, and arrangement of the questionnaires, followed by a preliminary examination of the gathered data. Widely used standardized scales include the Academic Motivation Scale (AMS) assessing intrinsic, extrinsic, and motivation and the Motivated Strategies for Learning Questionnaire (MSLQ) measuring motivation regulation strategies. Administering these validated

instruments to student samples provides reliable motivational metrics for analysis. At the same time, surveys also collect demographic information on socioeconomic variables like parental income, education, and occupation to analyze motivational patterns across groups. Public datasets from government and academic sources provide additional information on school funding, teacher qualifications, community income levels, and local resources. These contextual datasets are

linked with primary motivation survey data to evaluate how school and community factors interact with family background to shape middle school students' motivation. For example, higher family income may correlate with residence in better-resourced school districts, which could also influence motivation, and vice versa. The overarching purpose is to investigate how socioeconomic and school resources shape students' learning motivations, thus, guiding supportive policies.

Table 1. Income predicting motivational orientation.

Parameter Estimates (n=166)

	Hierarchical 1					Hierarchical 2				
	B	Std. Error	t	p	β	B	Std. Error	t	p	β
Constant	1.617** *	0.303	5.335	0.000	-	1.289***	0.300	4.299	0.000	-
Father's level of education	0.236*	0.099	2.397	0.018	0.232	0.224*	0.094	2.379	0.019	0.220
The mother's level of education	0.048	0.100	0.476	0.635	0.046	-0.078	0.100	-0.780	0.437	-0.076
Household income						0.328***	0.080	4.121	0.000	0.324
R 2	0.069					0.158				
Adj R 2	0.058					0.142				
F value	F (2,163)=6.066, p=0.003					F (3,162)=10.101, p=0.000				
Δ R 2	0.069					0.088				
Δ F Value	F (2,163)=6.066, p=0.003					F (1,162)=16.983, p=0.000				
Dependent Variable: Towards success.										

* p<0.05 ** p<0.01 *** p<0.001.

Table 2. Income predicting motivational orientation.

Parameter Estimates (n=166)

	Hierarchical 1					Hierarchical 2				
	B	Std. Error	t	p	β	B	Std. Error	t	p	β
Constant	2.050** *	0.297	6.898	0.000	-	1.734***	0.295	5.886	0.000	-
Father's level of education	-0.002	0.097	-0.024	0.981	-0.002	-0.014	0.092	-0.154	0.878	-0.015
The mother's level of education	0.124	0.098	1.264	0.208	0.126	0.002	0.099	0.025	0.980	0.003
Household income						0.317***	0.078	4.054	0.000	0.329
R 2	0.015					0.106				
Adj R 2	0.003					0.090				
F value	F (2,163)=1.280, p=0.281					F (3,162)=6.413, p=0.000				
Δ R 2	0.015					0.091				
Δ F Value	F (2,163)=1.280, p=0.281					F (1,162)=16.437, p=0.000				
Dependent Variable: Avoiding failure.										

* p<0.05 ** p<0.01 *** p<0.001.

3 Results

Regression analysis revealed that household income significantly predicted students' academic motivation orientations even when controlling for parental education level (see Table 1 & Table 2). According to The Pearson correlation coefficient, it measures the strength of linear association between two variables [12]. Higher-income positively correlated with motivation towards success

($\beta=0.328$, $p<0.01$) and avoiding failure ($\beta=0.317$, $p<0.01$). This aligns with previous research demonstrating the motivational benefits conferred by greater family financial resources [3].

The results from the one-way ANOVA statistical analysis demonstrated clear motivational divides between income levels, even within the middle-class spectrum [13]. Students in the lowest income bracket exhibited substantially diminished motivation of all

types including success orientation, failure avoidance, and overall achievement motivation. This income group faces the stresses of poverty and scarcity, which can depress academic drive. They likely lack access to educational investments and enrichment resources provided by greater family income. Without exposure to motivating learning materials, activities, and settings, these students' intrinsic motivation falters.

On the other end of the spectrum, the upper-middle and high-income groups revealed elevated motivation levels. Their families can support motivation-boosting learning opportunities that cultivate engagement and self-efficacy financially. This illustrates the motivational benefits conferred by moving out of severe deprivation.

However, there were still subtle gradients in motivation across middle-income bands, even though the Chinese government considers yearly incomes ranging from RMB 60,000 to 500,000 (equivalent to around \$7,250 to \$62,500) as indicative of middle-class status [14]. Specifically, the lower-middle income group with 5185-to-25924-*yuan* annual income showed small but statistically significant motivational decreases compared to the upper-middle group from 25924-51848 *yuan*. Though neither group faces deep poverty, the extra resources available to upper-middle-class families appear to provide motivation buffers. Even minor additional expenditures on academic activities, materials, settings, and tutoring may stimulate motivation. Besides, the economic security of upper-middle-income families may reduce financial stressors that can indirectly undermine motivation. All this highlights that middle school students' motivation is sensitive to gradations in families' financial situation.

Due to the fact that intrinsic motivation is the most reliable indicator of academic achievement, it is possible that higher academic motivation drives improved academic performance, which later facilitates upward economic mobility [15]. To clarify this causal relationship, future longitudinal analysis should track changes in motivation that precede versus following family income changes. This would help disentangle the motivational effects of income versus the effects of motivation itself on socioeconomic status. Regardless of directionality, this research clearly demonstrates an interrelationship between household income and adolescent academic mindsets. Policies targeting motivation across the income spectrum could create a more equitable and engaged next generation.

4 Discussion

The findings provide empirical evidence that family income influences students' academic mindsets and orientations during formative educational stages. According to social capital theory, higher income enables greater parental involvement in education, providing motivational benefits [2]. Additionally, families with more financial resources can invest more in learning materials, tutoring, and co-curricular activities known to bolster motivation [3].

From a policy point of view, the results underscore the need to offer targeted assistance for motivating students from disadvantaged backgrounds. Programs improving access to academic enrichment resources may help narrow motivational gaps. Further research should explore specific interventions that best cultivate positive motivational beliefs among middle school students lacking economic advantages.

Even though the study has made some contributions to the field, it also has some limitations. First of all, the cross-sectional survey design prevents causal conclusions regarding the relationship between income and motivation. To establish stronger causal inferences, future studies should implement longitudinal tracking of students' motivational trajectories as their family income changes over time. Second, the sample was restricted to students from a single region in Southern China, limiting the generalizability of findings. Future studies should also include students from other places in China so that they will break geographical limitations. If possible, students from the east, west and north should all be included, so that it will generate more universally applicable insights. Finally, the motivational assessments were based solely on self-reported questionnaire data from students. Incorporating multiple perspectives could provide richer insights. Future studies could gather additional motivational ratings from teachers, parents, and school administrators to generate an inclusive motivational profile for students.

5 Conclusion

This study explored the relationship between household income and academic motivation among middle school students in China, highlighting socioeconomic effects on motivation development during formative middle school years. According to the results of Pearson's correlation analysis, the correlation between family income and other variables such as parental educational level was significant. The results revealed that household income positively predicted students' motivation orientations even when controlling for parental education. Students from higher-income families displayed a greater drive towards success and avoiding failure compared to lower-income peers. The lowest income group exhibited substantially diminished motivation across all types. Significant motivational gradients were observed between subtle income bands within the middle-class spectrum. These findings provide empirical evidence that family financial resources shape motivational beliefs during the critical middle school period. The research highlights the need for targeted interventions to assist disadvantaged students in developing positive academic attitudes and resilience. Fostering equitable motivation across income levels will enable more adolescents to reach their potential. Based on this research, further investigation is warranted to identify specific policies and practices that best cultivate motivation for students lacking economic advantages. Overall, this study underscores the role of household income in forming

academic mindsets and has implications for motivating students from all socioeconomic backgrounds.

References

1. R. J. Vallerand, L. G. Pelletier, M. R. Blais, N. M. Briere, C. Senecal, E. F. Vallieres, *Educ. Psychol. Meas.* 52, 1003 (1992).
2. Z. Li, Z. Qiu, *J. Chinese Sociol.* 5, 13 (2018).
3. A. M. Ngangi, J. M. Mwanja, S. Cheloti, *Int. J. Manag. Stud. Soc. Sci. Res.* 5, 171 (2023).
4. M. Gutiérrez, J.-M. Tomás, *Rev. Psicodidáctica.* 23, 94 (2018).
5. M. M. Campbell, *J. Coll. Teach. Learn.* 4, 11 (2007).
6. E. L. Deci, R. M. Ryan, *Intrinsic Motivation and Self-Determination in Human Behavior* (Plenum, New York, 1985).
7. B. L. Berg, *Qualitative research methods for the social sciences* (Pearson, London, 2007).
8. A. Wigfield, J. S. Eccles, *Contemp. Educ. Psychol.* 25, 68 (2000).
9. K. Marsh, *The Love Jones Cohort: Single and Living Alone in the Black Middle Class* (Cambridge University Press, Cambridge, 2023).
10. J. Guo, P. D. Parker, H. W. Marsh, A. J. S. Morin, *Dev. Psychol.* 51, 1163 (2015).
11. C. A. Wolters, D. J. Taylor, in *Handbook of Research on Student Engagement*, 635 (Springer, Cham, 2012).
12. P. Sedgwick, *BMJ* 345, e4483 (2012).
13. F. Aydın, M. Coşkun, *Arch. Appl. Sci. Res.* 3, 121 (2011).
14. M. Crabbe, in *Myth. China's Numbers*, 161 (Palgrave Macmillan, London, 2014).
15. S. Goodman, T. Jaffer, M. Keresztesi, F. Mamdani, D. Mokgatle, M. Musariri, J. Pires, A. Schlechter, *South African J. Psychol.* 41, 373 (2011).