

# A Cost-Benefit Analysis of Individual Investment in English Language Education for Ethnic Minorities in Yanbian

Huiling Li

**Abstract**—As a cross-discipline between linguistics and economics, the Economics of Language has been widely discussed by scholars both at home and abroad in recent years as economic globalization advances. Among them, English, as the most widely spoken language in the world, is involved in many economic activities of human beings. The location disadvantage of inland minority regions makes their average English education level low. Therefore, this study analyzes the costs and benefits of individual English education investment based on the Economics of Language and human capital investment theory, using questionnaire survey method and cost-benefit analysis method in economics, and taking English majors of Yanbian minority as the research object.

The results of the study show that the benefits of personal investment in foreign language education of English majors in Yanbian minority areas outweigh the costs, and it is also an effective economic investment behavior. The results of this study can also provide an empirical basis for the formulation of policies on English education and economic development in ethnic minority regions. And to a certain extent, they can contribute to the economic development of ethnic minority regions, promote foreign communication and provide some help for regional language policies.

**Index Terms**—Economics of language, ethnic minorities, cost-benefit analysis, human capital

## I. INTRODUCTION

With the emergence of language economics and human capital investment theory in the 1950s and 1960s, more and more scholars are looking at the relationship between language and economics. Since then, research on the economics of language, an emerging interdisciplinary subject, has received increasing attention from researchers. English, as the world's most widely spoken language, has become the focus of research on language economics because of the economic peripherals and values attached to it. As globalization accelerates, and as China promotes the "One Belt, One Road" initiative, which requires the use of English for external communication, a focus on English language education has become an inevitable choice to implement the development requirements of the new era.

English education is now maturing in many developed coastal cities, while inland areas, especially those with a concentration of ethnic minorities such as the Yanbian Korean Autonomous Prefecture, have yet to improve due to their special multilingual learning environment and relatively isolated geographical location. In addition, as an important international transportation hub in Northeast China, Yanbian's external economic development has also

flourished with the opening of outbound cargo routes such as the China-Europe and Ocean Liner. Therefore, this paper will try to explore the personal investment in English education for minority students in Yanbian from the perspective of language economics, using cost-benefit analysis, with the aim of contributing to the economic development of ethnic regions, promoting their external communication and providing some help to regional language policy.

## II. LITERATURE REVIEW

Foreign researches on the economics of language began mainly with the American economist Jacob Marschak, who first introduced the concept of language economics in 1965 and pioneered the use of economic theories and methods to analyse linguistics [1]. He argued that language is an indispensable tool in human economic activity and has the same economic characteristics as other resources, namely value, utility, cost and benefit. Marschak assigned economic characteristics to language itself through these four aspects in an attempt to discuss the inner relationship between language and economics [1]. This exploration also provided a solid foundation for the study of language economics. The Swiss scholar Grin, on the other hand, extended Marschak's work by applying economic research methods to practical language problems. According to Grin [2], language economics is the application of theories and methods common to economics to the study of the existence of linguistic variables, and also discusses the relationship between language and traditional economic variables. In addition to this, many other scholars have refined the research related to the economics of language in specific terms. Shultz [3], for example, explored the cost-benefit of language education by analyzing the impact of human capital investment on economic growth. Rubinstein [4] highlighted the close relationship between language and economy in his study.

Researches on the economics of language in China began mainly in the 1980s, when many scholars began to realize the important links between linguistics and economics. Xu [5] outlined the basic theory, methodology and development of language economics in foreign linguistic circles, and once published, this study also drew an enthusiastic response from the domestic linguistic community and provided a solid foundation for subsequent research in the field. For example, Wang [6] analyzed the market inappropriateness of foreign language teaching in China from the perspective of the market value of foreign language teaching, based on the core concept of language economics. Liu [7] and Ren [8] both used the popularity, dynamic development and demise of buzzwords to understand the interaction between language and the economy and to enrich the study of language economics.

Manuscript received April 22, 2023; revised May 10, 2023; accepted June 27, 2023.

Huiling Li is with Northwestern Polytechnical University, Shaanxi, China. E-mail: lihuiling123@mail.nwpu.edu.cn

In addition to exploring the relationship between language and the economy from the perspective of market value, other scholars have studied language policy through the lens of language economics. For example, Song and Lin [9] explored the costs and benefits of language policy by analyzing empirical cases from Western scholars to measure its effectiveness in Chinese language policy. Jiang [10], on the other hand, used a cost-benefit analysis to provide quantitative data for reference on the current state of investment in English language education in China. Meanwhile, many scholars have also explored business English as an object of study. For example, Mo *et al.* [11] used language economics to provide a fresh perspective on the current state of business English research in China. Yin and Li [12] explored how to specifically improve the benefits on investment in business English education by comparing the individual investment in business English education in independent colleges and ordinary public universities.

However, there is less research in this field in China related to the analysis of individual investment in English language education for ethnic minorities in inland areas. In order to achieve economic prosperity in ethnic regions, research related to language economics of English education for ethnic minorities in inland areas is necessary. Therefore, this study will further investigate and analyse the personal investment and returns of English education in the minority areas of Yanbian from the perspective of language economics.

### III. THEORETICAL FRAMEWORK

#### A. *The Human Capital Attribute of Language Skills*

Human capital refers to the knowledge and skills of workers themselves and the ability shown by these knowledge and skills [5]. And it is as the core view of human capital theory, mainly refers to the capital formed by the expenditure people spend on education and training, health and health care, etc. And this capital can bring economic benefits and social benefits to the social public and economic actors in some specific economic or social activities in the future. Amongst other things, human capital is essentially characterized by its productivity, but its acquisition requires the incurrance of costs. On the one hand, languages are skills that need to be acquired through education and training, and learning them requires people to spend a corresponding amount of time, money and effort, while learning one language also means giving up another, a decision that can also be counted as an opportunity cost. On the other hand, the benefits of learning a language are clear. The basic function of a language is to communicate. By learning a new language, workers can use the acquired language to have more and more frequent encounters with people in the new language community, which in turn leads to more job opportunities and higher promotion prospects. In addition to this, many large companies often require language qualifications when recruiting staff to assess their level of language proficiency. Language is dependent, it cannot exist independently of the human body, so people can invest in language skills and use them for consumption and production. In summary, language is productive and dependent and there are costs associated

with language learning. Therefore, as the Canadian economist Vaillancourt states [13], “like knowledge and skills acquired through work experience or through formal education in subjects such as mathematics and history, language itself is a form of human capital.”

#### B. *Cost-Benefit Analysis*

Cost-benefit analysis is an economic decision-making method that assesses the value of a project by comparing the total costs and benefits of the project [12]. And the cost-benefit analysis method has three basic characteristics, namely self-interest, economy and calculation. In other words, the cost-benefit analysis method aims to pursue the user’s own interests and emphasizes the need to obtain the maximum benefit in the process. It also requires the user to take into account rational calculations to achieve economy and efficiency in making investment decisions about costs and benefits, so the cost-benefit analysis approach is also calculational in nature.

#### C. *Common Methods*

There are three main and more common methods of cost-benefit analysis: the net present value method, the present value index method and the internal rate of return method.

##### 1) *The net present value method*

As a method of evaluating investment projects, the net present value method refers specifically in this study to the difference between the discounted value of the future cash flows generated by an individual’s investment in foreign language education and the cost of his or her investment. The discounted value is a sum of money in the future discounted to its present value at some interest rate. The net present value method is given as follows Eq. (1):

$$NPV = \sum_{i=1}^n \frac{B_i}{(1+r)^i} - \sum_{j=1}^m C_j (1+r)^{m-j} \quad (1)$$

where  $NPV$  denotes the net present value of the return on investment in education, the  $B_i$  denotes the return on English language education in  $i$ -th year, the  $C_j$  is the personal cost of English education in  $j$ -th year,  $n$  represents the lifetime working years of the foreign language learner after graduation,  $m$  is the number of years of foreign language study, and  $r$  is the discount rate, i.e., the interest rate used to change future payments to their present value. If  $NPV > 0$ , then the benefits of the individual investment in English education are greater than the costs and the investment is economically worthwhile. Conversely, the investment is a failure. The net present value method takes into account the time value of money, but at the same time it is difficult to determine a specific discount rate in the calculation process and this value plays an important role in the evaluation of a personal investment in English language education.

##### 2) *The present value index method*

It refers to the ratio of the present value of the return on individual investment in English language education to the present value of the cost of the input and is calculated using the following Eq. (2):

$$B/C = \frac{\sum_{i=1}^n B_i / (1+i)^i}{\sum_{i=1}^m B_i / (1+i)^i} \quad (2)$$

where  $B/C$  is the ratio of the present value of the benefits to

the costs of an individual investment in English education. If the ratio is greater than 1, then the profit made by the individual investment in English education is additional to the costs, meaning that the investment is economically beneficial at that point. Otherwise, the investment cannot even cover the costs of the investment, which means this investment may be a failure. The present value index method provides a dynamic picture of the relationship between the costs and benefits of an educational investment, but it does not directly reflect the actual level of the rate of return on the investment project.

### 3) *The internal rate of return method*

It is the discount rate when the total present value of the benefits and costs of an individual investment in English education are equal and the net present value is zero. And this calculation method can eliminate the uncertainty caused by the subjective interest rate, but also reflect the efficiency of the use of capital [14]. The calculation Eq. (3) is as follows:

$$\sum_{i=1}^n \frac{B_i}{(1+r)^i} = \sum_{j=1}^m C_j (1+r)^{m-1} \quad (3)$$

where  $r$  is the internal rate of return for an individual investment in English education, i.e. the discount rate when the net present value is zero.  $B_i$  is the return to education in a given  $i$ -th year, the  $C_j$  is the cost of the personal investment in English language education in  $j$ -th year,  $m$  is the number of years of English language learning, and  $n$  denotes the number of years in which English language learners can earn income for life after language acquisition. The Internal Rate of Return (IRR) method, as a method of measuring the economic viability of an investment project, is more intuitive than the net present value method and also takes into account the time value of money. Therefore, the internal rate of return method will be used in this study to assess the effectiveness of individual investment decisions in English language education for ethnic minorities.

## IV. METHODOLOGY

### A. *Research Subjects and Methods*

The research subjects in this paper are the students of a minority preparatory class of English majors in a university in Yanbian, which does not include non-English major minority students in order to ensure the accuracy of the final data. This study will analyse whether the students' individual investment decisions to undergo four years of English major studies are reasonable. After evaluating and comparing three cost-benefit methods—the net present value method, the present value index method and the internal rate of return method—this paper chooses to use the internal rate of return method to specifically analyse the effectiveness of the personal investment decision to study in English language education for ethnic minorities.

### B. *Research Questions*

This study intends to examine the costs and benefits of individual investment in English language education for ethnic minorities in Yanbian from the novel linguistic perspective of language economics. Therefore, the experiment randomly selected 50 minority students of a

Yanbian university in the class of 2021 who were majoring in English, of whom 30% were male and 70% were female, as the study participants. The questionnaire was then used to answer the following two questions:

- 1) What is the current cost-benefit situation of personal investment in English education for ethnic minorities in Yanbian?
- 2) How can the economic benefits of English language in ethnic minority areas be further improved?

## V. A COST-BENEFIT ANALYSIS OF INDIVIDUAL INVESTMENT IN ENGLISH LANGUAGE EDUCATION FOR ETHNIC MINORITIES

### A. *Attributes of Investment in English Language Education*

In the field of language economics, language is seen as a form of human capital. On the one hand, language is a means or a tool for the individual educator to gain access to economic resources, and the individual educator must have a personal investment in learning the language, so that language can be seen as a personal product at this time. On the other hand, language can also improve the social and economic status of the educated community, and as a universal language, English education can be a public good as it can improve society as a whole. In summary, it can be argued that English, as a human capital, is both a personal good and a public good, and that its associated education industry can be seen as a hybrid product between the two. The proportion of government or private investment in the industry can therefore have a significant impact on its returns.

### B. *Costs of Personal Investment in English Language Education*

The cost of an individual investment in English language education is the total cost paid by the individual recipient of an English language education, including direct and indirect costs.

#### 1) *Direct costs*

Direct costs are all the costs directly incurred by the individual recipient for English language learning, such as university tuition fees, textbooks, accommodation, transport and other remedial costs. The cost of living, however, does not change much depending on the choice of major and is therefore not counted as a direct cost. By investigating the tuition fees of universities in Yanbian in recent years, this study found that the average tuition fee for English majors in each university is about RMB 5,060 a year, and the tuition fee for preparatory classes is RMB 6,000. And according to the results of this questionnaire study, students spend about 6,000 yuan a year on purchasing textbooks and stationery, transportation, accommodation and other supplementary expenses.

#### 2) *Indirect costs*

Indirect costs can also be understood as an opportunity cost, i.e., the potential income from work that English majors voluntarily give up in order to pursue a higher education in English. For example, ethnic minorities in the Yanbian region who choose not to attend university and work directly will be paid less due to the limitations of their knowledge and skill levels. Therefore, the indirect costs in this paper are calculated using the minimum wage in Yanji, which is 1,760

yuan per month.

### *C. Benefits on Personal Investment in English Language Education*

In the same way as costs, the benefits of an individual investment in English language education can be divided into direct and indirect benefits.

#### *1) Direct benefits*

The direct benefits of personal investment in English education are the direct monetary benefits that the educated person can earn through their professional studies, expressed as salary income. This questionnaire survey found that the majority of English graduates chose to work in the education and public administration sectors, with an average starting salary of RMB 5,320. And according to the wage data of urban non-private sector employees released by the Jilin Provincial Bureau of Statistics in 2021, the average annual salary growth rate of those employed in the education industry in 2021 was 2.8%, while the average annual salary growth rate of those employed in the public administration industry was 5.0%, with an average growth rate of 3.9%.

#### *2) Indirect benefits*

The indirect benefits of personal investment in English education refer to the increased communicative value that the educated person gains from receiving higher education, and also include the psychological benefits of spiritual satisfaction and self-worth that the individual or family gains in the process, which are difficult to quantify in real life, so only the direct benefits of personal investment are considered in this paper.

### *D. The Internal Rate of Return*

This study uses the bank loan interest rate as the discount rate to compare the size of the internal rate of return of minority English majors' investment in studying English with the average social rate of return on investment. Data published by the People's Bank of China reported that the benchmark bank lending rate for a five-year term in 2022 in China is 4.75%, and the average social average ROI is obtained as 5.7% by taking the average value of 3.3% to 8.1% according to the floating range of 70% for commercial banks.

Substitute all the relevant data above into Eq. (3) to obtain the discount rate at which the net present value of benefits and costs are equal.  $B_i$  is the specific remuneration for a particular year. Ethnic minority students in the Yanbian region are typically 18 years old when they enter university, and after a year of matriculation, they begin a four-year undergraduate English major at age 19, graduating at approximately 23. Therefore, the cost of studying English is calculated starting from  $j=19$  and salary income  $i=23$ . It is assumed here that a university student is in a stable job for 20 years after graduating with an undergraduate degree.  $C_j$  is the total annual cost of the student's professional study in school for five years, and  $r$  is the internal rate of return.

According to the internal rate of return method, when the net present value of benefits and costs are equal, the discount rate, or internal rate of return, is calculated. The specific IRR obtained from the data provided in this study is 43%, which compares favorably with the average rate of return in society 5.7%. This indicates that using the same cost, an investment in English language skills would yield more benefits than the average investment in society. This shows that it is

economically reasonable and feasible for individuals to invest in English language higher education.

In addition to this, the results of the questionnaire also show that 80% of the respondents believe that the direct costs that individuals have to pay during their professional studies are significant, especially for textbooks and stationery and other supplementary courses. In order to get a good job after graduation, many students need to obtain a number of language qualifications, such as TEM 4, TEM 8 and IELTS or TOEFL. These interviewees reported that they had to buy a lot of reference books and online courses to ensure their pass rate in the process of obtaining qualifications. It is therefore economically feasible and reasonable for the government to invest more in this area.

## VI. CONCLUSION

This study explores the costs and benefits of personal investment in English education for minority students in Yanbian through cost-benefit analysis in language economics and a questionnaire survey and also looks for ways to improve the benefits. The study finds that, on the one hand, the benefits of personal investment in English education for minority students outweigh the costs and the decision is economically feasible and reasonable. On the other hand, English education is a mixed product, and the proportion of government or individual investment in it is significant. Therefore, increasing the share of government investment in English language education in ethnic minority regions will help to increase their economic returns and further contribute to the development of international trade in ethnic minority regions, promoting foreign exchange and enhancing their international image.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## REFERENCES

- [1] L. Q. Chen, "Using rules to explain rules and using language to explain language," in *The Origin and Development of Western Linguistic Economics*, 2011, p. 180.
- [2] F. Grin, "Economic approaches to language and language planning," *International Journal of the Sociology of Language*, vol. 121, pp. 1–16, 1996.
- [3] T. W. Shultz, "The economic importance of human capital in modernization," *Education Economics*, vol. 1, no. 1, pp. 13–19, 1993.
- [4] A. Rubinstein, *Economics and Language: Five Essays*, Cambridge: Cambridge University Press, 2000, p. 13.
- [5] Q. C. Xu, "Language economics: An emerging fringe discipline," *Foreign Languages*, vol. 4, pp. 43–48, 1999.
- [6] B. H. Wang, "Foreign language market value and foreign language education reform from the perspective of language economics," *Journal of Lanzhou Business School*, vol. 17, no. 1, pp. 115–119, 2001.
- [7] N. Liu, "Principles of linguistic economics of internet buzzwords," *Journal of Huazhong University of Science and Technology (Social Science Edition)*, vol. 18, no. 3, pp. 91–94, 2004.
- [8] R. Ren, "Popular languages from the perspective of linguistic economics," *Language and Translation (Chinese Edition)*, vol. 1, pp. 27–30, 2004.
- [9] J. F. Song and Y. Lin, "Policy analysis of language economics and its implications," *Journal of South China Normal University (Social Science Edition)*, vol. 6, pp. 81–86, 2004.
- [10] G. Y. Jiang, "Cost-benefit analysis of English education in China from the perspective of language economics," *Research in Institutional Economics*, vol. 1, pp. 184–194, 2010.

- [11] Z. S. Mo, X. Y. Zhang, and Y. Zhang, "A study of business English based on language economics," *Journal of Hunan University (Social Science Edition)*, vol. 20, no. 4, pp. 102–106, 2006.
- [12] X. Y. Yin and X. Z. Li, "Analysis of the cost and benefit of personal investment in business English education—a perspective of language economics," *Journal of Hubei Second Normal College*, vol. 36, no. 12, pp. 62–68, 2019.
- [13] Canadian Economist Vaillancourt States, 1989
- [14] J. L. Zhang and X. H. Sun, "Cost-benefit analysis of personal foreign language investment for ethnic minorities in Xinjiang," *Xinjiang Social Science*, vol. 2, pp. 158–162, 2017.

Copyright © 2023 by the authors. This is an open access article distributed under the Creative Commons Attribution License which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited ([CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)).