Elitism and Equality in Chinese Higher Education

Studies of Student Socio-economic Background, Investment in Education, and Career Aspirations

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黄 丽 红

献 给 我 的 母 亲

To my mother
who was deprived of schooling as a child
who has passed to me the undying desire for knowledge
who has moved mountains to pave the way for my education
who has served as an inspiration for this study and my life

Map of China

Abstract

The purpose of this study is to present an empirical pattern of social equity in Chinese higher education by investigating university students. Student socio-economic background influences access to, and socio-economic conditions in, higher education, and this, in turn, influences student career aspirations. The theoretical background of the study is interdisciplinary and a conceptual framework built on theories and previous research is used to analyse Chinese higher education in a historical, social and economic context.

A questionnaire survey was administered at six public universities in the Southwest region of the country to explore students' socio-economic background, costs and how they finance their studies, as well as their future career aspirations. The relationships between the factors investigated were examined using factor analytical techniques and linear structural relations (LISREL) analysis.

The findings indicate that the students come from all socio-economic strata but a disproportionately large number are from high-income families. Students from urban areas are over-represented while rural girls are significantly under-represented. Although the gap between the lowest and highest study costs is enormous, the findings confirm that the average cost of higher education in China far exceeds the average annual income, even for urban residents. Moreover, about one-third of students and their families utilised financial resources other than family such as student loans, borrowing, and other forms of financial assistance.

A structural model linking student socio-economic background, enrolment in elite institutions, costs and means of financing education with career aspirations is developed and tested in three stages in order to shed light on the conceptual framework and to present a pattern of social equity. The results show that family socio-economic status has only a modest impact on student access to and in higher education. On the other hand, having social origins in a well-developed community exerts an influential effect. Although study and living costs, and means of financing studies, are influenced by student socio-economic background, they intend to have positive impacts on student career aspirations. While enrolment in elite institutions has a strongly positive impact on costs, it has a moderately negative impact on aspirations to pursue advanced degrees.

In conclusion, the study finds that the patterns of socio-economic factors influencing student upward mobility in present-day China are different from those of ancient China and from those previous Communist leaders attempted to achieve only 20 years ago.

Descriptors: Southwest China, higher education students, socio-economic background, study costs, study finance, career aspirations, social pattern, inequality, social stratification

中国高等教育中的精英论与平等论：
对大学生社会经济背景, 教育投资, 和事业志向的研究

摘 要

这项研究的目的在于, 通过对大学生进行调查, 提供一个实证的, 运作于中国高等教育中的社会公平模式。学生的社会经济背景影响其入学机会和在学期间的社会经济状况, 并进一步影响学生的事业志向。研究的理论背景是交叉学科性的。在历史的, 社会的和经济的背景前提下, 一个用于分析中国高等教育的概念性框架在理论和早先研究的基础上建立起来。

本研究的数据来自一项在西南地区的六所公立大学进行的问卷调查, 调查内容包括学生的社会经济背景, 学习花费, 怎样组织上学经费, 和他们的未来事业志向。本项研究还采用了因素分析技术和线性结构联系(LISREL)分析方法来探索存在于这些被调查的因素之间的关系。

研究结果表明, 大学生们来自各种社会阶层, 但是来自高收入家庭的学生占了很大的比例。绝大多数的学生来自城市, 来自农村的女大学生显著地少。虽然存在于最低和最高的学习费用之间的差距极大, 本究结果证实了中国高等教育的每学年生均消费已远远超出了甚至城市居民的平均年收入。大约三分之一的学生及家人动用了家庭以外的资金来源, 比如学生贷款、借贷, 和来自其它社会机构的经济援助。

为了清楚地表述概念性框架并提供一个社会公平模式, 本研究分三个阶段建立并测试了一个结构模型, 连接学生社会经济背景, 入学重点院校, 学习花费, 经费来源, 以及事业志向。结果显示, 家庭社会经济条件对学生的入学机会与在校状况只起到轻微的影响。然而, 家居在一个高度发达的社区具有更重要的影响力。虽然存在于学生社会经济背景的影响之下, 在校的学习和生活花费, 以及上学经费来源, 却对学生的事业志向有正面影响。当入学重点院校对费用有强烈的正面冲击, 这一因素却对追求更高学位的志向有着轻微的负面作用。

总而言之, 本研究发现, 各种社会经济因素影响学生向上的社会流动性的模式, 在当代中国是不同于旧中国时代的那些模式的, 也不同于那些仅在二十多年前中共领导者们还在努力争取的那种影响模式。

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Abbreviations

ACE	American Council on Education
AGFI	Adjusted Good-of-fit Index
CCP	The Chinese Communist Party
CREC	Centre of Research on Education in China, the University of Hong Kong
EGP	Erikson and Goldthorpe's Class Categories
GDP	Gross Domestic Product
GFI	Goodness of Fit Index
HE	Higher Education
ICHEFAP	International Comparative Higher Education Finance and Accessibility Project
ISCO	International Standard Classification of Occupation
ISEI	Ganzeboom *et al.*'s International Socio-Economic Index of Occupational Status
LISREL	Linear Structural Relations
ML	Standardised Maximum Likelihood
MOE	Ministry of Education, the People's Republic of China
NBSC	National Bureau of Statistics of China
NCEE	National College Entrance Examination
OECD	Organisation for Economic Co-operation and Development
PPP	Purchasing Power Parity
PRC	People's Republic of China
RMR	Root Mean Square Residual
RMSEA	Root Mean Square Error of Approximation
s.d.	Standard Deviation
SIOPS	Treiman's Standard International Occupational Prestige Scale
SPSS	Statistical Package for Social Sciences
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation

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Chapter One:

Introduction to the Study

1.1 Introduction

The thesis will describe the pattern of social equity in China currently by investigating a group of students in public universities.

The argument of the study is that a) socio-economic blockages that had caused social and educational inequality in China during the centuries of the country's imperial history remain, despite b) the reforming attempts made by the socialist regime; however, c) the introduction of a market economy into the society and a market mechanism into higher education has created a new pattern of socio-economic blockages.

The thesis attempts to outline this new pattern by looking closely at a specific social group: students in the Chinese public universities. The empirical data used in this study were collected from a questionnaire survey of students in six selected public universities in Southwest China in December 2002. The sample contains 1156 students enrolled in these public universities in September 2001. The thesis examines students' socio-economic background, their enrolments in different universities, the cost and finance of their studies, and their future career aspirations. It analyses the complex relationships among these factors.

The task of this first chapter is to a) introduce the rationale of the study, b) spell out the aim and objectives of the study, c) state the significance and some of the limitations of the study, and d) outline the organisation of the thesis.

1.2 The rationale of the study

Higher education[1] is of importance for social and economic development in a society. It generates social, cultural and economic benefits for both the public

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[1] As used in this study, 'higher education' refers to universities and other tertiary institutions that award degrees and advanced research qualifications. It is equivalent to A5 level in ISCED 97 classification. Such programs in China normally involve at least four years of full-time study and are designed to provide sufficient qualifications for entry to professions with high skill requirements and to research programs, which differs from the 2-3 year's 'short-cycle' vocational tertiary education. Some of the data presented in this study relate to tertiary education as

and individuals (World Bank 1994; UNESCO 1998). Higher education has four tasks in a modern society. First, it is supposed to select, to socialise and to train students to be suitable employees in the labour market in order to build up or maintain a middle class in a society. Second, higher education produces knowledge and personnel with advanced knowledge that generate economic benefits for a society and individuals. Third, higher education has been one of the agents of political socialisation, producing elites for a nation-state. And the fourth mission, seems to be – almost intentionally – forgotten, i.e. the critical responsibility of higher education (Wielemans 2004).

After WWII, many countries viewed higher education as a vehicle of upward social mobility for able young people from disadvantaged family backgrounds. When empirical studies showed that expansion had done little to reduce either inequality in society or participation in higher education, attention shifted to a concern with education as a means of social reproduction whereby advantaged groups in society, whether by gender, class, race or cultural affinity, passed on these advantages to the next generation. Trow (1984:132) has described higher education "as a stratified system of institutions, graded formally or informally in status and prestige, in wealth and power, and influence of various kinds." Since the 1960s, the purpose of higher education has been more and more dominated by economists' view in many Western countries.

Policy makers have especially favoured charging tuition fees at the tertiary level of education in recent years. This trend was facilitated by various realities and research findings (Psacharopoulos and Woodhall 1985; Ziderman and Albrecht 1995; Tilak 1997, 2000; Johnstone and Shuroff-Mehta 2000; World Bank 2000; Bray 2002). First, according the rate-of-return theory in economics, higher education generates higher benefits to individuals than to the society. Second, as a reality, higher education has high unit costs that cannot be borne solely by governments. Third, free higher education has been found to benefit mostly the children of the wealthy. Thus, policies of sharing the cost of higher education among the state, the society and the individuals were widely adopted by many countries. Promoted especially by the World Bank, tuition fees were introduced into educational systems in many developing countries during the 1980s and 1990s. China was one of them.

During the last two decades of the twentieth century, China had opened her door to the world, and changed from a socialist planning economy into a socialist market economy. Higher education in socialist China was free to all students until the mid-1980s; was free to the majority and expensive for a small group of the students until mid-1990s. A unified tuition charge was introduced

a whole due to the absence of the distinction of degrees and 'short-cycle' programs in various published statistics.

in 1997. In 2000/2001, the total private cost of one student for a year in university exceeded an urban resident's annual income and was four times that of a rural resident (Huang 2000). In 2001, more than seven million students were enrolled in Chinese higher education institutions but they were only 10 per cent of their age cohort. At present, China has less than five per cent of her 870 million labour force with some higher education attainment (MOE 2003a). Meanwhile, about 20-30 per cent of higher education graduates could not find employment upon graduation in 2001 (China Education Yearbook 2002: 217).

The major research question addressed by this study is: In such a mix of contradicting trends, what does the pattern of social equity look like in present-day China?

Since students in Chinese higher education are the social group of interest in this study, three issues are considered relevant to the issue of social equity: access, financing and social mobility. Therefore, three relevant questions are proposed in order to answer the major research question:

1. Since the cost of higher education is so high in present-day China, who can afford it? Who has managed to get in?
2. What is the real study cost faced by the students and their families in Chinese universities? What is the source of financing their studies?
3. Finally, what do the students expect out of this investment in higher education, and what aspirations do they have for their future career?

1.3 The aim of the study

Corresponding to the major research question of the study as mentioned above, the overall aim of the monograph is to present an empirical pattern of social equity in present-day China by investigating the students in Chinese universities.

In order to understand the pattern of social equity in higher education of present-day China, a historical account of Chinese education and its intimate connection with the ruling class is necessary since education was highly valued and educated gentries ran the country for many centuries. Thus, the first operational objective of the monograph is to survey the relevant scholarly literature to identify socio-economic factors that caused educational inequality in China's past and to understand the roots of educational inequality in traditional and present-day China.

In order to answer the three specific questions, the factors to be investigated are: students' socio-economic background, their enrolments in

certain types of universities, the cost and financing of their studies, and their future career aspirations. The processes and results of investigating those factors become the second, the third and the fourth operational objectives of the monograph. They are as follows:

- Develop a profile of students' socio-economic characteristics in present-day Chinese higher education, based on the student group in the sample;
- Analyse whether different student socio-economic backgrounds are associated with their enrolments in different types of universities, and their private direct costs and financing of their studies;
- Explore the relationships between different students' socio-economic characteristics, their enrolments in different types of universities, the cost and financing of their studies on the one hand, and their attitudes and future career aspirations on the other.

1.4 Significance of the study

Both in China and abroad, very little research has been done to investigate the factors mentioned above. In brief, two points make this study significant:

First, this monograph is the first attempt made by social researchers to study students in higher education in present-day China. Many publications by researchers on Chinese higher education since the late 1990s are policy analyses that look at the face value of policy changes, with little empirical investigation. This study draws information directly from the students about their parents, their families, their home economic conditions, their real costs and financing of their studies, their attitudes and their future career aspirations.

Second, taking an interdisciplinary approach, the thesis discusses and highlights the issue of social equity in present-day China, employing statistical modelling to present a social pattern of current Chinese society.

1.5 Limitations and delimitations of the study

The approach in this thesis builds on a sociological perspective but also adds economic and psychological perspectives in investigating students in selected Chinese universities.

The data collected for the study are obtained in a single sample survey conducted within a few selected universities in one geographic region of China. Therefore the statistical results present a picture at one point in time only, and

cannot provide information about patterns of changes. The thesis includes a substantive historical background to remedy the shortcomings inherent in the data.

1.6 Organisation of the study

The first two chapters of this monograph introduce the study and theoretical issues. Chapter 1 outlines the rationale, aims and limitations of the study. Chapter 2 deals with theoretical issues and presents the conceptual framework of the study.

Chapters 3, 4 and 5 offer a historical inquiry through a review of scholarly literature on Chinese higher education. This part provides input for the construction of a path diagram of the formation of the traditional system and reforms of this system in Chinese higher education, highlighting the role of higher education and the socio-economic factors influencing access to it and students' social mobility in Chinese society.

The purpose of these three chapters is to understand and interpret present-day Chinese higher education and to set the stage for the empirical investigation contained in this study, in a broad historical, cultural and socio-economic context. Chapters 3 and 4 are historical reviews of the development of Chinese higher education from ancient to recent times. The two chapters focus only on the issues of higher education as an institution of social mobility or social stratification during those historical periods. Chapter 3 covers higher education in imperial and post-imperial China before Socialist China came into being in 1949. Chapter 4 focuses on the reforms that have been carried out by the Chinese Communist Party (CCP) in the second half of the twentieth century, when the university was the battlefield on which wars against social inequality were fought.

Chapter 5 describes the socio-economic background of contemporary China: a country in rapid economic growth, in transition from a socialist centrally planned system to a free market system, and a nation in a new socio-economic phase. This chapter is a detailed description of the socio-economic, structural and educational background of the empirical research of this study.

The following four chapters (Chapter 6, 7, 8, 9) deal exclusively with empirical data and statistical analysis. Chapter 6 introduces the data collection process. It also deals with methodological issues and the variables of interest for the empirical study. Certain debates and controversial issues concerning the relevance of some of the variables' to present-day China are also discussed.

Chapters 7, 8 and 9 are exclusively based on empirical findings of the study. Each chapter deals with statistical results of one of the three themes, i.e., socio-economic background, cost and financing of studies, and future career aspirations.

The final chapter, Chapter 10, is the conclusion. It includes a summary and discussion of the main research results. In addition, this chapter provides a number of general recommendations for policymaking and future research on the issue of higher education and social mobility.

Chapter Two:

Theoretical Issues and Conceptual Framework

2.1 Introduction

The thesis will describe the pattern of social equity in China by investigating students in Chinese higher education institutions and the factors influencing their studies and choices. This chapter will introduce the theoretical concepts relevant to the study. As mentioned previously in Chapter 1, students' socio-economic background, their enrolments in different universities, the cost and finance of their studies, and their future career aspirations are the aspects of interest for the study. Therefore, concepts and theories are grouped into three sections in this chapter. Drawing on the disciplines of sociology, economics and social psychology, this chapter will examine the idea of social equity around the issues of access to higher education, socio-economic background, cost and finance, and students' future aspirations. Following the sections on concepts and theories, a concluding section sums up the theoretical points and outlines the conceptual framework of the study.

2.2. Sociological perspectives and the issue of access to higher education

The field of sociology of education has three 'classical' perspectives: the functionalist perspective, the conflict perspective, and the Weberian perspective (Saha 1997). From a functionalist perspective higher education serves the social and economic needs of a society. Its function includes contributing to social stratification by selecting students from a wide social base to socialise them into a certain status group, and meeting the needs of the labour market by training the students for certain occupations (Halsey 1961). Thus, functionalists assume that by expanding access to higher education equal opportunity for social mobility can be promoted.

Against the functionalist assumption, from a conflict perspective, certain social classes who have obtained ruling power dominate access to higher education. Schools are used as a tool or apparatus to maintain the 'means of production' and the 'relations of production' (Althusser 1972). Expanding

access to higher education would not change the over representation of the privileged classes with greater resources in the universities, and the function of higher education remains class reproduction (Bourdieu and Passeron 1977).

From a Weberian perspective, higher education functions as a key social institution for the allocation of life chances in modern society (Collins 1979). Different social groupings or interests in a society are in constant conflict to preserve their control over class, status and power. Educational credentials are used as a sanction against 'outsiders' (Collins 1979) and to protect certain social groups (Murphy 1982). Therefore, changes within the educational system have profound effects on the behaviours of individuals (Archer 1979).

From any of the three sociological perspectives, the issue of access is central. Questions such as "how is access to higher education organised in a society and who shall have access to it", reflect the ideology and power relations in society. Therefore, the next subsections will discuss the social equity arguments around the issue of access to higher education, and the determinants of access to higher education in society.

2.2.1 Access to higher education and social equity

Access to higher education as a (universal) right is stated either in international agreements (e.g., the United Nations[2]) or in various national laws[3]. In operation, access to higher education is regulated by certain subjective and objective criteria, namely the market principle, the performance principle, the *Concours* and the *Numerus Clausus* (Richter 1998). The market principle stressed the balance between supply and demand of students in higher education. The performance principle emphasises control of the criteria and qualifications for entering higher education. All principles express an effort to make higher education dependent on merit criteria rather than other criteria, such as wealth, sex, age, ethnic, or social status.

Nevertheless, the selectivity of higher education could hardly satisfy the goal of social equity (Duke 1998). It is widely known that the equity of any educational system could hardly reach the point of having the same proportion represented in the school by each social group as their original proportion in the society at large, even when talent is equally distributed among the population. First, seen from a sociological perspective, education as a public good is

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[2] United Nations at Article 13 of the 1966 International Covenant on Economic, Social and Cultural Rights: "Higher education shall be made equally accessible to all, on the basis of capacity, by every appropriate means, and in particular by the progressive introduction of free education."

[3] 'Education Law of the People's Republic of China' states at Article 9 that "all citizens, regardless of ethnic group, race, sex, age, occupation, property status or religious belief, enjoy equal educational opportunities according to law" (MOE 1999).

hierarchically organised from primary to higher levels. Even though it can be theoretically open to every person in a society, entry into higher education depends on personal will and choice, besides individual learning ability. Second, there are many political, social, economic and cultural factors, which influence the decision of a person to entry a school and stay for many years. Third, learning ability differs from person to person, but it is an important criterion in terms of selection for higher education.

Furthermore, examination as a form of open competition is supposed to play its role as 'the main safeguard of the interests of people of humble origins, and the main guarantee of a measure of social justice' (Musgrove 1966: 91). It has, on the contrary served better the original meritocracy's aim of spotting those with 'inherited' ability. Even though the examination is theoretically open to all social classes the poor enter into the competition with less confidence than their wealthy classmates who have been better prepared in better schools, better homes and better communities (Bourdieu and Passeron 1977).

Consequently, meritocracy is not without criticism since it tends to consider a person as isolated from his/her environment (Wielemans 2000). During the three decades after WWII, in most industrial countries great efforts were made to promote equality of educational opportunity and social equity. In 1970s, it was found that higher education could never function as an 'equaliser' (Husén 1972; Jencks *et al.* 1972; Boudon 1973). Even though the representation of women, minority groups, and lower social classes in higher education has been improved since the beginning of the twentieth century, inequality persists (UNESCO 1967; Alexander, Pallas and Holupka 1987; Shavit and Blossfeld 1992; OECD 2002).

Although higher education was used as 'one of the many instruments for combating inequality among persons or classes' (Bowen 1977: 337), the effort to use education to equalise the society failed in the 1970s. The growth in the student population in recent decades has not changed the situation that the majority of students is often from a socially and culturally privileged background (Shattock 1980; UNESCO 1983); instead, the spinning of neo-liberal policies around the globe is generating new heights of inequality (Apple 2001a, 2001b; Altbach 2004). The outlook seems pessimistic on the premise that "higher education can never create an egalitarian utopia" (Duke 1998). From the late 1990s, the general sociological view of the relationship between equality and education was quite different from the optimistic spirit that characterised the 1950s and 1960s, as Halsey and his colleagues have stated:

> Our own view is basically that the society of equals has to be created by economic and political reform, and that the role of

education must largely be to maintain such a society once it has
been attained (Brown *et al.* 1997: 27).

Nevertheless, sociologists have contributed very much to the debate about equality and education. Access to higher education has been widely studied, especially in the 1970s and 1980s. The following subsection will discuss the socio-economic determinants of access identified by sociological researchers.

2.2.2 Socio-economic determinants of access to higher education

Many researchers have tried to assess the issue of access based on personal characteristics of individuals from different social strata. Parents' educational attainments, occupations and family income have been reported as factors with strong and positive influences in students' deciding to and eventually attending higher education. Sociological approaches (Blau and Duncan 1967; Stafford, Lundstedt and Lynn 1984; Carpenter and Hayden 1993; Kuo and Hauser 1995) have investigated the influence of home background, family economic circumstances, and the socio-economic environment of neighbourhood on an individual's probability of gaining access to different levels of education.

Many factors other than the ability of the students influence their eventual educational experiences and attainments. These include differences in the level and quality of education available in the country, region, or community in which they live (Sewell and Orenstein 1965; Sewell and Armer 1966; Hu 2003); differential access to educational facilities according to socio-economic status, religion, race and ethnic origins (Sewell, Haller, and Straus 1957; Sewell and Shah 1967; Cabrera and La Nasa 2001); differences in motivation, values, and attitudes (Saha 1998; Perna 2000); and differences in the willingness and ability of parents and significant others to provide the financial and psychological support necessary for the maximisation of potentials (Fuller, Manski and Wise 1982; Choy *et al.* 2000; St. John, Asker and Hu 2001).

The main dimension of inequality in educational opportunity is parental socio-economic status, which accounts for a large portion of the variance in access in the industrial countries (Husén 1975). Many studies (Husén 1972; Husén 1975; Bourdieu and Passeron 1977; Collins 1979; Alexander, Pallas and Holupka 1987; Cabrera and La Nasa 2000) have found out that socio-economic selectivity operates strongly in the context of college entrance, that socio-economic barriers operate much more strongly at entry to a certain stage of education than during that stage. Other studies (Erikson 1987; Erikson and Jonsson 1998) have discovered that the 'long arm' of socio-economic background not only operates throughout one's educational career but also

affects his/her occupational achievement later on in life. Husén (1989) has mentioned that in the developing countries, social background dimensions of inequality can be identified as rural/urban residence, income, gender and ethnicity but not necessarily social status.

Sociological researchers have found that the socio-economic background of the students is the key to identify the dimensions of inequality of access to higher education. As the key dimension to identify a person's social position, the concept of socio-economic status differs in theoretical approaches as in different social structures. Nevertheless, in sociology, education, occupation and income are the predominant variables used to measure socio-economic status. There are at least two types of characteristics, which form a person's position in a given society, one is biological such as age, sex, race and ethnic origin, and another is acquired such as power, wealth and social prestige (Haug 1977).

Although there is little consensus regarding which characteristics should form the basis of a general theory of social stratification (Keeves and Saha 1997), the theories of Marx and Weber on social class categories have greatly influenced thinking in this area. According to Marx, a person's social position is determined by his/her relation to the production process in a society, which is based on differences between ownership of property and the provision of labour (Marx 1959). Weber notes that positions in a society are built around the three concepts of social prestige, political power and economic class (Weber 1968). In an education setting, besides school environment, home background including parental socio-economic status, home and neighbourhood social, economic and psychological environment have been constantly proved to have a strong influence on a child's development and educational attainment (Musgrove 1966). Nevertheless, studies (Warner *et al.* 1991; Keeves and Saha 1997; McMillan and Western 2000) have identified the most common indicators of a person's socio-economic status, i.e. educational attainment, occupational status and income or wealth.

Using the perspectives of sociology to look at inequality in education, only partially explains reality. During the last two decades of the twentieth century, the neo-liberal economic perspectives affected policies aimed at expanding higher education. More and more systems have adopted a cost-sharing policy in financing higher education. Tuition fees have been introduced in many Asian, African and European countries (Johnstone and Shuroff-Mehta 2000). The next section will examine social equity and the issue of costs and finances of higher education, through economic perspectives.

2.3 Costs and finances of higher education

According to education economists, the traditional goals of higher education are rather functional: transmitting high level knowledge to students through teaching, creating knowledge through research, serving the community through various activities to extend knowledge to the technical development of social sectors and policy making (Mora and Vila 2003). Human capital theory and the issues of cost and financing of education are at the heart of economics of education (Blaug 1970; Psacharopoulos and Woodhall 1885). The link between education and economic growth, and the idea that individuals spend money on education as an investment are central to the concept of human capital (Blaug 1970).

Economics of education focuses mainly on the application of the tools of economics to educational investment. The economists count the costs and do cost-effectiveness and cost-benefit analysis to help policy makers in allocating resources in the education system (Psacharopoulos and Woodhall 1885). They have quite different perspectives compared with those of the sociologists, to look at the function of education, and the issue of social equity. According to economists of education, investing in higher education is profitable both for the society and the individuals, with monetary returns (Psacharopoulos and Woodhall 1985; Miller, Mulvey and Martin 1995; Psacharopoulos 1996; Cohn and Addison 1998; Psacharopoulos and Patrinos 2002), and non-monetary returns (Bowen 1977; Michael 1982; Greenwood 1997; Wolfe and Zuvekas 1997; McMahon 1998; Vila 2000). Thus, it is equitable to share the costs among the state, the society and the individuals who benefit from higher education. But it has been a problem for the economists to answer the questions as to who benefits more and how the cost shall be equitably shared.

The following subsections will look, through the perspectives of economics of education, at the rationale and the debates on the social equity of this financing policy.

2.3.1 The cost sharing policy in financing higher education

Higher education is expensive because it takes years to educate a person to be a professional; and it needs a highly qualified labour force to concentrate on teaching, tutoring, and research. Table 2.1 presents costs of higher education compared with GDP per capita in the World Education Indicators (WEI) and OECD countries. The cost of higher education varies tremendously among different systems, and it is comparably much more expensive in developing

countries than the OECD countries. According to Fägerlind and Saha (1989), in the early 1970s a unit cost of higher education in less developed countries was 1405 per cent of GNP per capita while it was only 55 per cent for the OECD countries. After two decades, the situation has improved but less developed countries still spend 100-200 per cent of GDP per capita on a student in higher education while OECD countries spend less than 50 per cent (see Table 2.1).

The economists' perception of education as a form of national investment started since Adam Smith placed the nation-state as the foremost financer of a national education system in the modern world. The introduction of the concept of human capital (Schultz 1961, 1971; Becker 1975; Mincer 1989) gave a boost to the expansion of education systems, particularly participation at the post-compulsory level after WWII. From the 1970s, economic techniques of cost-benefit analysis have been applied to calculate the private and social rates of returns accruing to investment in education.

It was found that both individuals and society benefit from investment in education, although higher education generally brings higher returns to individuals than to the society (Psacharopoulos 1973, 1977; Psacharopoulos and Woodhall 1985). Furthermore, it was found that the systems fully financed by the governments are filtering out students from poor families (Ziderman and Albrecht 1995). High levels of subsidy for education do not necessarily ensure equal opportunity and may even transfer income from the poor to the rich (Psacharopoulos and Woodhall 1985; Ziderman and Albrecht 1995). This corresponds with the similar findings by sociologists during the 1970s (Husén 1972, 1989) that higher education works rather as a social 'stratifier' than as an 'equaliser' and, free higher education can do very little to change the social inequality. To varying degrees, the accumulated body of research findings have been brought to the attention of some national governments as well as international organisations such as the OECD and the World Bank (1986a, 1988), which helped to create the fundamental changes in the attitudes and the mechanisms of financing higher education in the 1980s and 1990s.

Two major parties are beneficiaries of higher education: the student and the society. These two parties, more precisely the students and their families, taxpayers and philanthropists in the society, should then share the cost (Johnstone 1991). Cost sharing principles were adopted by an increasing number of nations during the decade of 1980-1990 by shifting more the burden of cost towards students and their families. The causes behind this adaptation are basically three (Johnstone and Shroff-Mehta 2000). The first is inadequate state funding followed by the rapid expansion of access, which demands other-than-governmental revenue. The second is the view that those who benefit should at least share the cost based on the notion of equity. The last is efficiency brought by the virtues of the market (as these are suggested by neo-liberalism)

(Colclough 1991), an idea that gained ground in public management in many countries (Flynn 1997; Mok 2000b).

Table 2.1 The total and the household share of expenditure per student on tertiary education, compared with GDP per capita in World Education Indicators (WEI) and OECD countries, 1999

Country	GDP per capita (US$ in PPPs)	Total expenditure (US$ in PPPs)	Household expenditure on tuition fees (US$ in PPPs)	Household share as percentage of total expenditure
WEI mean	*5553*	*5200*	*1701*	*33%*
Chile	8652	6911	5036	73%
China	3617	5798	1225	22%
Indonesia	2857	1047	502	48%
Jamaica	3561	6484	1258	19%
Jordan	3955	5082	1796	35%
Paraguay	4384	5465	2666	49%
Peru	4622	1414	643	45%
OECD mean	*21317*	*9210*	*1550*	*17%*
Australia	24574	11725	3836	33%
Canada	26251	15211	3534	23%
France	22874	7867	825	10%
Ireland	25918	9673	2268	23%
Italy	22172	7552	1023	14%
Japan	24898	10278	5705	56%
Korea	15712	5356	3350	63%
Mexico	8297	4789	1318	28%
Netherlands	24215	12285	1428	12%
Poland	8450	3912	655	17%
Spain	18079	5707	1462	26%
United Kingdom	22093	9554	2414	25%
United States	31872	19220	7299	38%

Source: UNESCO-UIS/OECD (2003): Table 1, 9 and 17 in Annex A4.
Note: Only the countries with household share of total expenditure equal and above 10 per cent are presented in the table.

Although education is still perceived as a public good and the state should guarantee free education according to international human rights regulations (Buckland 1999; Bray 2002), the international trend has been to shift a greater responsibility for the costs of tertiary education on to private sources of funding (Skilbeck 1998; Johnstone and Shroff-Mehta 2000). There is very little consensus over the issue of what proportion of the cost should be shared by

students and their families (Woodhall 1987,1995). Again the two columns toward the right side of Table 2.1 show that the proportion of costs per student made up by private contributions at the tertiary level varies considerably among the systems. The household share of costs per student is as high as 73 per cent in Chile, and 49 per cent in Paraguay while the average is 33 per cent in the World Education Indicators countries. Korea at 63 per cent and Japan at 56 per cent present the highest household share of costs per college student in the OECD countries. The household shares shown in Table 2.1 are only for tuition fees. It is known that the cost borne by the students and their families is much more than just tuition fees. The next subsection will examine how the economists of education count the costs of higher education.

2.3.2 Counting the cost of higher education

The total cost of higher education can be calculated by adding the inputs of governments, families, communities, and other agencies (where these are relevant) and these inputs should include the opportunity costs for the parties involved (Bray 1994). The cost of operating a higher education institution as well as a higher education system is counted by adding up all the expenditures. Higher education institutional costs in real cash terms include salaries of academic, administrative and professional support staff, maintenance of assets as well as updating library and technical equipment and facilities (Johnstone 1991).

The measurement of unit cost depends not only on the number of students but also on the differentiation of institutions by functions – some with substantial expenditures for research, public service, and auxiliary enterprises, and others confining their missions largely to the education of undergraduate students. The revenues available determine an institution's educational cost per student while educational revenues are derived largely from tuitions and state allocations that tend to be closely related to enrolments (Bowen 1980). So far, enrolments are broadly used as indicators of the amount of education being produced and the only practical base for establishing unit costs.

In general terms, the cost of a student attending university has three broad categories, namely cost of instruction, cost of student living and student-foregone earnings (Johnstone 1986, 1991). Although foregone earnings is a major element of private cost in higher education (Verry 1987), the cost of higher education in real cash terms is usually measured only by the cost of instruction and the cost of student living, i.e. the direct cost (Johnstone 1991). As for the individual students, the cost of higher education goes well beyond tuition fees.

The assessment of the private cost of higher education as applied by the international organisations (UNESCO-UIS/OECD 2003) includes direct payments to educational institutions such as student tuition or fees, other fees charged for educational services, fees paid for lodging, meals, health services, and other welfare services provided to students by and at educational institutions that are indirectly related to their educational aims. It is reasonable to taking living cost into consideration in counting the private cost of higher education since in most cases non-tuition cost is higher than unit cost in public institutions and it is the 'largest obstacle' (Ziderman and Albrecht 1995: 48) to the poor students to attend universities.

It has been found that participation in higher education is both 'income-sensitive' and 'cost-sensitive' (Stager 1989; Nicaise 1996). Research has shown that lower-income students are more sensitive to college costs in their college-going decision-making than upper-income students (Gertler and Glewwe 1992), and students in different institutions respond to costs differently (Leslie and Brinkman, 1988; Heller 1997). Obviously, some forms of financial assistance are needed to help the poor to receive higher education.

The United States of America is the most cited case for its sophisticated mechanisms in providing financial assistance to its college students. Financial aid is available in the forms of loans, scholarships, tuition exemptions and work-study programs provided by the federal government, state governments, social organisations and universities, and reaches about half of all undergraduate students in the country (Choy 1999). The student who gets some kind of financial aid often receives a combination of grants or scholarship, loans and work-study, which cover 33 per cent of a four-year public university student's private cost while the student and his/her family pay for the rest. Most students hold part-time jobs during schooling, and/or borrow to pay for their higher education costs in the Nordic countries, the United Kingdom (DfEE 2000; Vossensteyn 2000), and in the United States (ACE 1999a, 1999b; ACE 2000), where student loans and work-study programs are available.

2.3.3 Consequences of the costs and finances of higher education

It has been found that financial aid has positive impact on students' attendance and persistence in higher education (St. John and Noell 1989; Nora *et al.* 1996; Kim 2004), and that the change of financial aid policies impacts more heavily on the completion rate of low-income students than that of more affluent students (St. John and Starkey 1995; Heller 2001). It has been found that students' socio-economic background, ethnicity, cultural capital, and habitus influence students'

cost-consciousness and students' conception of financial issues as part of the college attending decision (McDonough, 1977; Paulsen and St. John 2002).

Although research findings are rather mixed regarding the effects of different forms of finance on students' attending and completing higher education (Teachman 1987; Dowd 2004) the influence of socio-economic background seems rather profound in students' career development while cost and financing function as mediating factors in the process. Eventually, family income remains a determinant of persistence and completion of higher education (Dowd 2004) since merit financial aid tends to go to the wealthier students.

In analysing an educational market, economists often assume that students and their families have rational expectations (Catsiapis 1987). The idea that individuals spend money on education as an investment (Becker 1964; Blaug 1970) is central to the concept of human capital and to the way in which the rate of return to education is calculated. Some studies (Freeman 1986; King 1993; Menon 1997; Hung, Chung and Ho 2000) have found that students' decisions to enter higher education are influenced by perceived future economic returns. Other studies, as mentioned before, have also demonstrated the importance of economic factors influencing the investment decisions of students. The most recent empirical works (Greenwood 1997; Wolfe and Zuvekas 1997; McMahon 1998; Vila 2000) have enriched the rate-of-return analysis of education with the evidence that education generates not only monetary but also non-monetary benefits.

Nonetheless, the economists of education have disregarded the possibility that other factors, such as the consumption benefits of education, have affected students' choices (Shaffer 1961). Studies by Astin *et al.* (1987) and Leslie and Brinkman (1988) have found that a substantial proportion of students attend higher education for consumption purposes rather than for learning. Furthermore, human capital theory is mostly silent about the effects of expectations, and individual's expectations are not factored in directly. Therefore, other perspectives are needed to examine students' expectations of higher education. The next section will examine students' expectations, through perspectives informed by social psychology.

2.4 Students' expectations of higher education

From a social psychological perspective, in which aspirations represent an individual's ideal career choice, expectations are assumed to be representative of those occupations the individual believes to be realistic or accessible (McNulty and Borgen 1988; Davey and Stoppard 1993; Hogg and Vaughan 2002). Career

aspiration can be defined as a reflection of what is thought to be socially desirable while career expectation is a reflection of what a student perceives as reasonable or likely as a goal, given his/her social position and understanding of the way that society operates. Nevertheless, an educational or occupational expectation signalises a 'readiness to act toward the educational and occupational goals' (Saha 1998).

Theories of social psychology support the validity of assessing college students' career aspirations (Lent and Hackett 1987) through measuring attitudes. The next two subsections will examine the development of career aspiration and their factors influencing this development.

2.4.1 The development of career aspiration

Development theory in vocational psychology (Super 1990; Super *et al.* 1996) suggests that career aspirations can change over time with the development and implementation of the occupational self-concept. In the context of development, career choice is firstly an expression of the social self and secondarily the psychological self, individuals use social criteria such as gender stereotypes and the social status of occupations more than personal characteristics such as interests and personality when choosing a career path (Gottfredson 1981, 1996) This decision-making process occurs over an extended period of time and can be described in terms of the collateral processes of circumscription and compromise.

Circumscription is the process of eliminating unacceptable occupations from the range of career possibilities, thereby creating a 'zone of acceptable alternatives' (Gottfredson 1981, 1996). When a person finally makes an occupational decision, it is because the option chosen has been deemed the most acceptable when considering all other options. Compromise is choice strategy used in the circumscription process. When considering a preferred occupational choice, individuals may encounter barriers that would inhibit them from achieving that goal successfully. When individuals abandon their initial preferences for less desirable yet more achievable alternatives, this is compromise. During adolescence, as the individual's understanding of different occupations becomes more realistic and complex, compromise may become necessary if aspirations are perceived as being unrealistic or unattainable (Gati 1993; Gottfredson 1996).

However, career aspirations tend to become increasingly stable as adolescents mature to young adulthood while adolescents with aspiration-expectation discrepancies tend to consistently change their aspirations over the subsequent year in the direction of their expectations (Gottfredson 1981, 1996;

Armstrong and Crombie 2000). Gottfredson (1996) proposes her theory of compromise by stating as the first principle that the relative importance of sex-type, prestige, and interests depends on the degree of compromise with which an individual is faced. Specifically, if the degree of compromise is low, then interests will be most protected followed by prestige and then sex-type. If one is engaged in a moderate level of compromise, prestige becomes least flexible, followed by interests, then sex-type. Finally, if the individual is faced with major compromise, then sex-type will be the most important aspect to preserve, followed by prestige and then interests. So far, this compromising principle is only partially supported empirically (Lichtenberg 2003).

2.4.2 Factors influencing the development of career aspiration

Many studies have investigated the role of occupational aspiration in career choice and attainment, and have found that aspirations influence pursuit of educational and occupational opportunities (Rosenbaum 1981; Lent *et al.* 1994). In social psychology, career aspirations are viewed as a reflection of self-efficacy and considered important mediators of motivation and career development (Lent *et al.* 1994). As a pioneer of vocational psychology, Holland (1965: 2) states: "The choice of an occupation is an expressive act which reflects the person's motivation, knowledge, personality and ability". Many factors are found influencing the formation and development of career aspiration. It has been learned that career aspirations are moderately correlated with personality, originality scales and interests (Holland 1966), parental attitudes (Medvene 1969), and many other psychological and sociological variables.

From the perspective of social cognitive theory (Lent *et al.* 1994, 1996), socially constructed variables such as gender and ethnicity tend to influence the availability of career opportunities while socio-economic background is viewed as a determinant in career aspiration. Socio-economic background often "facilitates, restricts or overrides personal volition in the choice process" (Lent *et al.* 1994: 107). The effect of social factors (e.g., socio-economic background) is found to be more influential on career aspiration and expectations and less on implementation of an individual's self-concept (Fitzgerald *et al.* 1995; Gottfredson 1996). Career aspiration and expectation are viewed "as embedded in the broad system of social stratification" (Hotchkiss and Borow 1990: 263).

Career aspirations are shown to reflect the effects of bias and discrimination, social attitudes, cultural expectations, and stereotypes based on gender, race, or socio-economic status (Gottfredson 1986; Hotchkiss and Borow 1996; Perna 2000). Studies have found that the development of the career aspiration process is explained by a combination of socio-economic background

variables, personal psychological factors and sociological or environmental influences (Farmer 1985; Farries *et al.* 1985; Fassinger 1985; McNulty and Borgen 1988; Rojewski and Yang 1997).

In a vast body of research on youth's career aspirations carried out in the decades following WWII, a few determinants with strong empirical support have emerged since the 1960s (Rehberg and Westby 1967). They are parental occupation, education, the intensity of parental educational pressure, stress or encouragement, and family size. Furthermore, factors such as gender (Davey and Stoppard 1993), ethnicity (McNair and Brown 1983; Arbona and Novy 1991; Carter 1999), types of institution (Clark 1960; Dougherty 1987; Brint and Karabel 1989), college environment (Astin 1965, 1993; Astin and Panos 1969; Holland 1997; Smart and Thompson 2001), student's study major (Nauta *et al.* 1998), and cost and finance of study are found to have impact on students' career aspirations and expectations (Heather and Stoppard 1993). Although environment has not been clearly defined in the literature regarding its components and effects on students' career aspirations, nevertheless, academic characteristics of the institutions, peer relationships, student-faculty interactions, community characteristics, and institutional financial aid policies have been defined as environmental factors influencing student choices and expectations.

The contextual factors and their influences on the development of career aspirations as advocated by theories of social psychology suggest a link between students' socio-economic background, the economic factors of their studies in higher education, and their future career aspirations. This theoretical insight informs the conceptual framework developed for this investigation.

2.5 Conclusion: the conceptual framework

From a sociological perspective, higher education is seen as serving the purpose of social stratification; regardless of society it stratifies the population into occupational groups, socio-economic strata or social classes. Given its high position on the ladder of the education system, being closer to political, social and economic prestige, higher education has been historically accessible to a small group of people in a society. Although egalitarian approaches have been taken by various governments to equalise the opportunity of accessing higher education, universities remain the place for the offspring of the upper social strata.

With the advent of neo-liberalism in recent decades, higher education systems have begun to experiment with another approach to promoting social equity, namely equity in financing. Cost sharing policies have had adverse

implications for students from socially and economically disadvantaged groups. Unfortunately, even in places with sophisticated support mechanisms, such as those in the United States and the welfare states of Europe, financial aid has done little in helping poor students to gain access to and succeed in higher education. It would be too simple to assume that poor students failed to avail themselves of the opportunities available. The relationships between the opportunities available and the individual choices are far more complex than a straight line from A to B. Then, psychologists offer some perspectives to understand individual choices through students' career aspirations.

Given its close link with the actual career choices, career aspiration is not only getting stable when a person approaches adulthood, but also is amenable to measurement in the wider life context of a person. Although individual 'free will' is one dimension, career aspiration is subjected to the effects of the full spectrum of a person's life context. Not only career aspiration is directly influenced by a student's biological and socio-economic origin but also many environmental factors exert pressure on a student's career aspiration. The linkages between a person's socio-economic background, living and working environment, and future career choices reflect a pattern of web-like relationships in society (see Figure 2.1).
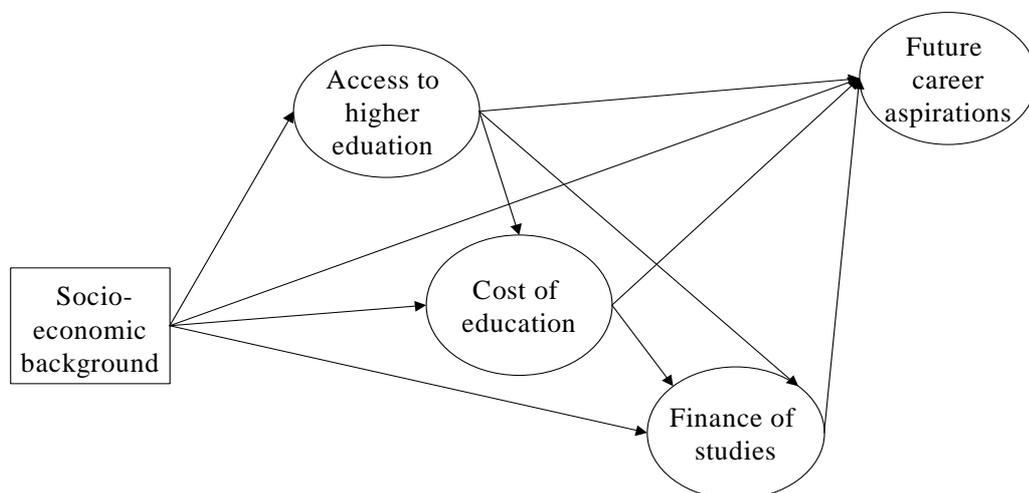
Figure 2.1 The conceptual framework of the study

Accordingly, the conceptual framework that will guide the premises investigated in this study is interdisciplinary in that it contains sociological, economic and psychological theoretical assumptions and concepts. As illustrated in Figure 2.1, five factors, i.e. socio-economic background, access to higher education, cost of education, finance of studies, and future career aspirations, represent five latent clusters of concepts derived from sociology, economics and psychology. Each link among the five clusters represents a hypothesised relationship supported by the sociological, economic and psychological theories reviewed in this chapter.

The conceptual framework presented in Figure 2.1 will not only guide the study through an understanding of the societal background of a higher education system, policy choices by the rulers, and students' responses, but also present an empirical model of how inequality is generated among the social groups in a given society. In this study, the particular society investigated is the People's Republic of China (PRC) at the beginning of the twenty-first century.

Chapters 3, 4 and 5 offer a historical review of Chinese higher education from the ancient period until the twenty-first century.

Chapter Three:

The History of a Tradition: Higher Education in Pre-1949 China

3.1 Introduction

This chapter offers a historical review of Chinese higher education during the imperial period and the decades preceding the communist regime established in 1949. Taking a chronological approach, the main purpose of this review is to identify the factors in traditional (or the 'old') Chinese society that influenced and sustained the patterns of access to higher education and individual career mobility. Two sections are devoted to two major periods covered by this Chapter, i.e. the imperial period, and the post-imperial decades until 1949.

3.2 Chinese higher education in the imperial period

The institutionalisation of higher education in China occurred earlier than that of the European universities. During the Han Dynasties (206 BC – AD 220), an Imperial Academy was established in 124 BC to educate an elite of scholar officials in Confucian thought. As the most prestigious and politically powerful institution, Han Imperial Academy selected its students through a mechanism of official recommendations or kinship relations, and its graduates were granted government positions and constituted the political elite of the country (Cleverley 1991). The link between higher education and civil service was thus established in ancient China. From then on, the aristocracy disappeared as a special class, and China entry into a 'gentry society' (Eberhard 1962). This gentry society was able to continue throughout the Chinese imperial history until the dawn of the twentieth century.

One key element that had contributed to sustaining the Chinese gentry society was the civil service selection system. The following subsections describe the evolution of the civil service examinations, and its actual function in the process of social mobility in imperial China.

3.2.1 The civil service examinations

The Han Imperial Academy selected civil servants through a recommendation system, theoretically on a broad merit base. This simple recruitment process was adopted by following dynasties, and eventually lasted several centuries until a civil service examination was first introduced during the time of the Sui Dynasty (AD 581-618). During the subsequent Tang Dynasty (618-906), the examination system was just a simple two-tiered process instituted only in the capital city and based either on local recommended candidates or school attendance in the schools in the capital (Chaffee 1985). Nevertheless, the recommendation system was in reality selecting officials based more on personal social origin than merit. It favoured official and gentry families and it was open to corruption. Eventually, the majority of those who entered government service through recommendation were descendants of the minor group of officials, descendants of officials, and members of gentry families (Eberhard 1962; Ho 1962).

The civil service examinations became more sophisticated during the Song Dynasty (AD 960-1279). A three-tiered examination process was established (Lee 1985). The examinations began at the local level (a prefecture or a county) to select licentiates twice every three years for the triennial provincial level examinations; then the successful candidates from the provincial examinations sat for the final triennial metropolitan examinations. The students who passed each level of examinations were granted statuses that were equivalent to degrees in the Western systems, i.e. from lowest to highest: Bachelor, Master and Ph.D. (Wilkinson 1964). Consequently, the degree holders were eligible to receive positions in the different ranks of government offices according to their degrees and together with their families; they would have enjoyed the social prestige, economic benefit and lifestyle of the gentry class for generations.

Furthermore, the three-tiered examinations enabled the state to achieve more than just getting a group of qualified administrators to run the government offices. First, the state was able to draw talented candidates from all geographic locations of the country to form a highly educated ruling class. Second, since Confucius and his followers advocated a hierarchical society where civil servants had the highest status, the highest aspiration of learning of all students was to pass the civil service examinations. By making the classics of Confucian thought the sole content of the civil service examinations, the country had a unified education curriculum down to every single private tutoring classroom without a central education system or any state intervention. Third, a quota system on the ratio between successful and failed candidates was used as a tool to confine and regulate the power of elites (Elman 1994). All of these factors

had contributed to keep China a unified country politically, socially and culturally. The examination system developed in the Song period functioned as a successful state instrument of social control and political efficacy (Wilkinson 1964), and it was adopted by subsequent dynasties and survived over a thousand years until its abolition in 1905 (Chaffee 1985; Lee 1985; Lo 1987).

For over a thousand years, the highest social status in the Chinese society was determined by the qualification for officialdom, which was in turn determined by education and especially by examinations. To succeed in the examinations had been the focal point to which state interests, family strategies, individual hopes and aspirations were directed. For the state, the civil service examinations supplied a unified and well-educated group of bureaucrats to run the vast land efficiently. For the society, the civil service examinations kept a unified gentry class at the top of a legitimate hierarchy through the classics of Confucian thought. For the people, the inspiration of passing the civil service examinations was more for the honour of the family than for that of the individual. Nevertheless, only a small proportion of the population could reach even the doorway of the examinations. And the success rate in the three-level examination process was one in a few thousand (Elman 1991, 1994). This leads the readers on to the next subsection, which deals with the chances of success on the ladder of social mobility in imperial times.

3.2.2 The determinants of success in the civil service examinations

The Chinese literati remained for two thousand years as the political and cultural ruling stratum. The civil service examination system was cited as the most successful instrument serving the purpose of political, social and cultural control of a vast country. Theoretically open to all social walks in the country, the civil service examinations propagandised fairness in entering officialdom and gentry class based on education and personal merit. A commoner could make his way into the literati class if he acquired the necessary education and knowledge and succeeded in the examinations. The stratum of literati had never been hereditary even during the feudal time (Weber 1958). Although, being the highest inspiration for the individual learners, success in the examinations was rare. It was so rare that legends of succeeding in the civil service examinations are still found in the Chinese literature and popular culture even today (Chang 1962; Ho 1962; Elman 1994).

The reality was that over 90 per cent of China's people were excluded from even the first step to success. First, approximately only five per cent of the adult male population was classically educated (Johnson 1985). Second, there was a priori exclusion of a large proportion of the population from participating

in the examinations, i.e. females, semi-literate or non-official language speakers, non-classically literate commoners, merchants until the fourteenth century, Taoists and Buddhists. Therefore, only a tiny segment of people in the country could aspire to dream about success in the civil service examinations. Among this tiny group of candidates, the ones from families with limited traditions of literacy were unlikely to compete successfully in the examinations with those from families with long established traditions of classical literacy (Fei 1953; Bourdieu and Passeron 1977). In addition, the basic classical literacy qualification required for entering the examinations demanded a minimum 10-15 years of intensive study (Miyazaki 1981), which required sustained economic support that many poor students lacked.

During the feudal period, when the various small kingdoms competed for the services of the literati, education was the only determinant of literati's social superiority. Literati were free and mobile crossing different borders seeking opportunities for power and income (Weber 1962). This situation changed when China became a centralised large kingdom in 221 BC. A unified administration system demanded literati to compete for positions in the civil service. Education and personal merit were no longer the only determinants that secured the literati's superior social status. Social origin, family wealth, and quite often, geographic origin or residence came to play subtle but powerful roles in determining an individual's fate in the examination process (Ho 1962; Weber 1962; Menzel 1963). Nevertheless, under the civil service examination system, neither education nor money alone could determine one's social status (Weber 1962; Ho 1962). Although money could purchase graduation degrees and official positions during some historical periods (Ho 1962), it still had to be translated into social status via education.

Elman (1991) has documented how the civil service examination functioned as the instrument of political, social and cultural reproduction in imperial China:

> Despite shortcomings in fairness due to special facilitated degrees for licentiates, hereditary privileges for some officials, purchase of degrees by merchants, and disparities in the geography of success, whether regional or rural-urban in form, the civil service examinations remained the main avenue to wealth and power in late imperial China until the nineteenth century. The homology between state officials and confucianised gentry that resulted disguised, through the ideology of social mobility, the de facto elimination from officialdom of the lower classes (Elman 1991: 23).

Throughout the imperial history, it had always been the case that a small group of people had, and retained, access to education and officialdom, while the vast majority of the population were left at the bottom of the society, illiterate. This system would have persisted even longer had China not been forced open by the foreign powers in the late nineteenth century.

3.3 Modernising Chinese higher education in pre-1949 China

It actually took decades in the late nineteenth century (since the First Opium War in 1839-1842), and several military defeats by the foreign 'barbarians', before the Chinese rulers finally realised the country's backwardness. It was realised that the empire's defeats were due to what China lacked but that the 'barbarians' had: science and technology. Thus, there was a belief that Western learning would bring China wealth and power. Consequently, many pioneer literati looked upon Westernising Chinese education as the cure of China's illness.

In the late nineteenth century, efforts had been made by the Qing Dynasty (1644-1911) authorities and individuals to widen the scope of education in the framework of China's traditional value system. In 1897, Nanyang College in Shanghai was opened to teach Chinese and Western subjects and games and adopted a structure of grades. In 1898, the Qing government established the Imperial University (Beijing University), which became the leading educational institution in the country (Hayhoe 1999). The government offices were instructed to study Western educational administration, and western style middle and elementary schooling was encouraged. In 1903-1904 the first national system of education of all levels came into existence by legislation, which remained in force with little modification until 1911 (Cleverley 1991).

In 1905, the civil service examination was abolished. Schools were organised and established according to Western models. The traditional institutions of higher learning, which had been integrated closely with the civil service examination system, lost their legitimacy and viability (Franke 1963). China's universities today have their origins in the institutions created by Chinese reformers at the time (Ayers 1971; Biggerstaff 1971) and by Western missionaries in the late nineteenth and early twentieth centuries (Lutz 1971; Hayhoe 1999). From inception, the Western style university in China has developed despite more than a half century of constant social political upheavals and brutal wars. The next subsections will describe briefly the development of Chinese higher education in the first half of the twentieth century, and the function of higher education in social mobility in a republican state.

3.3.1 The emergence of the modern higher education system

During the period from the fall of the Qing Dynasty in 1911 to 1927, the country was in political chaos and subjected to conflicts among warlords. In 1912, a National Educational Conference was held to debate the characteristics of an education system fit for a republic. Influenced by German and French education, a new plan for modern schooling was released. Modern curriculum subjects were extended in scope and given more time in schools' timetables. Villages and townships had to support lower elementary schools, counties and districts maintained higher elementary and lower industrial schools, and the provinces funded middle schools, normal colleges and higher industrial schools. The national government would support universities and colleges. Unfortunately, republican plans for education were set back soon when the central government lost authority to warlords and party factions. Nevertheless, the European tradition of universities had begun to emerge, an important development of Chinese higher education in a modern sense (Hayhoe 1999). A variety of new higher institutions flourished in China, public and private, central and local with all kinds of education and research.

The traditional gentry class began to vanish from the universities. Confucian classics were taught only by a certain department in the university. Most major study programmes were oriented towards Western learning and sciences. The new approach to schooling differed greatly from the old imperial one. It took more years of schooling to reach and complete a higher education degree than was previously the case to qualify as a high official; the new schools required revised curricula since the old books were of little use; the middle and higher schools were located far from most rural townships whereas students could stay home and study in the old time; and students were exposed to another way of living in those modern schools, which alienated them from their families back home (Chow 1966). The new gentry class that grew up with 'superior' Western learning was therefore isolated from the Chinese majority population. At the same time, disparity in regional access to higher education became evident between economically more advanced coastal areas and poor hinterlands.

During the period 1927-1949, the country was immersed in constant military conflicts between the Nationalist Party and the Communist Party, and suffered the Japanese invasion. The new Nationalist republican government managed to put into place a modern (or Westernised) education system in China. A new generation of intelligentsia returned from universities in Europe and the United States and took the highest offices in the government (Hayhoe 1999, 2000). They took an elitist approach to educational policies, one in which the

emphasis was placed on higher education. Public as well as private and foreign funds were drawn to the secondary and tertiary levels (Pepper 1996). During these years, Chinese higher education had passed through several subsequent short-lived reforms instigated by the Nationalist government following a variety of American and European models.

During the Nationalist regime, a higher education entrance and graduation examination system was established at the city and provincial level; the government obtained more political control over the universities; and the number of institutions and students (including female students) continued to grow, even during the difficult war times (Hayhoe 1999). Nevertheless, the efforts made by the government to rationalise the distribution of scientific disciplines in the universities, and the geographic coverage of higher education among the regions, met with little success (Hayhoe 1999). These attempts were eventually 'mechanical imitation(s)' (Pepper 1996: 38) of foreign universities, including curricula, textbooks, and teaching methods. The universities were still concentrated in Beijing and coastal areas, leaving the vast hinterland without. Moreover, the modern education system inspired by foreign traditions and ideologies was not integrated into a larger Chinese social context (Chow 1966; Pepper 1996). This resulted in a century of 'cultural conflict' (Hayhoe 1999) in the development of Chinese universities. The next subsection will discuss whether the new higher education system carried an inherently different social function than the old one.

3.3.2 The social function of the Chinese modern universities

The 'European' universities were vested with academic autonomy, whereas Chinese higher learning throughout the imperial centuries was mostly under the firm control of the central government, serving the administration system of the country. Although Chinese modern universities established by imitating Western models, they carried little of the European academic tradition of autonomy with them (Hayhoe 1999, 2000). Chinese modern universities were established for a very practical purpose, namely that of educating people in advanced science and technology in order to rehabilitate the Chinese nation-state.

Although the dynasty had ended, the structure of the society had not changed much. Up to the 1940s, China still basically had two social status groups: the numerous peasants at the bottom of an agrarian society, and the small gentry class and the very small group of officials (actually a subgroup of the gentry class) at the top. The movement of one individual or family into the higher status group would typically take several generations of slow advances in accumulating wealth and improved social position. The most important channels

of upward mobility were schooling, scholarly activity, and medical practice (Chow 1966). Schooling continued to be the means for upward social mobility but it was no longer dominated by gentry families. Successful industrialists and tradesmen arrived on the scene with their economic strength.

As mentioned previously, the new schools cost substantially more for the students and their families than the former Confucian schooling. Therefore, the new system including the missionary schools favoured the children from wealthy families. Hence, although schools were theoretically open to all people regardless of their origins, not many families could afford to pay for their children's schooling. In 1930, proximately 22 per cent of school-age children were enrolled at lower elementary level (Pepper 1996).

Being completely alienated from Chinese culture, the modern education system became an institution of social stratification in the young republican country. The upper education levels carried out a similar function to that of civil service examinations in imperial time, i.e., selecting and educating a small group of political, social and economic privilege. The determinants of advancing on the ladder of education were almost the same as those of the old time, i.e. social origin, family wealth and geographic location. What was new in the republican era was that family wealth exerted definitely more influence than the other two factors in assisting individuals to obtain more education. In the civil service examination system, social origin (e.g. born into a gentry family) held the most advantage for someone to succeed. In both cases, access to higher education was limited to a small group of people in society. Nevertheless, it is noteworthy that a significant development in Chinese higher education was that women gained their rights to access higher education for the first time in 1919. They made up 2.5 per cent of the total student population in higher education during the 1920s (Hayhoe 1999).

3.4 Caught in-between: Unfinished educational modernisation

The history of Chinese higher education is more extended than the European one. Entrance into higher education was the major, if not the sole, method of social stratification throughout the imperial history of China. The maintenance of a stable hierarchical society had depended on a civil service examination system with Confucius' ideology of equal educational opportunity and individual merit. Though this ideology had never fully materialised, the system had seldom been challenged until at the end of imperial rule. Introduced near the end of imperial China, the Western model of higher education continued to play a similar role in social stratification in Chinese society, albeit a with different

education content. The Chinese dream of strengthening the country by adapting Western models, building modern universities, and learning advanced science and technology, was not realised.

When the Chinese Communist Party (CCP) took over the almost bankrupted country in 1949, the education system handed down by the Republican government was "more private than national, more elitist than mass, and more foreign in its higher branches than it was Chinese" (Cleverley 1991: 69). The education system was caught in between the old Chinese tradition and the new, i.e. a mix of models of Western learning. Both traditions were elitist. Whereas the imperial system made people believe in individual merit as the criterion of success, the modernised system gave clear signals to favour the children from well-off families. Higher education had become even more alienated from the Chinese society and the masses. In 1949, 25 per cent of elementary school-age children were in school, 3 per cent of the relevant age group was in middle school, and only 0.3 per cent attended higher education (Cleverley 1991), amongst them 17.8 per cent were female (China Education Yearbook 1949-1981: 974); and 80 per cent of the population was illiterate (Qing 1999: 201).

Confronted with this educational legacy, the CCP embarked on a half century of socialist reform. The higher education sector thus became a battlefield of competing socialist ideologies within the CCP regime in China. The next chapter offers a detailed description and analysis of the struggles and reforms carried out by subsequent CCP governments in attempting to sort out all the 'old' and 'new' in the education system handed down from the past.

Chapter Four:

Reforming Higher Education in Socialist China: An Unfinished Agenda

4.1 Introduction

When China finally achieved peace in 1949, economic conditions were very poor, the overwhelming majority of the population was illiterate, and the education system was very elitist. The CCP established the People's Republic of China (PRC), a socialist state led by the working class and based on an alliance of the workers and farmers. Against this background, higher education in China has developed and been through many changes. Figure 4.1 illustrates growth of Chinese higher education between 1949 and 2001, in terms of the number of institutions, new entrants and total enrolments (see also Table A3.1).

This chapter presents a historical review of reforms in Chinese higher education carried out by the CCP regime since 1949. Over the past half-century most reforms in the Chinese higher education sector have been prompted by ideological responses from the two factions in the CCP to the following questions: 1) what should be the function of higher education in a socialist country; and 2) who should have access to it? The reform process includes several phases with dramatic shifts as a result of battles between the two factions as explained below.

Sinologists and social scientists interested in China have carefully studied the development during these decades. There was once a debate over whether the development period should be described as linear or as cyclical/oscillating (Löfstedt 1980; Unger 1982; Pepper 1984; Yang 1993). Recent scholars mostly agree that the path of Chinese higher education since 1949 can be described as several extreme political swings between the two major factions within the CCP, i.e., the Mao radicals and the moderates represented by Deng's pragmatic approach (Pepper 1996; Feng 1999; Hayhoe 1999; Seeberg 2000c; Tsang 2000).

The phases of reforming higher education in the PRC are summarised in Table 4.1. The Table highlights changes around aspects of higher education such as political purpose, admission policy, management and financing, and graduation and employment. Table rows list major political events in a chronological order from 1951 to the present. Reflecting on the phases in Table 4.1, the Chapter has three sections. The first section reviews the decades of a

closed China (1949-1976) with sub-sections on reforms. The second section analyses the most recent changes from 1977 to the present, including the transitional and trial periods of reforming Chinese higher education, and the move away from radicalism to a neo-liberal approach. The final section provides conclusions.

Table 4.1 Phases of the development of higher education in PRC, 1949-2001

Phases	Political purpose	Admission policy and criteria	Management and Financing	Graduation and employment
Reorganisation and socialist nationalisation (1951-1957)	Adoption of Soviet model. Education for national socialist political and economic development.	National College Entrance Examination (NCEE). Academic merit, politically reliable and physically healthy.	Establishment of Ministry of Higher Education (MHE). Centralised planning, management and financing. No tuition, but stipend during enrolment.	A national job assignment system of centralised placement of graduates. Assign job positions upon graduation.
Great Leap Forward (1958-1959)	Universal access to HE and the nation in communism in 15 years.	NCEE examination. Prioritising the reenrolment of workers, peasants, veteran cadres and their children.	Abolition of MHE. No tuition but stipend to students.	Centralised placement of graduates. Assign job positions upon graduation.
Adjustment (1961-1965)	'Redness' & 'expertise' for economy.	NCEE examination. Favourable policies to recruit workers and peasants.	Revival of MHE. Central planning and two-level financing, free tuition and stipend to students.	Centralised placement of graduates.
Cultural Revolution (1966-1976)	Education for class struggles. Let peasants and workers to attend, manage and reform universities.	Discontinuation of NCEE examination. 'Gong-nong-bin Daxue' to recruit only workers and peasants with political loyalty, 'red' or 'correct' social class.	'The education of a generation of Chinese was lost' (Tsang 2000).	
Re-adjustment (1977-1984)	Reversal of the policies of Cultural Revolution. Education to serve national economic development.	Resumption of NCEE. Politically reliable, academic merit, physically healthy. Removal of class criteria for recruitment.	Experimentation of decentralisation of management and financing. Free tuition and stipend during enrolment.	Resumption of governments assigning jobs upon graduation at central and local levels according to plans and needs.
Reform (1985-1996)	HE for science and technology development; manpower training for a socialist market economy.	Standardisation of NCEE examination. Academic merit and physically healthy, age 25 and below, unmarried.	Decentralisation of management and financing. A dual tuition system of state versus non-state-plan students.	Two-way selection employment meetings between students and employers.
New phase of development (1997-present)	Manpower training for a socialist market economy. Education as an enterprise.	Application of NCEE examination. Academic merit. No restriction of age and marital status since 2001.	Further decentralised and diversified management and financing system. Charge all students tuition and fees.	Two-way selection meetings and/or students themselves seeking for job in a labour market.

Source: *China Education Yearbook 1949-1981, 1988, 1990, 1996, 1998, and 2002.*

The description of, and discussion around, the reform history draws on information from published official records such as educational yearbooks, newspapers, and research published on Chinese education by Chinese as well as foreign scholars.

4.2 Socialist reforms of Chinese higher education from 1949 to 1976

Those who lived in China between 1949 and 1976 experienced constant political oscillation between left and right, and a constant class struggle without clarification of who the enemies were. This was a period of searching and confusion – a lost era – for the higher education system in China. Various studies have described this special 25-year period in different phases (Pepper 1996; Hayhoe 1999; Tsang 2000)[4]. The subsections below follow the divisions made by the Chinese official definitions in the China Education Yearbook 1949-1981 to describe the shifting political movements and to assess the consequences of those moments.

4.2.1 Eight-years completion of socialist transformation, 1949-1957

The take-over of universities from the previous regime was a rather smooth process when the PRC was established in 1949. Government schools were granted extra subsidies and private and missionary universities were allowed to continue but were taken over by the government slowly and systematically later on.

In 1951, the movement to reorganise the education system began in order to create an integrated, socialist-oriented, national school system according to the Soviet model. In 1953, the entire education system completed the transformation to a Soviet system and private and missionary schools disappeared in China. At the same time a centralised system of planning, administration, management and financing of higher education was established. Following the Soviet model, the programmes in the universities were organised with narrowly defined specialisations, which were closely linked to industrial development plans and student enrolment planning (Hayhoe 1999).

However, the selection and admission process applied by the CCP government took a clearly different approach from that of the Soviet Union.

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[4] Just to name a few of the most recent ones.

While the latter left the task of enrolment to individual institutions through a recommendation procedure to select students, China introduced a central unified planning and examination system (Kun 1961). Students were required to pass the National College Entrance Examination (NCEE), and undergo a health check before accepting (top-down assignment) placements in faculties responding to the greatest needs for national economic development. Students admitted to the universities paid no tuition fees, and enjoyed free accommodation, a monthly allowance for living, and a high status job upon graduation. The primary goal of the new system was to recruit talented students from all social backgrounds. The number of students of worker and peasant origin increased steadily, from 20.5 per cent of the total student population in 1952 to 36.4 per cent in 1957 (Beijing Review 1958: 16).

4.2.2 Beginning the full construction of socialist higher education, 1958-1965

The relevance of the Soviet model to the Chinese context soon came under question. In 1958, the launch of the Great Leap Forward (1958-1959) campaign represented a move away from the Soviet model of political and economic development, and an idealistic attempt made by the radical faction in the CCP to achieve an accelerated move towards communism. The slogan was "to reach full communism in 15 years", and "to universalise access to higher education in 15 years" (China Education Yearbook 1949-1981: 234). The Ministry of Higher Education was abolished and some of the decision making vis-à-vis higher education was decentralised down to provincial level.

In order to recruit more students rapidly, new comprehensive and normal universities, and various specialized institutions were established at the provincial level (Pepper 1987). Institutions at the provincial level could recruit students with lower NCEE scores than the national standard, mainly students from local areas. Those graduates would serve job positions locally. Consequently, universities appeared all over China, which realised the dream of the Nationalist government in 1930s (i.e. an equitable geographic distribution of higher education in the country, as mentioned in Chapter 3).

It is important to note that the development of higher education during this period was as chaotic as the politics and economics of the nation as a whole. The number of higher education institutions increased five-fold while enrolments only doubled (see Figure 4.1). The campaign resulted in the political and ideological function of higher education triumphing over the acquisition of expertise for economic growth. The implementation of a 'two-leg' and work-study strategy over-emphasising teacher and student participation in manual

labour, disrupted academic programmes and research. Meanwhile, the anti-rightist campaign badly hurt a large group of intellectuals and academic autonomy[5] (China Education Yearbook 1949-1981: 234). Eventually, the rapid expansion of higher education enrolments had far exceeded the capacity of the economy to absorb the graduates.
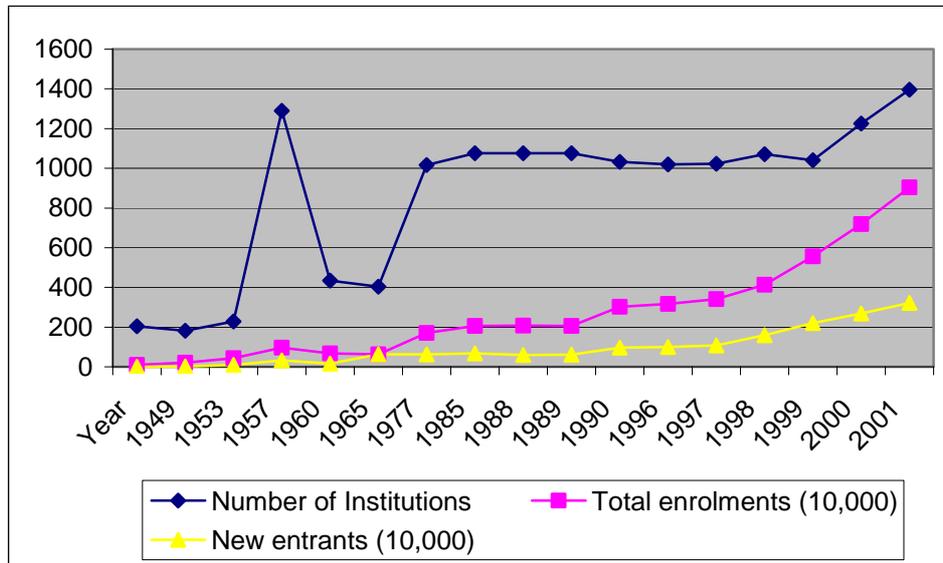
Figure 4.1 The development of regular higher education in China, 1949-2001[6]

Source: NBSC (2002b); MOE (2003b). *China Education Yearbook 1949-1981*.
Note: Data for the figure are presented in Table A3.1 in Annex 3.

The Great Leap Forward campaign was proven to be faulty when the economy declined sharply and a great famine hit the country in 1960. In 1961, the moderate faction of the CCP assumed control and the unrealistic expansion of higher education was abruptly stopped and the newly established institutions were either closed or merged. In 1965, the number of institutions was reduced to one-third of that in 1960 and the issue of quality instead of quantity became the focus of higher education. Between 1962-1965, under the CCP moderate faction's socio-economic liberalisation approach, the national economy recovered and so did academic programmes in higher education. The Ministry of Higher Education was re-established and retained the admission policy favouring workers and peasants with minimum academic achievement. Intellectuals were treated better but were still not trusted.

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[5] Pepper, S. (1996) has made a rather thorough and detailed description of this issue in page 217-255. See also Hayhoe, R. (1999) page 90-92.

[6] Regular higher education here refers only to the public and state accredited private institutions issue either 2-3 year tertiary diplomas and/or Bachelor's and higher degrees.

During this period, the manifestation of the CCP's desire to rapidly change class composition in the universities deliberately discriminated against certain students of 'black' origins, i.e. the politically incorrect and 'rightists' (mainly intellectuals). The proportion of worker and peasant students in higher educational institutions increased systematically over time, from 28 per cent of all tertiary students in 1953, to 55 per cent in 1958, and 71 per cent in 1965 (China Education Yearbook 1949-1981: 338). But tensions at the universities were building and many students of workers, farmers and revolutionary origins who entered the universities with inadequate academic training found themselves in a 'cold war' with their better-prepared classmates from the bourgeoisie (Israel 1967).

When the CCP moderate faction tried to re-emphasise educating expertise for economic development and the universities tried to enforce academic standards, the less qualified students felt threatened. At the same time, the expansion of enrolment exceeded labour market needs in urban areas and graduates were recommended to return to their hometowns and villages to assume local cadre positions. Students from rural areas soon realised that proper class affiliation and political activism could not guarantee their success and most of them would have to return to rural life. Consequently, tension among students on campuses coincided with tension between the radical and moderate factions of the Party. The Cultural Revolution in 1966 was a manifestation of these tensions.

4.2.3 Ten years Cultural Revolution, 1966-1976

The Cultural Revolution, as a mass movement, was an idealistic experiment sponsored by the CCP radical leaders to empower the grass roots with the belief that successful social economic and political development should be engineered from below rather than from above. The Revolution started as a bottom-up struggle against 'Soviet revisionism' and the 'capitalist roaders'. Students were the first group to be mobilised (Bernstein 1977; Löfstedt 1980).

The students, especially those who saw their upward mobility into higher education blocked, felt empowered and millions of them served the leading force of this revolution (Israel 1967). Many political, economic and social structures were destroyed during the decade-long Cultural Revolution by both ideological and physical struggles among the mobilised students and the masses. Several age-cohorts of young people lost their upper secondary and higher education due to the closing of middle schools (1966-1968) and universities (1966-1972). This revolution caused profound damage to China's economy,

society, culture, and education – damage that lingered for decades (Deng and Treiman 1997; Tsang 2000).

Although rural education benefited from the movement by expanding its coverage even to very remote villages (Pepper 1996; Han 2000; Andreas 2004) the higher education sector suffered enormously. The NCEE examination was discontinued but some higher education institutions were reopened in 1972, called 'Gong-nong-bin Daxue' (University of Worker-Farmer-Soldier).   The system of 'Gong-nong-bin Daxue' adopted an extreme recruitment policy discriminating against the politically 'incorrect', the 'rightist', and the ones who happened to be born in previously wealthy families (Unger 1982). Workers, peasants and soldiers were empowered to 'attend, manage and reform' the universities and most university faculty were sent to the countryside 'to be reformed' by hard labour.

Students of intellectual parents suffered more than students of cadre parents although both suffered severely during this period (Deng and Treiman 1997). The admission policy as well as the curriculum emphasised only politically correct contents. The major criteria for university admission were class background and party loyalty rather than academic achievement (Shirk 1982).

Because the universities during this period were characterised by constant student movements and political campaigns, the quality of this generation of university students was very poor (China Education Yearbook 1949-1981: 83). The name 'Gong-nong-bin Daxue' in today's Chinese, referring to this special generation's higher education, carries a hidden label of low quality education. Nevertheless, the state policies during the Cultural Revolution managed to promote the social mobility of children of workers and peasants at the expense of those of intelligentsia and cadres (White 1981; Deng and Treiman 1997).

Eventually, the Cultural Revolution ended in late 1976 but the damage it caused to China's political, economic and educational development marked the failure of the radical faction in the CCP leadership. The Chinese people, especially those who suffered through this era are more than happy to put this decade behind them. In China, most people including public officials and commoners mark the post-Cultural Revolution as the reform era. In fact, this new era is just a continuity of an unfinished Chinese socialist reform but this time, the moderate faction of the CCP is in charge.

4.3 Reforming higher education for a changed development agenda, 1977-present

The CCP's moderate faction initiated reforms of social and economic sectors in 1977. To mention a few immediate changes, in 1977, the NCEE examination was restored to enrol new students into higher education. In 1978, the agricultural collective production system was dissolved and land was distributed back to individual peasant households for contracted and joint production. In 1979, the Family Planning policy (i.e. the one child policy) was implemented to control the birth rate of the country.

It was during this period that the CCP declared China open to the outside world and education open for modernisation. From 1978, the state started sending thousands of students to study abroad and thousands of foreign students were allowed to study in China (Löfstedt and Zhao 2002).

The few years of post-Cultural Revolution was officially characterised as a move to 'turn the chaos back to correctness'. The goal was to restore the political, economic and educational systems back to the state that existed in the 1950s and the strategic focus of national policies was switched from class struggle to economic development. Education was to serve the purpose of national modernisation and the discrimination against those with politically incorrect backgrounds, particularly intellectuals was discontinued in the admission policies and procedures of higher education institutions. Professors and teachers were called back to schools from wherever they had been assigned for hard labour and many universities were restored or reopened. The extreme shortage of specialised talents demanded an accelerated development of higher education and significant increase in enrolment. By 1985, the number of higher education institutions had doubled and enrolments had tripled (see Figure 4.1 and Table A3.1).

Nevertheless, expansion is only one aspect of Chinese higher education during this nationwide process of socio-economic transition. The subsections below offer a detailed description of the reforms that have shaped the current system of higher education in China.

4.3.1 Reforming universities: Decentralising responsibilities, 1985-1996

'New' terminology could be used to describe the development of Chinese higher education since 1985, namely 'massification', 'marketisation', 'privatisation' etc. Three over-riding elements have shaped these developments. The first element concerns the *'Decision on Reform of the Scientific-technological*

System' launched by the Central Committee of the CCP, and the *'Decision on Reform of Education System'* by the Ministry of Education (MOE) in 1985. The second includes *'Points Regarding How to Expedite Reforms and Vigorously Develop General Higher Education'* issued by the State Education Commission (SEC) in late 1992, after CCP leader Deng Xiaping's affirmation of the necessity of China establishing a fully fledged market economy during his South China tour. The final element is the World Bank's involvement in Chinese higher education.

The *'Decision on Reform of the Scientific-technological System'* launched by the CCP Central Committee in March 1985 was a milestone of the reform era for the entire educational system in China, and higher education in particular. This decision defined the commercialisation of scientific and technological products. Following this, the *'Decision on Reform of Education System'* was launched by the MOE in May 1985. This policy called on the higher education sector to contribute to China's independent scientific and technological development, and solve major theoretical and practical problems in the process of socialist modernisation. The MOE document specifically stated that the government would gradually reduce certain subsidies for higher education. It also clearly stated that higher education institutions should enjoy greater operational autonomy, including the right to enrol commissioned and self-paying students (i.e., non-state-plan students), to readjust the services provided by specialised departments, to accept commissioned projects and to expand their co-operation with other sectors of the society and economy.

At the end of the 1980s, the process of decentralisation, diversification of management and financing of higher education, and institutional autonomy accelerated. A dual system of tuition fees was introduced in 1989 where state-plan students were charged modest tuition fees and accommodation costs while institutions were allowed to enrol a certain proportion of self-paying students.

In 1992, CCP leader Deng Xiaoping called for the accelerated introduction of a 'socialist market economy' in China during his tour in South China's economic zones in February. In December 1992, the State Education Commission issued a document entitled *'Points Regarding How to Expedite Reforms and Vigorously Develop General Higher Education'*, which stated that one of the key guidelines for higher education, was to adapt it to the socialist market economy (Yin and White 1994). This document made it clear that a greater proportion of higher education institutions' operating funding would be derived from tuition fees and financial support from various sectors of society. It also encouraged the development of private and enterprise-run educational institutions. Moreover, the document suggested, "higher education institutions should become real autonomous corporate bodies" (China Education Yearbook 1993). Hence, various experiments were conducted on standardisation of the

NCEE examination, elimination of the differential treatment of state-plan and non-state-plan students, two-way selection of graduates for employment rather than government placement, etc. This gradual process of decentralisation has since accelerated. However, it must be said that one of the main forces behind the reform of Chinese higher education was the World Bank.

The World Bank is one of the most influential international organisations and it impacts not only economic systems but also the social and educational development of developing countries. During its existence over the past fifty years, the World Bank has become:

> the leading theorist, researcher, practitioner and advocate of transferring Western financial and capital resources and development concepts to less-developed countries in order to bring about economic and social progress (Drake 2001).

The World Bank has, over time, devoted enormous resources to educational research as well as information distribution in the developing countries and has become a centre of reference for educational policy makers (Torres and Schugurensky 2002), commanding impressive expertise, analytical skills and experience of its professional staff. Although the provision of loans by international agencies to support educational development in the developing countries has been frequently criticised (Samoff 1999; Boyd & Plank 1997; Riddell 1997), the Bank's involvement with Chinese higher education has been proved successful (Hayhoe 1999; Drake 2001; Jacobson and Oksenberg 1990).

The PRC joined the World Bank in 1980, the same time China opened up to the outside world. Whereas the Bank had emphasised support for basic education and some secondary technical education in its loans up to the early 1980s, The Chinese government was successful in persuading the Bank to focus its lending on the higher education sector in China (Hayhoe 1999). From 1981 to 1992, eight Bank projects totalling US$910.4 million were undertaken in the Chinese higher education sector, in such fields as science and engineering, economics and finance, agriculture, medicine and education in support of the government's aim to increase the quantity and quality of highly skilled human resources caused by the Cultural Revolution. The World Bank also assisted the Chinese government with financing and expertise to formulate a series of reforms designed to decentralise management, develop cost recovery financing, and expand the higher education sector.

In its first sector report, the World Bank (1986b) suggested three scenarios for Chinese higher education in setting forth expansion goals for 2000: a low scenario with an enrolment ratio of 10 per cent, or 6 million formal enrolments and 5 million adult enrolments; a medium scenario with an

enrolment ratio of 12.5 per cent; and a higher scenario, which set a goal of 15 per cent, or 7.6 million formal enrolments and 5.6 million adult enrolments. In 1992, the Chinese government made a firm commitment to the rapid expansion of the higher education system, further decentralisation of management and financing, more widespread use of tuition fees and the abolition of the job assignment system.

In 1996, the World Bank presented a sector report on reforming higher education to the Chinese government, which was published in 1997 (see World Bank 1997). This report made a full assessment of the sector and highlighted the issues of management, financing and recommended continuity of the ongoing decentralisation process. It also emphasised that the system should be cost-effective and utilise cost-recovery mechanisms. In 1997, the reform reached the base of the higher education system, i.e., the students, and this is described in the section below.

4.3.2 Reforms concerning the students in higher education, 1997-present

The overall aim of the CCP government reforms since the mid-1980s has been to bring relations between the government, society and institutions of higher education into better balance, and to establish a new system that, while still managed by the state according to its macro-plans, turns institutions of higher education outward to face society, and provides institutions with autonomy in providing education. However, institutional autonomy came at a price to the universities. On the one hand, Chinese universities never had the same degree of autonomy as their European counterparts (Hayhoe 1999; Li 2000) although the government had given considerable freedom for the universities to decide on issues such as curriculum, commissioned research, recruitment of fee-paying students, etc. On the other hand, autonomy did not bring in more government funds; instead, universities were forced to secure funds by means of profit-making activities, commercialisation and enterprise-friendly activities (Mok 2000c). Market forces have influenced curriculum and management in the universities (Yin and White 1994).

Eventually, Chinese higher education had attained certain freedom from the government but at the same time it was gradually put under another governance – the market. During this process, students were divided into state-plan and non-state-plan groups and moved from tuition-free to paying tuition. In addition, it became clear in the early 1990s that a university education would not guarantee a cadre position and that the government was planning to withdraw the state job assignment system.

Thus, the latter half of the 1990s witnessed another wave of higher education reform in China, and students were caught in the middle. In 1997, all institutions of higher learning carried out the 'combination of two categories' reform (i.e. students to be recruited were no longer divided into two categories, state-plan and non-state-plan, but were all relegated to the same category and had to pay the same tuition fees). Moreover, there would be no free accommodation or monthly allowance anymore. A two-way-selection employment mechanism was introduced to replace the government's central placement of graduates. Consequently, employers were free to select their own employees and graduates could choose their employers. As a final step in the reform process in the 20th century, students in Chinese higher education were exposed to the market.

In the process of expansion, the issue of equality was not at the centre of policy concern except regarding the number of enrolments. In 1965, Chinese statistics could proudly claim that 71 per cent of students in higher education were of workers and peasant origins (China Education Yearbook 1949-1981: 338). Today, there is a lack of statistical information due to the restriction of access to information on the social composition of students in higher education as a whole. Chinese official statistics have been silent about the issue of social composition of the student body in higher education since 1977. It is worth noting that there is information about rural-urban students at all levels of education except post-secondary.

The well-known NCEE gives the impression that access to college is based on merit and is fair to people of all social origins with academic competence. However, only a few researchers have carried out studies concerning issues of access to higher education. Pepper (1984) found that the universities were again filled overwhelmingly with the children from cadres, intellectuals and urban families, despite the efforts and painful price paid by the nation and the people during the three decades after 1949. Thogersen (1987) found a similar pattern at the senior middle school level (i.e. post-compulsory level). Social factors influence the selection before and after senior middle schools and colleges, which screens out students from working class families, "in spite of the fact that working class children have good academic records in senior middle school" (Thogersen 1987).

Parental education and father's occupation as cadre were the decisive factors for students being enrolled at upper secondary and higher schools while family income played no role in the early 1980s (Unger 1982; Thogersen 1987; Broaded and Liu 1996). By the late 1990s, it was found that the probability of enrolling in higher education increased with the increase of parental education level and family income (Li and Min 2001).

Although the government has documented that the tuition charge should not exceed a certain fixed level, tuition varies by provinces, university, field of study, and even among the students at different levels of the field of study (Seeberg 2000a; 2000b)[7]. In addition to tuition, students and their families have to cover all living costs during their schooling. It was documented that expenses borne by parents and students of Bachelor's degree programmes in Chinese public institutions ranged from US$ 2,228-8,187 (adjusted for PPP) during the 1999/2000 academic year (ICHEFAP)[8]. The average total private cost of higher education in Beijing reached 9,923 Yuan (US$ 5,141 adjusted for PPP) in 1999 (Li and Min 2000, 2001). The total cost of one student of one academic year exceeds an urban resident's annual income and is almost four times the average rural income.

The issue of impoverished students on campus became a problem and the number was increasing due to tuition charges, an increase in unemployment, family economic difficulties and inadequate financial assistance (Zhang 2001). Employment upon graduation also became an issue of concern since the late 1980s as 'the backdoor', personal relationships, and family ties became increasingly important in determining the actual job locations for students. While two-way-selection mechanism could not stop those influences, the prospect of unemployment after graduation became a new worry with the increasing scope of enrolment expansion.

Despite these emerging challenges, students did not seem to be a policy concern. From 1999, expansion accelerated and enrolments in higher education institution tripled in the following five years. The expansion serves a combination of political, social and economic purposes. First, introduction of the market into a system of socialist planning economic principles changed the role of higher education from a system to produce political and professional elites to one, which produces skilled workers for the growing labour market. Second, a rather large group of well-educated professional elites was a necessary condition for sustaining national economic development. Third, the individual demand for access to higher education has been high but only around 10 per cent of an age cohort had access to it.

Fourth, influenced by the Asian economic crisis in 1997, China's economic growth slowed from an annual growth rate of 9 per cent before 1997 to 7.8 per cent in 1998. Expanding access to higher education has several economic consequences: increased student numbers required construction of campuses and related facilities; more students remaining longer in school relieved the immediate pressure on the labour market at a time when

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[7] Personal observation by the author at the field trips.
[8] ICHEFAP Student-parent cost database. www.gse.buffalo.edu/org/IntHigherEdFinance/region_asiaCN.html

unemployment was increasing due to the hastened reform of state enterprises; and household savings were drawn out of the banks as families paying for students' costs of higher education as 'a boost to the floppy economy' (Wei 2003).

4.4 Conclusion

The Chinese higher education sector has gone through several phases of changes over the past five decades, and some of these have been destructive. The shifts of higher education policy between two lines (i.e., the radical and the moderate), reflect the struggle within the ruling party over three dilemmas: education for political/ideological purpose versus education for economic development (redness versus expertise); education for social equality versus education for social promotion (mass versus elite); and the position of intellectuals within the two-Proletariat-class socialist society (i.e. are they with us in socialist development or are they against us and to be suppressed?).

The changes from the 1950s to the 1970s presented a series of political ideological shifts in national policies, which show the inconsistency of the political statements vis-à-vis education and the consequences in shifts of policies regarding recruitment, management, financing and graduation in higher education. In this special political and historical context, Chinese higher education was caught between the two CCP factions as well as between the goals of socialist nation building and social equity.

For nation state building, the radicals believed in mass and class struggle while the moderates believed in the role of experts, or elite, and economic growth. Neither of them was fully right or wrong. In the Confucian tradition, people would prefer the two factions finding a middle ground[9]. Nevertheless, the cost of the conflicts between party factions was high for the nation and for the people, especially the widespread impacts of the disastrous Cultural Revolution which pushed the Chinese economy to the brink of collapse. The entire education sector was disrupted and the higher education sector was completely dismantled during the Cultural Revolution.

The policy of opening up to the outside world since early 1980s has fundamentally changed China's position in the international arena not only in political and economic terms but also in social and educational terms. Over a period of just twenty years, the entire higher education system in China has

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[9] In Confucianism, the middle ground is the best solution for almost everything. It is called 'zhongyong' in Chinese. Personally, I am convinced that the welfare states are the good examples of finding the middle ground between capitalism and socialism, as was Deng Xiaoping when he launched the definition of Socialist Market Economy.

changed from full centralised management, financing and planning, system into a decentralised system, which grants universities considerable power over issues such as curriculum, financing and personnel management. But decreased central control over more and more practical issues did not make universities autonomous. Instead this put universities under the governance of the market. Ultimately, free higher education became a thing of the past, the state job assignment system was dismantled and students were placed at the service of the market.

It must be noted, however, that the neo-liberal approach taken by the Chinese government has brought great economic growth to the country. The introduction of market mechanisms into higher education has also ensured a stable and high-speed expansion of the sector. Overall, it appears the CCP reforms of the 1980s and 1990s brought prosperity to China and into Chinese higher education at the end of the twentieth century. In Chapter 5 an assessment of the national economy and education development at the start of the twenty-first century is provided.

Chapter Five:

Economic and Educational Inequality in China:
Social and Economic Background of the Empirical Research

5.1 Introduction

Previous chapters have provided a historical review of the tortuous path of Chinese higher education reform. This chapter focuses on a specific time period – the beginning of the twenty-first century – and paints a comprehensive socio-economic picture of present-day China and the conditions of higher education. This picture tries to capture Chinese society and educational development at one moment of the evolving process where the empirical investigation of this study begins.

The chapter starts with a section on the overall socio-economic situation of the country and presents the main dimension of inequality in China today – economic and regional inequality. This is followed by an analysis of structural inequality and the focus then moves to the higher education sector. The intention of the chapter is to introduce the main dimensions of inequality in the society and in higher education, and thus to provide a background for the empirical data of this study and for how the empirical data are interpreted.

5.2 The economic and social polarisation in China

The economy of China is one of the fastest growing in the world, with average annual real GDP growth exceeding eight per cent since 1978. By 2001, China had become one of the world's largest economies with a GDP estimated at US$ 5 trillion, as measured by Purchasing Power Parity (PPP)[10]. Although impressive economic progress has been achieved, China is still considered a poor country with a GDP per capita of US$ 4,020 (PPP) in 2001 (UNDP 2003).

People's standard of living has improved considerably in terms of income but the progress has failed to reach the population as a whole, and the benefits of growth are not evenly distributed (Bian and Logan 1996). It has been recognised

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[10] Chinese currency Yuan converted to US$ by 2001 purchasing power parity: 1US$=1.88 Yuan.

that "(t)he rise in inequality in China in the 1990s was more geographic than structural" (Galbraith and Wang 2001).

Table 5.1 Per capital annual income of rural/urban households, nationally and in Western China (Yuan)

Year	National		Western China	
	Rural	Urban	Rural	Urban
1978	133.6	343.4	99.5	---
1985	379.6	739.1	324.2	---
1990	686.3	1510.2	564.8	1388.7
1995	1577.7	4283.0	1116.8	3765.1
1999	2210.3	5854.0	1604.1	5341.5
2000	2253.7	6280.0	1661.0	5486.2
2001	2366.4	6859.6	1721.2	6017.5

Source: NBSC (2001b, 2002b).
Note: Numbers for Western China before 1995 are the averages of the 12 Western provinces.

Significant disparity exists between and among regions and provinces in the East and the West as well as between urban and rural areas (Falkenheim 1988; Feuchtwang 1989; Shirk 1989; Linge and Forbes 1990; Xie and Hannum 1996; see also Table 5.1 and Table 5.2). While the Eastern coastal provinces have prospered with the introduction of the market economy and the intensification of international contacts and exchanges since the early 1980s, the vast Western and interior regions remain in poverty. Table 5.1 shows the unequal income growths between rural and urban regions as well as between the national and Western averages over a time span of two decades. According to official regional statistics (NBSC 2002a), the average individual annual income in the advanced Eastern coastal provinces was double that of the rest of the country. Although the absolute number of poor people has dropped impressively since the late 1970s, around 30 million people were still in poverty in 2001, about three per cent of the rural population (ADB 2002). Meanwhile, registered unemployment in urban areas increased to 3.6 per cent by 2001 (NBSC 2001a).

The imbalance of development between regions has resulted in a 'rich' East and a 'poor' West. At the same time, the inequality between the urban and the rural areas is a striking feature in China (Khan and Riskin 1998; Yao and Zhu 1998; Kanbur and Zhang 1999; Yang 1999). The average urban resident earned twice as much as their rural counterpart in 2001. Table 5.1 shows that income inequality between urban and rural areas is increasing over time. Given the scarce human capital resources in the country as whole, Table 5.2 shows that inequality of educational attainment of the population also exists between regions.

Table 5.2 Educational attainment of the population above the age of six, nationally and at the regional levels in China, 2001 (percentage)

Regions	No Schooling	Eliminate Illiteracy Classes	Primary School	Junior Middle School	Upper Secondary	Tertiary above
National Total	8.0	2.0	38.0	36.4	12.0	3.6
East	6.6	1.6	36.0	39.0	12.7	4.1
West	10.5	2.2	44.0	30.4	9.8	3.1
Southwest	9.9	2.2	47.2	29.7	8.4	2.6

Source: NBSC (2002b).

Note: All the figures are calculations of statistics provided in pages 106-110 of *China statistical yearbook 2002*.

Although opening to the outside world has proved a successful policy for China's economic development, and has also helped to improve household income generally including the poor (Nee 1991; Wei and Wu 2001), the Gini coefficient as a measure of inequality in a society has increased from 0.33 in 1980 to 0.46 in 2000 in China (Hutchinson 2003). The wealthiest 30 per cent of households shared 77 per cent of the total national income while the poorest 30 per cent of households shared only 8.3 per cent (UNDP 2003), implying that the top income group enjoyed almost 10 times the income of the lowest group. A similar situation is found between the top and the lowest income groups among the rural residents, with the top 20 per cent receiving nine times more income than the lowest group (NBSC 2002b: 343).

This is in stark contrast to China until the early 1980s, a society that had only 'two classes and one stratum', i.e. worker class, farmer class and intellectual stratum. A 're-stratification and social class formation' (Mok 2000a) has been underway in Chinese society since the mid-1980s. On the one hand, economic reforms have broken down the restriction of the Chinese people's social and occupational mobility in the old system and new social, professional categories have emerged (Kane 1994; Unger 1994; Wong 1994; Goodman 1996; Gu 1997), which have changed the social structure fundamentally. On the other hand, social stratification, social classification, and socio-economic status are rather recent terms among Chinese social scientists and are very little publicised (Zhao *et al.* 1999; Zhong 2001).

The economic and social polarisations in Chinese society are reflected in the education system as well. The next section describes the disparities in the Chinese education system.

5.3 Socio-economic disparities in the education system

China introduced an educational system under which schools are primarily run by the government with the support of various sectors of society. Figure 5.1 illustrates the administrative structure of the education system. At present, local governments take charge of primary and secondary education, while the central and provincial governments (including governments of autonomous regions and municipalities directly under the central government) are responsible for running institutions of higher education. Under the guidance of the government, the vocational and adult education sectors rely mainly on various sector departments, enterprises, institutions and other organisations of the society. The government encourages all sectors of society to pool their resources in extending educational provision of all types and levels.

Statistics indicate that education has advanced significantly since the founding of People's Republic of China. The estimated enrolment rate of primary school was 25 per cent in 1949 compared with 93.9 per cent in 1980 and 99.1 per cent in 2001. In 1949, 80 per cent of the population was illiterate, a figure which had declined to 9.1 per cent in 2000. Currently 91 per cent of the country has instituted compulsory primary education and in 2001, 95.5 per cent primary school graduates entered junior secondary schools, 52.9 per cent of graduates of junior secondary schools entered upper secondary schools (NBSC 2002b). Nevertheless, China has a low gross entry rate (42 per cent of the age group) to upper secondary schools, and an even lower gross entry rate to tertiary education (10 per cent of the age group) than many other developing countries. The average years of schooling among the population aged 15-64 is only six years (UNESCO-UIS/OECD 2003).

Despite relatively low enrolment, China administers the largest education system in the world and hosts 25 per cent of the world's student population. China spends a relatively small share of its GDP on educational institutions (3.7 per cent of GDP in 2002) and governmental allocations are the main source of funding. This is supplemented by funds raised through multiple channels from private sources, which have contributed about 43 per cent of the expenditure on all levels of education (UNESCO-UIS/OECD 2003: Table 11 in Annex A4).
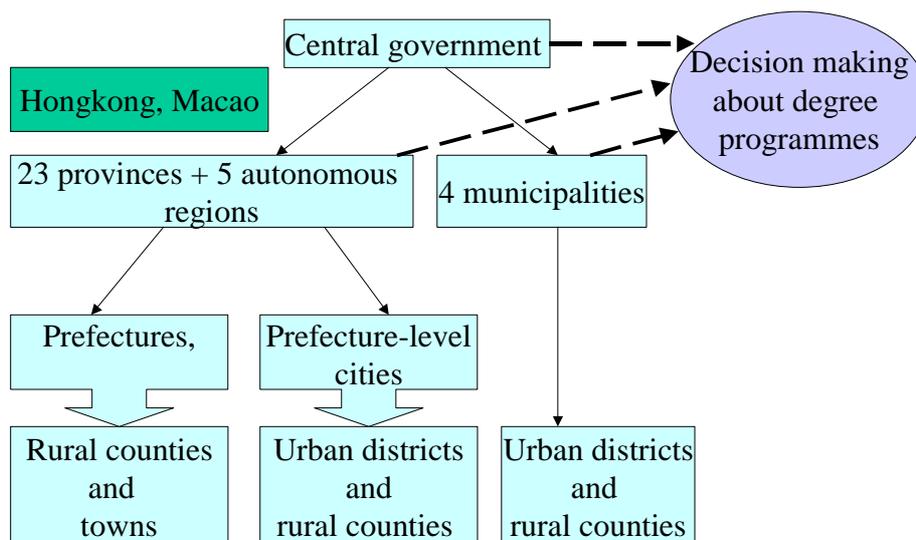
Note: Figure according to the description in *China Facts and Figures 2003* on www.china.org.cn/English

Figure 5.1 The administrative system of PRC

For educational institutions under the jurisdiction of various central ministries and agencies, funds are provided by state budgetary allocations. Those institutions under the jurisdiction of local governments receive funds from local budgets, while schools run by townships or village communities, enterprises and institutions, receive most of their funding from sponsors of the schools, supplemented by governmental subsidies. For schools sponsored by social organisations (NGOs) or prominent persons, funds are provided by the sponsors themselves (including tuition fees collected from students and donations). Besides these sources of educational finance, schools of various types at different levels are encouraged to conduct work-study programmes and to provide income-generating services to society in order to improve their financial situation and school facilities.

Insufficient and uneven funding for education is a problem in China (Tsang 1994; Wang 2001; CREC 2001). The country has substantially increased fiscal spending on education in absolute terms during the reform period 1978-2001 but nevertheless provides much less public funding (3 per cent but aiming at 4 per cent in 2005[11]) of GDP to education than many other developing countries (UNDP 2003: 268). In Table 5.3, statistics show that government spending on education, as a percentage of total expenditure, has been reduced while the share of non-governmental financing has increased.

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[11] The 10th Five-year Plan of National Education Development. In *China Education Yearbook 2002*: 72.

The distribution of educational funding has been increasingly decentralised as more responsibility is devolved to local governments and shifted to the private sector. As local governments have to fund over 80 per cent of total public spending on education (UNESCO-UIS/OECD 2003: Figure 2.8), regional disparities have become more evident. In the coastal and wealthy provinces, more funding can be raised from the private sector to finance education while the poor provinces are more reliant on government financing, which is not sufficient (NBSC 2002b: 701). Consequently, serious inequalities and disparities are increasingly visible vis-à-vis conditions and enrolments at all levels of education, between East and West, among provinces, between urban and rural areas within the provinces, and between boys and girls (Lewin and Wang 1994; Hannum 1999, 2003; Tsang 1994; Brown and Park 2002; Hannum and Park 2002; Park, Li and Wang 2002; Connelly and Zheng 2003).

As expected, the relationship between education and earnings is stronger in economic sectors with more market-oriented reform; and economic returns tend to be higher in more economically developed provinces and regions (Wei and Tsang 1999). At the same time, family economic situation, family size, and home neighbourhood socio-economic development level are influential factors correlated with primary and secondary school dropouts in poor areas of China (Xiao 2002).

Table 5.3 Total expenditure on education in China, 1980-2001

Year	Total (100 million Yuan)	% of GDP*	Share of public expenditure in total spending (%)*
1980	94.2	2.1	---
1991	731.5	3.4	84.5
1996	2262.3	3.3	73.9
1997	2531.7	3.4	73.6
1998	2949.1	3.8	68.9
1999	3349.0	4.1	68.3
2000	3849.1	4.3	66.6
2001	4637.7	3.2	65.9

Source: NBSC (2002b). China Education Yearbook Editorial (1984).
Note: *Calculations of data published.

5.4 Developments in the higher education sector

Since 1949, Chinese higher education has developed greatly (see Table A3.1). In 2001, the number of institutions was six times that of 1949, with more than seven million students enrolled. According to the revised statistical indicator

published by the Ministry of Education (MOE), the gross enrolment ratio of Chinese higher education reached 10.5 per cent of the age cohort in 1999 (MOE 2000a). Chinese higher education has expanded even faster since 1999 with enrolment tripling over the five years from 1997-2002. This rapid pace of expansion is likely to continue in the coming years given that the goal of higher education development is to achieve 16 million enrolments in 2005 – a gross enrolment ratio of 15 per cent[12]. Besides the major growth in student numbers, certain other characteristics of Chinese higher education also deserve to be given a closer look in order to understand the background of the empirical study presented later in this monograph.

5.4.1 A hierarchical higher education system

A multi-level, multi-format higher education system covering virtually all disciplines is currently in place in China. Horizontally, the higher education sector in China is still dominated by public institutions. Non-governmental (*Minban*)[13] educational institutions started to re-emerge in China in the early 1980s. In 2001, there were over 56,000 *Minban* educational institutions providing all levels of education, which accounted for 3.8 per cent of total student enrolment (China Education Yearbook 2002). Currently, over 1000 *Minban* institutions offer higher education to more than one million students. Only 10 per cent of the *Minban* institutions are state accredited and they account for two per cent of the total number of students enrolled in the higher education sector. Nevertheless, non-government provision of higher education flourishes in China at present, largely to compensate for the limited capacity of the public sector under the pressure of high social demand for higher education, and inadequate finance. Given the various restrictions politically and academically, *Minban* colleges remain inferior to public institutions in the eyes of government, academics and parents in general. *Minban* institutions are only allowed to recruit students after public institutions complete their recruitment and students only choose to attend *Minban* colleges after being rejected by public institutions.

Vertically, Chinese higher education is, and has always been, characterised by its highly hierarchical structure. A highly stratified system is in place to prepare individuals for diverse workplace careers and different roles in society. The current public higher education system is dominated by universities and colleges that are under the jurisdiction of and obtain their funding from one of four administrative authorities: the Ministry of Education (MOE) of the

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[12] The 10th Five-year Plan of National Education Development. In *China Education Yearbook 2002*: 69.

[13] *Minban* means 'people-run' in Chinese. *Minban* schools are defined as schools established and/or run by private and/or other social entities.

central government; other Ministries of the central government; provinces, autonomous regions and municipalities; and cities and prefectures. There were many specialised universities established by different ministries (229 of them remained in 1998) following the Soviet model in the 1950s, such as mining, chemistry, geology, railway, oil and other industries. Responsibility for these institutions is in the process of being transferring from the Ministries to either the MOE or provincial governments (only 49 of them remained in 2000).

The trend is to decentralise administrative as well as financial responsibilities of most higher education institutions to local governments. The MOE will concentrate its resources on a certain number of institutions under its jurisdiction for the purpose of establishing universities with a high standard in international comparison. Eventually, the administrative structure will be as follows: (1) universities selected to be under MOE jurisdiction at the top; (2) universities assigned to the provincial and municipal jurisdictions in the middle; and (3) colleges for vocational training (2-3 year short-cycle non-degree) institutions under the jurisdiction of local cities and/or prefectures at the bottom. For degree programmes, the decision making level is mainly restricted to the MOE and provincial government levels (see Figure 5.1). Government funding allocation mechanisms follow more or less the same hierarchy, i.e. the MOE mainly concentrates resources on those universities under its jurisdiction; provincial governments have the main responsibility of financing the universities under their jurisdiction; cities and prefectures provide funds to their community-based colleges.

The ranking of institutions is a strong feature of higher education in China (Cheng 1998; Hayhoe 1999; Zhang 2000). The level of control and an institution's perceived quality are linked. If the reputation and capacity of a college increases sufficiently, then the next level up can request jurisdiction over it. Moreover, an institution's ranking will determine the type and number of students it receives. To be on the list of jurisdictions under the MOE (73 of them in 2002) means that an institution will be able to recruit students of a higher standard as measured by the scores on the National College Entrance Examinations (NCEE). Institutions under the MOE also have less regional restrictions and can recruit students from across the country. These top students help the institute gain higher status and better funding, thus producing better quality graduates recognised by the enterprises and organisations in society. Furthermore, in the eyes of the students and their parents, entrance into a MOE university ensures a good opportunity in the labour market upon graduation.

5.4.2 A cost-sharing financing mechanism

In the context of generally insufficient public funding of education in China, higher education received 15.6 per cent of total public education expenditures in 2000. This figure has changed significantly over the past 25 years: the higher education sector received 20 per cent in 1978; 29 per cent in 1984; 19 per cent in 1994 (World Bank 1997); and only 12 per cent in 2001 (China Education Yearbook 2002: 113). The goal is to reach a kind of equitable distribution of public funding across all levels of education as advocated by the World Bank (Tan and Mingat 1992; World Bank 1995; Hossain 1997).

The government has implemented a series of reforms to reach a financing mechanism where the cost of higher education is shared between the central, regional and local governments, as well as with society and individual students. Table 5.4 shows how different parties share the financial burden of higher education in present-day China.

Table 5.4 Financial sources for regular higher education institutions, 2000-2001[14]

		Total	Gov. allocation	Funds and donations from social organisations and citizens	Tuition and miscellaneous fees	Other funds
2000	Amount (million)	91335	53118	2177	19261	16778
	Percentage (%)	100	58.2	2.4	21.1	18.3
2001	Amount (million)	116657	63280	3548	28244	21586
	Percentage (%)	100	54.2	3.1	24.2	18.5

Source: NBSC (2002b: 702). *China Education Yearbook 2003*: 109.

At the same time, given the relatively low enrolment ratio in China, public spending on higher education was high by international comparison until the late 1990s (World Bank 1997). Table 5.5 shows that government allocation per student was generous until the mid-1990s. Although public expenditure on higher education increased substantially along with rapid growth of enrolments during the past years, public spending per student has been decreasing while educational costs per student have increased over the years.

The burden of the cost of education has shifted to students and their families. As shown in Table 5.4, the proportion of the higher education sector

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[14] Institutions of higher education for adults are not included in the table.

funded by tuition 21 per cent of the total expenditure in 2000 and increased to 24 per cent in 2001.

Table 5.5 Public expenditure on higher education per student, 1980-2001

Year	Educational cost per student (Yuan)	Government allocation per student (Yuan)	Share of government expenditure per student (%)	Government spending per student as percentage of GDP per capita
1980	6609	6448	97.6	1401
1984	9231	8990	97.4	1294
1994	8160	6645	81.4	169
1996	5957	2604	43.7	47
1997	6523	2866	43.9	47
1998	6775	2893	42.7	46
1999	7201	2962	41.1	45
2000	7310	2921	40.0	41
2001	6816	2614	38.4	35

Source: Data of 1980-1994 are from the World Bank (1997): 43. *Statistical Communiqué of PRC on Educational Funding 1997-2002.* On www.moe.edu.cn/jutouru/zlwenxian.
 Note: From 1980 to 1994, cost and government allocation per student include grants for free food and accommodation.

It is stated in Chapter VI of the Higher Education Law of the PRC (brought into effect on January 1, 1999) that "students from families with financial difficulties may apply for subsidies or a reduction of or exemption from tuition fees" (Article 54), and that the State establishes scholarships, work-study funds and student loans for students in higher education institutions. The state encourages higher education institutions, enterprises, public organisations or social groups and individuals to establish scholarships, work-study funds and student loans in a variety of ways in accordance with the relevant regulations of the State. These should be awarded to students of good character and scholarship, to provide assistance for students who come from families with financial difficulties (Article 55) (MOE 1999). Ultimately, local governments, societal organisations and universities must provide all means of financial assistance to prevent dropout for financial reasons. Consequently, a range of financial assistance measures have been introduced in every locality and higher education institution in the country though the impact is limited in terms of the level of assistance and accessibility.

The state-sponsored student loan programme was not made available until the summer of 1999, two years after the introduction of the official unitary tuition charge. The MOE, the Ministry of Finance and the People's Bank of China with the endorsement of the State Council launched the loan programme.

A total of 700 million Yuan (about US$ 84 million) was set aside to help cash-poor students in 136 institutions of higher learning, but only in the following eight big cities: Beijing, Shanghai, Tianjing, Chongqing, Wuhan, Shenyang, Xi'an and Nanjing. The programme was expanded to more areas over the next few years, with the goal of helping poor students complete college education. Student loan recipients were required to repay loans with discounted interest within four years of graduation though the loan system offers students a 50 per cent discount on interest. Each student can apply for loans once a year. The loan amount may vary with the level of tuition fees charged by different universities and regions. Generally, the loan regulation states that a student can obtain a maximum of 8000 Yuan (about US$1000) each year (Xinhua Daily 1999).

Implementation of the student loan programme actually did not start until the spring of 2000. By the end of March that year, the loans taken had only absorbed 1.3 per cent of the 700 million Yuan budgeted for the programme, and only 0.2 per cent of the total students with serious financial difficulties actually got loans due to the reluctance of the banks and the complexity of loan procedures (People's Daily 2000). Local governments outside the eight big cities must initiate agreements with banks within jurisdictions to provide loans for students in need locally. The actual starting times of the student loan programmes as well as detailed regulations of loan procedures differ among different regions as well as provinces. Most local governments in Southwest China launched their student loan programme at the earliest in 2001 and, at the latest, in June 2002 in Guizhou Province (www.china.org 2002) where the maximum amount of loan is 6000 Yuan (US$ 723) per academic year, and a eligible quota of less than 20 per cent of the students on campus in the province.

A national scholarship targeting 45,000 higher education students annually was introduced in May 2002 (Xinhua News Agency 2002). Students apply through their host institutions for the scholarships which are geared to students in elite universities and specific subjects such as teaching, agriculture, ethnic studies, geography and mining, engineering, and so on. Moreover, these scholarships are modest, with amounts ranging from 4000 to 6000 Yuan (US$ 482-723) a year per student in addition to one-year tuition exemptions. These only cover less than one per cent of the total student population in higher education and the foremost criterion is academic merit rather than family financial difficulties.

5.4.3 Regulations concerning admission and graduation

Although decision making concerning many essential issues in higher education has been decentralised to the university level, control over the recruitment

process remains at the central level. Figure 5.2 illustrates the current planning system around recruitment. This system limits the choices and mobility of the students since local authorities tend to protect and satisfy the needs of institutions under their jurisdictions first. The centrally controlled selection system (with the NCEE screening and allocating students) remains one of the major differences between Chinese universities and those in Europe although there have been requests for institutional autonomy on this issue.

The NCEE examination process has four major purposes: a quota policy to ensure equal opportunities to access higher education for people in less-developed areas; a marginal-number candidacy policy to ensure quality of selection in a proportional candidate pool; political and ideological control with Marxism, Mao Zedong Thoughts and Deng's Socialist Market Economic theories being among obligatory examination subjects in the NCEE; and a measure of academic quality control over primary and secondary schools. NCEE scores serve an additional purpose within the hierarchically structured higher education system by allocating students to different institutions. This recruitment priority reinforces the positions of institutions by allocating students from the top down, to the three levels of institutions. The MOE universities are given priority to admit students with the highest scores.

Three major parties are involved in the annual recruitment process of higher education in China – provincial education planning offices, universities, and students. There are some minor differences in the application and recruitment process between provinces but, as a rule, the application process starts after the publication of students' NCEE scores and each province announces its minimum passing score. Students above the passing score can list 10 to 20 choices of universities ranked in two or three levels in their applications (e.g. they list some universities as their first choice, some as their second and others as their third choice). In the application, students must also list departments or subjects they prefer. The applications then go to provincial education planning offices to be distributed to the universities. If their first choice universities reject them, their applications are passed to their second choice universities and finally to institutions listed as their third choice.

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┌─────────────────────────────────────────┐
│        The Ministry of Education (MOE)    │
└─────────────────────────────────────────┘
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┌──────────────────────────┐        ┌──────────────────┐
│ Provincial (23), municipal (4), │   │ Other ministries' │
│ autonomous regional (5)   │        │ Education Planning │
│ Education Planning Offices │       │ Offices            │
└──────────────────────────┘        └──────────────────┘
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┌──────────┐  ┌────────┐  ┌──────────┐  ┌──────────────┐
│ Provincial │ │ Minban  │ │ Universities │ │ Universities  │
│ public     │ │ colleges│ │ financed     │ │ established,  │
│ universities│ │        │ │ directly     │ │ and financed by│
│ and colleges│ │        │ │ by MOE       │ │ other ministries│
└──────────┘  └────────┘  └──────────┘  └──────────────┘
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- - → Plans reported to authorities
——→ Quota received from the authorities
——→ Local authorities are informed

Figure 5.2 The planning system of Chinese higher education recruitment

Since the reform of the 'combination of two categories' in 1997, university graduates have to seek employment on their own initiative and/or through the 'two-way selection' meetings arranged by the universities together with local organisations. Consequently, the spring months of each year are months of tension throughout China as graduates of upper secondary schools prepare for the NCEE in July (June since 2002) and graduates of universities seek jobs before their graduation in July. There is a recruitment office (and/or officer) at the MOE, each local government, and even at each university. There are also employment-guidance offices (and/or officers) at the same levels. Employment of university graduates is of the same order of importance as recruitment of university students since social stability is at stake if matters go wrong.

In 2001, 1.15 million students graduated from higher education institutions in China, 0.49 million with college diplomas, 0.59 million with Bachelor's degrees, and 70 thousand with Master's degrees. The rate of immediate employment of new graduates with a Master's degree is 94 per cent, compared to 83 per cent of those with a Bachelor's degree and roughly 55 per cent for those with college diplomas. In addition, the rates of immediate employment of Bachelor graduates are different among the institutions under the three jurisdiction levels, 92 per cent of those resorting under the MOE (i.e. the elite universities), 82 per cent of those under central ministries and only 75 per cent of those under local governments (China Education Yearbook 2002: 217). Under these labour market conditions, studying abroad becomes an attractive option for career development after university studies in China.

From 1978 to 1999, the Chinese state had sent around 300,000 people to 103 countries and regions for further study (MOE 2000b). Although only

roughly 30 per cent of them returned, those returned scholars have brought back rich experiences and knowledge from abroad and contributed to the reforms and development of China's economy, technology and education (Hayhoe 1999; Hayhoe and Zhong 1995).

Returning students usually get very good rewards with positions and prestigious working and living conditions. For example, in 1999 the government built 30 High-tech Enterprises Parks and over 500 high-tech enterprises were set up by returned overseas students. In over 90 institutes of the Chinese Academy of Science, 530 returned overseas students became leading researchers. Among them, 219 became directors of the institutes – equal to 53 per cent of the directors. Among universities affiliated with the Ministry of Education, over 50 per cent of university presidents are returned overseas students (Education Weekly 2001). Nevertheless, China still sends and encourages scholars to study abroad and return to the homeland after completing their studies. At present, more than 80,000 Chinese students go to study abroad privately each year and, more and more of them (12,243 in 2001) return to China after graduation (China Education Yearbook 2002: 337).

5.5 Conclusion

When examining the socio-economic situation in China, it is clear that inequality exists in many ways. Income inequality has become more striking with the growing gap between the Eastern coastal areas and the Western hinterlands, between urban and rural and, of course, between the rich and the poor.

Mostly organised by the Chinese state, the education system in China has managed to reach the majority of the population in all geographic locations. Access to the primary level of education is universal while access to upper secondary and higher levels of education remains somewhat restricted. The most evident feature of Chinese education is the problem of insufficient finance. Educational inequality remains in the structural dimension while inequality is manifested geographically between Eastern and Western regions of the country through the decentralised financing mechanism.

In the higher education sector, the picture is complicated. First, a hierarchical system has divided universities into elite and non-elite, which categorise students as elite and non-elite although, in a sense, they are all an elite within the nation. Second, under the mechanism of cost sharing, the charging of tuition fees has raised the private cost of higher education beyond a middle-income family's means. This has serious implications for access to higher

education for certain social groups in the nation. Financial assistance mechanisms such as the student loan programme and a national scholarship are new and still in the trial phase, and have a limited impact in helping poor students. Third, graduates have to seek employment in a free labour market that is still developing but already suffers from high rates of unemployment. This has serious implications concerning students' aspirations towards their future careers.

All these factors are potentially generating inequality in Chinese society today and in the future. This leads on to the second main part of the monograph, i.e. an empirical study of students in Chinese higher education.

Chapter Six:

Data and Methods

6.1 Introduction

This chapter introduces the site and process of data collection, and the methodological approaches taken in conducting the empirical study contained in this monograph. The description of the variables of interest is presented in four subsections, each of which includes some discussion about the measurement properties of variables still considered controversial in the Chinese context.

6.2 The data site: Southwest China

The empirical study of this monograph was carried out in Southwest China because this location provides a microcosm of the country. According to the mapping of China in June 1999 (see Figure A1.1 in Annex 1), when the Chinese government put forward the guidelines for developing the West, the Western part of China accounts for over one-third of the country's administrative provinces and autonomous regions (12 out of 33 of them). It covers an area of 5.4 million square kilometres (56 per cent of the national total) and has a combined population in excess of 280 million (28.7 per cent of the national total). The region used to be described as "barren, remote, valuable, large, poor and beautiful", from ancient times. It lacks transportation infrastructure and lags behind other parts of the country in terms of social and economic development. Consequently, per capita annual income in West China is only about half the national average (see Table 5.1).

Southwest China is composed of three provinces (Guizhou Province, Sichuan Province and Yunnan Province), one municipality (Chongqing Municipality) and one autonomous region (Guangxi Zhuang Minority Autonomous Region). In economic as well as educational aspects, Southwest China ranks below the national average (see Table 5.1 and 5.2). Though it is not as underdeveloped as the other parts of West China, there is no reason to believe that the social effect of educational reforms or the pattern of social recruitment should differ significantly from that in other places of the country. If anything, there could be more social disparity in the Southwest region and proportionally

more children were left out of schooling across all levels of education, than in more developed Eastern China.

Although located in a poor part of the country, Southwest China is quite representative of present-day China. On the one hand, it has a vast mountainous area with the majority of the population engaged in rudimentary agriculture. On the other hand, it has a few quite big cities that are as modern as the big cities in the East. Disparity between urban and rural areas in Southwest China is as striking as in other parts of the country. Regarding higher education, there are universities with a history of a hundred years in this region while some institutions were established in the 1950s, 1980s or even 1990s. While most of the universities are the responsibility of local governments, a few have managed to be in the elite table of the MOE. Nevertheless, education in Southwest China is much less publicised and studied by researchers both in, and outside the country, especially compared to coastal and Northern areas.

The data collected for this study were drawn from three provinces located in Southwest China, named Province 1, 2, and 3 according to the chronological order of field visits for the main questionnaire survey conducted in December 2002[15].

6.3 The data collection

As mentioned previously in Chapter 1, the data for this study were collected using a questionnaire survey. The design of the questionnaire went through one preliminary field visit, focus group testing and two pilot surveys.

A stratified three-stage sampling design was applied during the data collection. Six public universities were the first-stage unit, with two universities per province chosen for the principal data collection. The original idea was to avoid the very specialised universities such as medical, heavy and light hydropower, industrial, oil, railway, and so on. To that end, two kinds of university were chosen: comprehensive universities (ranked highest on the list of provincial universities); and one university of finance and economics in each province because they are represented in all three provinces and their disciplines contain both social and natural sciences. The student group enrolled in the 2001 Bachelor's degree programme[16] in these six universities was the second-stage

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[15] Note that the university where the two pilot surveys were conducted is located in Chongqing municipality which, together with the autonomous region of Southwest China, are excluded from both the study and the main survey.

[16]Basically two kinds of diplomas are offered in Chinese regular higher education institutions: College regular courses with 4-5 years study, which will lead to a Bachelor's degree; Specialised subject (vocational) with three years study, which will not lead to a degree.

unit. At the third stage, a random sampling procedure was used to select 1200 students to answer the questionnaire.

The data collection for the study was carried out during December 2002. When on field visits to six universities, a complete list of students enrolled from 2001 in Bachelor's degree programmes was obtained from either the student affairs office or the teaching affairs office at each university. 200 students were selected through a random procedure[17] from the list at each university to answer the questionnaires. Questionnaires were mostly delivered by hand to students by the researcher herself. There were a few occasions where the students' instructors in the departments offered their help to distribute and collect the questionnaires. Students were given two days to answer the questionnaire due to the nature of some questions (see Annex 2, Question 12, for example). 1200 questionnaires were distributed to the sampled students, of which 1156 were returned[18]. Table 6.1 presents a summary of the basic information on the achieved sample.

Table 6.1 The sample and the total population, 2001

	The country	Southwest China	The sample
Institutions with Bachelor's degree programme	597	78	6
Comprehensive universities	91	7	3
Universities of Finance and Economics	65	4	3
2001 new entrants in Bachelor' degree programmes	1381835	106374*	1200
Female within higher education enrolments (%)	42	--	47.1
Female within population (%)	48.37	47.83	47.1
Rural population (%)	63.9	75.4	33.4
Minority (%)	8.41	25.4	15.7
People from the Western region of China (%)	28.7	--	75.8

Source: NBSC (2002b). Questionnaire survey of the study (December 2002).
Note: * The sample pool, not the exact number of students in Southwest China.

After the completion of all questionnaires by the students, the data were coded and processed using the Statistical Package for the Social Sciences (SPSS). The next section introduces the analytical framework.

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[17] In two of the six universities, a stratified random procedure was applied. According to the list of tuition charges among all the subjects obtained on the field visit, students at highest and lowest tuition departments were put into the random selection. In the other four universities, the entire year group in all study subjects went through the random selection since the lists of tuition charges were not accessible.

[18] A detailed report of the main survey, one for each university visit, was prepared and presented to the supervisor of the study right after the field visits were completed in January 2003. All returned questionnaires are also archived in their original form in case of any follow up investigation.

6.4 The analytical framework

The study takes an inter-disciplinary approach to investigating the socio-economic background of the students, the costs of their studies, the methods used to finance their education, and their future career aspirations. Additionally, the study explores the relationships among those factors investigated.

Figure 6.1 illustrates a three-stage analytical framework corresponding to the conceptual framework of this study. In accordance with the conceptual framework presented in Chapter 2, a path model containing eight latent clusters derived from the theoretical part of this investigation and a network indicating their interrelationships, are specified in Figure 6.1.
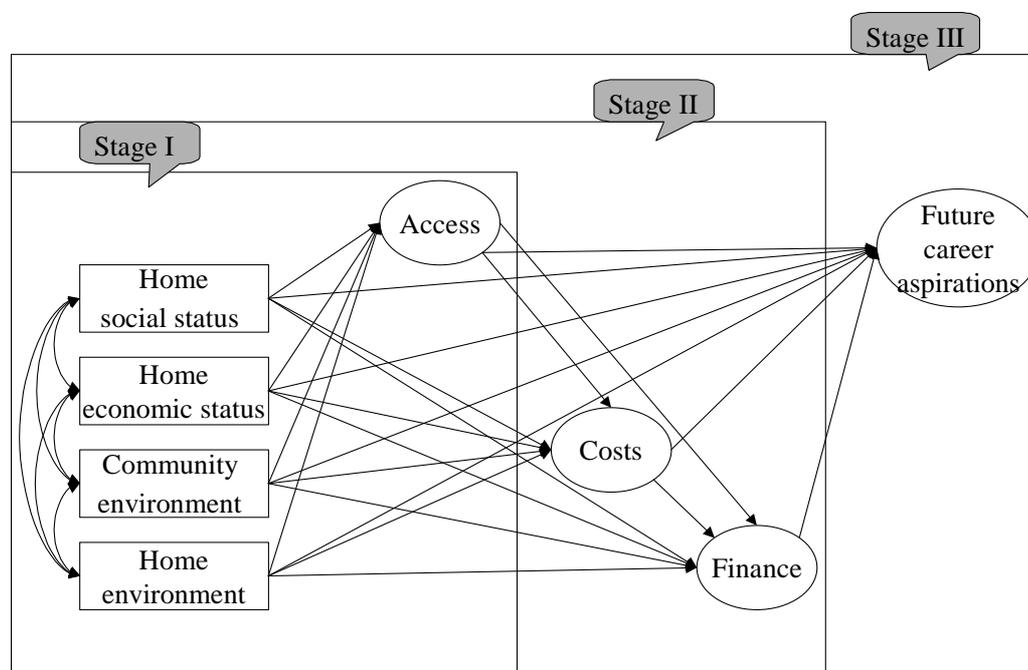
Figure 6.1 Path diagram for an analytical model linking students' socio-economic background with their access to universities, costs and finance of studies, and future career aspirations

Stage I takes a sociological approach to examining the socio-economic background of the students and its hypothesised link to students' access to higher education. Built on theory and previous research, four variables are hypothesised to constitute a comprehensive measure of the socio-economic background of the students, namely home social status, home economic status, community environment, and home environment.

Stage II investigates the costs and financial resources of higher education students. In addition, this stage links the sociological framework with economic and financial factors to further the investigation of the research questions. Furthermore, the hypothesised links between socio-economic background, access, costs and finances are explored in this stage of the data analysis.

In Stage III, attitudes of the students are examined. Specifically, career aspirations of the students are analysed taking a social psychological approach. Also in this stage, the hypothesised links among all the factors investigated in this study are explored and tested. Thus, the hypothesised model of linking socio-economic background, access, costs and finances, and future career aspirations of the higher education students is completed in Stage III, and statistically tested and explained.

Each stage investigates certain factors but Stage I, II and III are interrelated as shown in Figure 6.1. These three stages construct respectively three data analysis chapters of this monograph, i.e. Stage I in Chapter 7, Stage II in Chapter 8 and Stage III in Chapter 9.

6.5 The statistical methods employed

Basic descriptive data analysis, bivariate correlation analysis, factor analysis, and structural equation modelling methods are the statistical techniques utilised to analyse the data.

Descriptive data analysis is used not only to explore the measurement properties of the data but also to present findings relating to the socio-economic background of higher education students, their costs and how they finance their studies, and their attitudes and career aspirations. Simple correlation analysis provides a first indication of the strength of associations between the variables. The limitation (Muijs 2004) of correlation analysis is that it only examines the associations between the observed measures. Given the complexity of the relationships between socio-economic background, human behaviour and attitudes, factor analytical techniques are used to better understand the latent constructs that underlie the observed measures.

Latent variable methodology is employed in order to combine related variables into latent factors via principal component analysis. In Exploratory Factor Analysis, the latent factors are referred to as components (Tabachnick and Fidell 1989; Bartholomew and Knott 1999). These latent factors group together variables that are correlated. A factor represents underlying processes that have created the correlations among the variables and because it forms latent factors based solely on the patterns of correlations among the variables,

Exploratory Factor Analysis is used only in the early stage of searching for variables that appear to measure distinct latent factors (Tabachnick and Fidell 1989).

Confirmatory Factor Analysis is applied once the variables for latent constructs are identified. Confirmatory Factor Analysis is used to determine whether the latent variables specified, and the measurement model hypothesised, actually fit the data set (Hecht 2001). The fit of the measurement model is evaluated based on various fit indices (Tabachnick and Fidell 1989). However, the problem of multicollinearity in this kind of measurement model is a worry for many who use multiple indicators to measure socio-economic background because multicollinearity occurs when two or more variables used to measure socio-economic background are highly correlated.

Steps are taken to avoid the possible problem of multicollinearity, such as watching for inflation of standard errors, changes of regression coefficients as new variables are added to the model and signs of excessive intercorrelations among the independent variables (Kindwell and Brown 1982). A common approach is to ensure that the level of intercorrelation among the independent latent variables is less than 0.80 (Heise 1969; Parker and Smith 1984; Grewal, Cote and Baumgartner 2004). When multicollinearity is kept under control then reliable interpretation of the statistical results is made possible.

After an appropriate measurement model was determined, it was time to utilise a structural equation modelling method, known as Linear Structural Relations (LISREL) to test the hypothesised models. A structural equation model measures the contributions of various factors in predicting a particular outcome while providing unique information about the direct and indirect paths of reliable influence (Mueller 1996; Ransdell 2001; Ransdell *et al.* 2001). The LISREL method (Jöreskog & Sörbom 1989, 1993a) is a statistical technique designed to assess the presumed causal relationships of non-experimental variables (Buczynski 1994). The LISREL method allows for the simultaneous specification of a measurement model and a structural equation model using one or more directly measured or manifest variables to provide estimates (Halpern 1990), and simultaneously testing the effects of the latent variables on each other (Keith, 1993). The advantage of LISREL modelling lies also in its strength in estimating the unknown coefficients of a set of linear structural equations, treating measurement errors, and simultaneity or interdependence.

According to a classification of standardised regression weights (Desjardins 2003) in social science research using population sample survey data, a regression weight over 0.30 is considered to have a very strong effect; between 0.20 to 0.30 is considered a strong effect, between 0.10 to 0.20 is a moderate effect, and the one below 0.10 is considered a weak effect. In this study, due to the limitation of the data collected, a regression weight over 0.40 is

considered a very strong effect, between 0.30 to 0.40 is a strong effect, between 0.20 to 0.30 is a moderate effect, between 0.10 to 0.20 is a weak effect, and the one below 0.10 is insignificant.

The decision to accept or reject a hypothesised structural model is taken reference to the fit statistics. Chi-square (χ^2) is a measure of the overall goodness of fit of the model to the data (Jöreskog and Sörbom 1993b). A small chi-square corresponds to good fit while a large chi-square indicates a bad fit but chi-square is influenced by sample size. Nonetheless, if the chi-square value is close to the number of degrees of freedom (df), the fit of a model is deemed acceptable (Tuijnman and Keeves 1997). The Root Mean Square Residual (RMR) represents the average deviation of the predicted from the actual correlation matrix (Keith 1993; Moore 1995). The Good-of-fit Index (GFI) indicates the proportion of the joint amount of data variance and covariance that can be explained by the tested model. The common rule for an acceptable fit of a model is RMR below 0.05 points with AGFI (Adjusted Good-of-fit Index) and GFI exceeding 0.90 (Hoyle and Panter 1995; Tuijnman and Keeves 1997).

In the section below, the variables and measures are introduced.

6.6 The variables and measures

The variables and measures introduced in this section are all taken from the questionnaire survey. Three subsections offer descriptions and explanations of the variables measuring socio-economic background, costs and finances, and attitudes and career aspirations.

6.6.1 Variables and measures of socio-economic background

The variables listed in Table 6.2 have been investigated in terms of their relation to the socio-economic background of higher education students in the Chinese context. This group of variables serves the heuristic purpose of showing the major dimensions of socio-economic background of the students.

Unlike much previous research, mother's social status is taken as an equally important indicator of a family's socio-economic status as that of father's in this study. Therefore, parental educational attainment and parental occupational status include information for both the father and mother. Women have had the same rights of access to education and employment with equal payment as men since 1949. Moreover, women provide an important source of

income in most Chinese families, and women now constitute 37.8 per cent of the total employed labour force in China (NBSC 2002b).

Table 6.2 Approach taken to measure variables of socio-economic status of students

Variables	Observed (questions)	Coding
Father's occupation (OCCFA) Mother's occupation (OCCMO)	a. Job title b. Work description	1 'elementary occupations' 2 'plant and machine operators and assemblers' 3 'craft and related trades workers' 4 'skilled agricultural and fishery workers' 5 'clerks, service workers, shop and market salesmen'* 6 'technicians and associated professionals' 7 'professionals' 8 'legislators, officials, managers and armed forces'**
Father's occupational status (SIOPSF) Mother's occupational status (SIOPSM)	Assign Treiman's prestige scales to each occupation	21'elementary occupations' 34'plant and machine operators and assemblers' 38'craft and related trades workers' 37'skilled agricultural and fishery workers' 35'clerks, service workers, shop and market salesmen' 48' technicians and associated professionals' 62'professionals' 51'legislators, officials, managers and armed forces'
Father's educational attainment (EDFA) Mother's education al attainment (EDMO)	a. Schooling competed b. Degrees earned	1 'less than primary' 2 'primary' 3 'lower secondary' 4 'higher secondary' 5 'some tertiary' 6 'degrees'
Father's employment status (P1FR) Mother's employment status (P1MR)	Working sector***	1 'unemployment, or home duty' 2 'self-employed without employees' 3 'urban/rural collective units' 4 'private, joint-venture foreign and private employers' 5 'state-owned units, or government sector'
Family yearly income	a. Parental income b. Other income	In Chinese currency: Yuan 1 US Dollar = 8.3 Yuan
Home assets	Eighteen objects	Assign each item a weight between 0-1, and then sum up.
Family size (FMSZ)	a. Persons live together at home b. Siblings	1 nuclear family with siblings" or "with younger siblings' 2 'extended family" or "with older siblings' 3 'nuclear family without siblings" or "single child'
Community (COM1)	Rural/urban	0 'rural'; 1 'urban'
Community (COM 2)	Home geographic location	1 'remote rural'; 2 'semi-urban'; 3 'small town'; 4 'medium city'; 5 'big city'
Community (COM3)	Home neighbourhood Educational facilities	0 'no any school' 1 'only primary school' 2 'with junior secondary school' 3 'with senior secondary school' 4 'with college'
Neighbourhood youth going to college (COM4)	How many young people going to college each year at your home neighbourhood?	1 'less than 1%' 2 'between 1-25%' 3 'between 25-50%' 4 'between 50-75%' 5 'above 75%'
Ethnicity (ETHNIC)	Which ethnic group	Dichotomous coding, '1' if Han, '0' if any minority
Gender (GENDER)	Sex of the student	Dichotomous coding, '0' if male, '1' if female

Note: *Clerks are coded into the service workers category due to the unclear definition and distinction in the Chinese context. ** Armed forces are coded into the senior officials category due to that fact that junior officers or soldiers must leave the army after three years service, and return to civil life. It can be taken for granted that the students' parents in armed forces, who should be aged 40-50, are senior officials. ***Working sector is coded positively corresponding to the average income level of each sector published in the *China statistical yearbook 2002*. The coding is according to the provincial salary levels (see Table 6.3).

Community related variables, such as geographical location, urban rural division, educational facilities available and young people's educational attainments at the neighbourhood level are measured to reflect the social environment of the students. One of the classic indicators of disparity in educational participation is rural and urban. International surveys consistently show that in most countries there are disparities between rural and urban areas in the matter of educational participation (UNESCO 1967; Husén 1975; UNESCO-UIS 2003). It is suspected in this study, as already empirically investigated elsewhere (Gibbons 2002), that community socio-economic characteristics influence school performance, students' achievement, educational attainment as well as students' access to certain educational resources.

Parents' *employment status* is obtained by asking which sector the parents work in, rather than simply asking if they are employed. This variable is specific to the Chinese social context. There used to be a very strong correlation between job sector and social prestige in Chinese society during the three decades after 1949. And a correlation between job sector and income still exists in present-day China (Bian and Logan 1996; see also Table 6.3). In this study, an additional job sector 'self-employed without employees' is used to label individually working farmers and the small retailers since they are a large group in China today, and could not be simply grouped into 'Other ownership units'.

Table 6.3 Average yearly wages by working sectors, 2001 (Yuan)

Region	State-owned units (Urban/Rural)	Collective-owned units (Urban/Rural)	Other ownership units (Urban/Rural)
Nation	11178 / 5702	6867 / 5654	12140 / 8473
Province1	10783 / 7735	6218 / 5781	8650 / 6929
Province2	9308 / 7539	6218 / 6013	8831 / 6152
Province3	10880 / 7208	7203 / 2819	10407 / 6612

Source: NBSC (2002b: 145-154).

Data on *income* have been always problematic in survey studies (Deaton, 1989). Some studies (Power and Robertson, 1987; McMillan and Western, 2000) have even suggested that the economic dimension should not be considered when assessing socio-economic status in an education setting. Family income is considered an important variable in this study because higher education is not free of charge anymore in China. Instead it is so expensive that it has become one of the biggest investments a family can expect to make.

In the questionnaire, a carefully phrased question is asked: "what was your family's yearly income last year?" emphasising "if you do not know, you can check with your parents, or best estimate". Two answering brackets are

supplied following the question, 'yearly income of your parents last year' and 'yearly income from other family members and sources'. More than 90 per cent of the students sampled have supplied an estimate of income in the questionnaire.

In the Chinese social context information on family income is not kept secret between the parents and their children. Moreover, the respondents in this study are all old enough to understand their own family economic situation, and most of them would not consider the question about income as too sensitive to ask about. There is a quite good level of confidence in using the income information obtained from the questionnaire to measure the family economic status of the students in this study. The missing data on income (6%) are imputed using the expectation maximisation (EM) methods in SPSS, using the mother's and the father's educational attainment, occupation and the socio-economic conditions of the home community as predictors.

All the variables presented in Table 6.2 are used in the data analysis in Chapter 7 to examine the socio-economic background of higher education students. Before leaving the theme of socio-economic background, the measurement of parental occupational status is further discussed in the next subsection.

6.6.2 Measuring occupational status in a Chinese context

The coding of parental occupation has been considered carefully to be relevant and suitable to the Chinese social context. This variable deserves a close examination in the Chinese context because of certain political, social and historical reasons.

Chinese society was rather flatly structured with units of collective identity until the end of 1970s, with state workers in the urban areas of obvious prestige in one group and rural people in the production brigades around the cities in the other group. The state was overwhelmingly the largest (if not the sole) employer in the country. People were allocated and restricted to certain working places with very little social and occupational mobility, and there were very small salary differences between occupations as well. The economic reforms carried out since the late 1970s have broken down the restriction of Chinese people's social and occupational mobility in the old system. Although the Chinese capital markets are still underdeveloped, a relatively free labour market has emerged since the mid-1980s (Mok 1995), as well as new social and occupational categories (Unger 1994; Kane 1994; Wong 1994; Goodman 1996; Gu 1997) that did not exist even 15 years ago.

Traditionally, measures of occupational status are grouped into three categories: prestige measures, socio-economic scales and sociologically derived class categories (Middleton 2003). Besides the International Standard Classification of Occupations (ISCO) categories, there are three other internationally comparable measures of occupational status, i.e. Treiman's (Treiman 1977) Standard International Occupational Prestige Scale (SIOPS), International Socio-Economic Index of Occupational Status (ISEI) (Ganzeboom *et al.* 1992), and Erikson and Goldthorpe's (Erikson and Goldthorpe 1992) Class Categories (EGP). Ganzeboom and Treiman (1996) have created a comparison table with scale scores for the three cross-national standardised measures of occupational status to the scales of ISCO88. Although Treiman (1977) has argued and confirmed in his international comparison that there is almost a unified agreement among all societies concerning the prestige scale of occupation, he admits that his occupational prestige index is most applicable to industrialised societies, and not as suitable for un-industrialised countries and societies experiencing radial social transition.

Since China is a society that is both un-industrialised and experiencing radical social and economic changes, caution is taken by this study not to directly apply either Treiman's prestige scales or the other two occupational status measures to assess parents' occupational status. Instead, this study is inspired by Treiman's methodology to apply a two-step coding strategy to capture the occupational status, which will preferably combine the three types of measures mentioned above. At the first step, ISCO88 coding is to categorise the occupations although its coding logic does contain some values, e.g. skill levels (Hoffmann 1999: Table 1) and there is an increase of education, skill (Eilias 1997) and assumed prestige. In the second step, Treiman's prestige scales are applied in building a measurement model of socio-economic background. Nevertheless, the choice of measuring occupational status in a Chinese context deserves further scrutiny.

At the initial stage, the coding of *parental occupations* is based on the categories in the 1988 International Standard Classification of Occupation (ISCO88) (ILO 2000), using the major groups of ISCO88 to code occupations into one-digit scores. Then, the occupations are recoded with certain values based on the writer's knowledge of Chinese society (see Table 6.4 column ISCO88), given that ISCO88 contents a skill scale which corresponds with a certain level of education as well as work experience (Elias 1997). Table 6.5 makes a comparison of ISCO88 coding with other international measures of occupational status. The scale scores of occupational status by SIOPS, ISEI and EGP are from Appendix A in Ganzeboom and Treiman (1996). Again, only the scores for major groups are used here. The major groups of 'Clerks' (4000 in ISCO88) and 'Service Workers' (5000 in ISCO88) have different SIOPS and

ISEI scores. Eventually, the average scores are given to the category 'Clerks and Service Workers' in this study (see note in Table 6.4).

Table 6.4 Scale scores for five measures of occupational status

Occupation titles	ISCO 88	SIOPS	ISEI	EGP	ISCO skill
Elementary occupations	1	21	20	9	1
Plant and machine operators and assemblers	2	34	31	9	2
Craft and related trades workers	3	38	34	8	2
Skilled agricultural and fishery workers	4	37	23	10	2
Clerks, service, shop and market sales workers*	5	35	42	3	2
Technicians and associate professionals	6	48	54	2	3
Professionals	7	62	70	1	4
Legislators, senior officials and managers**	8	51	55	1	---

Note: *Clerks are coded into the service workers category due to the unclear definition and distinction in the Chinese context. ** Armed forces are coded into the senior officials category due to the fact that the junior officers or soldiers must leave the army after three years service, and return to civil life. It can be taken for granted that the students' parents in armed forces, who should be aged 40-50, are senior officials.
KEYS:
ISCO88: International Standard Classification of Occupations
SIOPS: Treiman's Standard International Occupational Prestige Scales
ISEI: Ganzeboom *et al.*'s International Socio-economic Index of occupational status
EGP: Erikson and Goldthorpe's class categories of occupations.
ISCO skill: ISCO88 skill levels (Hoffmann 1999: Table 1)

Due to the unique history of social and economic upheavals during the past 50 years, there was a time (1966-76) when educational attainment and occupational attainment was very weakly correlated in China (Xie and Lin 1988). After all the attempts made by various political campaigns to equalise society, occupation had more to do with social prestige rather than economic benefit, even just 20 years ago. In their first community-based attempt to measure occupational prestige in the early 1980s in mainland China, Xie and Lin (1988) suggest that the rankings of certain occupations in China seem to be affected by skills and resources valued at the particular historical moment in the development of the society as well as by recent political events. Some attempts (Bian 1997) have been made to assess occupational status in China using Duncan's (1961) Socio-economic Index score but have found that 'Work-Unit Rank' carries more importance in social prestige. Nevertheless, the conventional assumption elsewhere in the world, that education and economic benefits are the main indicators of occupational status do not appear to apply in China.

Table 6.5 Comparing correlations of different recoded measures of father's and mother's occupational status according to the ISCO88, ISCO skills, SIOPS, ISEI, EGP scales, with parental income and education

	ISCO88	ISCO skill	SIOPS	ISEI	EGP
EDFA	0.67	0.68	0.68	0.68	0.67
EDMO	0.71	0.70	0.70	0.70	0.69
INCOME-FA	0.58	0.57	0.56	0.56	0.55
INCOME-MO	0.61	0.59	0.58	0.59	0.58
P1FA	0.55	0.56	0.57	0.56	0.53
P1MO	0.54	0.56	0.55	0.55	0.54

KEYS:

ISCO88: ISCO88 occupational index
ISCO skills: ISCO88 skill levels
SIOPS: Treiman's Standard International Occupational
    Prestige Scale
ISEI: Ganzeboom *et al.*'s International Socio-economic
    Index of occupational status
EGP: Erikson and Goldthorpe's class categories of
    occupations

EDFA: Father's education
EDMO: Mother's education
INCOME-FA: correlation of fathers' occupation
    with family income
INCOME-MO: correlation of mother's occupation
    with family income
P1FA: Father's working sector or status
P1MO: Mother's working sector or status

Table 6.5 summarises the correlations of all the different measures of occupational status assembled in this study with the education and income of the parents. All measurement scales produce very similar results of correlation of occupation with education and income in China. Occupation does correlate moderately with education while the correlation between occupation and income is not optimal (less than 0.60), nor does education correlate with income in this data set. This is in line with findings that education did not generate private economic rewards in China until the late 1980s and that higher education is rewarded more in the private sector than in state-owned enterprises in present-day China (Li and Zhang 1998; Li 2003).

In the end, all five occupational scales are found to correlate with each other quite well. The lowest correlation is between Father's SIOPS scores and EGP scores (0.90) while the highest correlations are between Father's SIOPS and ISCO skill levels (0.99) and Mother's ISEI with both EGP and ISCO skill (0.98). In any case, the coding of scales used in this study is only for the major occupational groups. There are definitely more differences among sub-major groups, minor groups and even among some particular occupations with different skills, prestige and socio-economic rankings under different circumstances.

In this case, however, the different coding yields quite minor differences. Eventually, the choice of occupational scaling has been assessed against the specific research objectives, and particularities of the society in context. The following subsections address the measurement of costs and finances.

6.6.3 Variables and measures of costs and finances of higher education

Table 6.6 summarises the variables measuring direct private costs of higher education students and the financial resources utilised by students and their families.

Table 6.6 Approach taken to measure variables of costs and finances of studies

Variables	Observed (questions)	Measures
Total private cost of one year (TOTCOST)	a. Tuition and fees b. Living cost on campus c. Transportation (travel)	In Chinese currency: Yuan 1 US Dollar = 1.88 Yuan in PPPs of 2001.
Family alone pay for tuition fees (TFAMILY), Family alone pay for living costs (LFAMILY)	a. Parents b. Grandparents c. Siblings d. Relatives	Dichotomous 0 'if none of these methods' 1 'if any of these methods' And in percentage.
Family paying for both costs (FAMILY)	a. Paying for tuition fees b. Paying for living costs	0 'if none' 1 'if pay for one of the cost' 2 'if pay for both costs'
Borrowed money for paying tuition fees (TBORROW), paying living costs (LBORROW)	a. Family borrow from others b. Family borrow from a bank c. Yourself borrow from others d. You borrow from a bank (other loan)	Dichotomous 0 'if none of these methods' 1 'if one of these methods' And in percentage.
Borrowed money for both costs (BORROW)	a. Paying for tuition fees b. Paying for living costs	0 'if none' 1 'if pay for one of the costs' 2 'if pay for both costs'
Financial assistance for paying for tuition fees (TASSIST), for living costs (LASSIST)	a. Scholarship from university b. Partial tuition exemption c. Assistance from college d. Assistance from home community e. Scholarship from society	Dichotomous 0 'if none of these methods' 1 'if any of these methods' And in percentage.
Financial assistance to pay both costs (ASSIST)	a. Assistance for tuition fees b. Assistance for living costs	0 'if none' 1 'if pay for one of the costs' 2 'if pay for both costs'
Student's own effort for tuition fees (TSELF), for living costs (LSELF)	a. Part-time job b. Own savings	Dichotomous 0 'if none of these methods' 1 'if any of these methods' And in percentage.
Student's own effort for pay both costs (SELF)	a. Paying for tuition fees b. Paying for living costs	0 'if none' 1 'if pay for one of the costs' 2 'if pay for both costs'
Student loan for tuition fees (TLOAN), for living costs (LLOAN), for both (STLOAN)	You have taken student loan	Dichotomous 0 'if none of these methods' 1 'if any of these methods' And in percentage.

In higher education institutions in China, students pay a large amount of tuition and fees at the beginning of each academic year while receiving their living and travelling expenses from their family or other sources on a monthly or semester basis. Often, the amount paid to the university consists of some fees indirectly linked to instruction and study (e.g. insurance fee, fees for water and electricity), while some extra money from their monthly living cost is used for study purposes (e.g. buying books, going to internet cafes, excursions etc). As mentioned in Chapter 2, following the definition of UNESCO-UIS/OECD

(2003) and the Chinese social particularity, *Total private cost* counts all direct (real) costs borne by students and their families for study and living on campus each academic year. Thus, the *Total private cost* for one year includes tuition and other fees paid to the university, and monthly costs multiplied by 10 (i.e. 10 months) for living on campus, and transportation (travelling) expenses during school holidays (two semesters per year).

Financial resource includes income from family, financial assistance, money borrowed from other people and/or a bank, part-time jobs taken by students and their own savings. Student loans are considered separately from financial assistance because the student loan programme was only introduced as one of the major external financing resources for the students in need at the end of 1999.

All the data on costs are calculated on a yearly basis in Chinese currency. The missing data of the various costs (ranges from 1-10%) are reported in the analysis results rather than imputed for several reasons[19].

The data on finances are in two different sets, i.e. financing of tuition fees and financing of living costs. There are 16 categories of financing resources in the questionnaire for the students to select from (see Annex 2). The proportion of each unique resource category covering either tuition fees or living costs is obtained from the questionnaire as a percentage as well. All the observed variables in Table 6.6 will be used in the data analysis presented in Chapter 8.

Variables that measure students' attitudes and career aspirations are introduced in the next subsection.

6.6.4 Variables and measures of students' attitudes and future career aspirations

Following the demographic and socio-economic background questions, in the questionnaire, there are seven questions assessing students' attitudes towards higher education, their choice of higher education, their future career plans and the current student loan programme. "Aspirations and expectations, as measured and analysed in the social psychological literature, are forms of attitudes" (Saha 1998).

The first question (question No. 19 in the questionnaire, see Annex 2) asks respondents to look back to their original attitudes (or aspirations) toward higher education: 'Why do you go to college?' This question contains seven items which aim to measure, to some extent corresponding to task value

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[19] For example, some students have noted in the questionnaire that they received exemptions for tuition fees, and/or they decided not to buy insurances, and some shared books with others, etc.

components defined by Eccles *et al.* (1983), different aspects of motivation for attending higher education such as interest (liking or enjoying education), utility (usefulness, money, status and career), attainment (personal importance or meaningfulness), and cost (parental and/or peer pressure). Nevertheless, it was decided not to follow the 'Value of Education Scale (VOE)' proposed by Eccles *et al.* (1983) due to the specific characteristics of the Chinese society. At the same time, it was determined that interest and attainment tend to load together for the same factor (Battle and Wigfield 2003) when assessing students' career aspiration in a time frame. To be relevant and clear, three dimensions of students' aspiration measurement are applied to the present study, namely intrinsic-attainment, utility and pressure.

The second question (No. 20) asks respondents whether or not the universities they are enrolled in now are their first-choice schools. Following this question, six items are listed for the students to identify the reasons if they are not in their first-choice universities (if they are not in the first choice).

The third question (No. 21) asks respondents to state the reasons why they have chosen to attend these universities. Nine items for the students to select their answers intend to confirm the reasons behind students' choice of certain universities.

The questionnaire gives respondents a space between the questions to address their early intentions, experience of attending higher education and explores their future career aspirations. In this space between the past and future plans, respondents have to answer several detailed questions about the costs of their studies and living on campus, and how their studies are financed. Those questions about costs and finances are put here to create some 'virtual pressure' on the students before they arrive at the questions about their future. This arrangement is to get a rather rational expectation or future plan from a realistic thoughtful mind with all the costs and financing situation considered (see No. 22, 23, 24 and 25 in the Questionnaire in Annex 2).

Concerning their future career, the respondents are asked to first indicate which sector they expected to work in after graduation. The response options correspond to categories similar to their parents' working sectors (see No. 4 and 26), followed by a question (No.27) asking: 'What are the most important things for you to choose your future job (or career) upon your graduation?' The response categories are nine items, seven of which are in forced-choice format.

An additional question (No.28) asks students which method they prefer if they have to borrow for their higher education, followed by a question (No.29) with eight items to assess students' attitudes towards the current student loan programme. This question is just an attempt to contribute to the understanding of the new ongoing student loan programme, its good and bad aspects from the

students' perspective. Its findings are reported in Chapter 8 when students' costs and finances are analysed.

All attitudes items were answered on 1-7 point Likert scales, with '1' denoting 'strongly disagree' and '7' 'strongly agree'. Chapter 9 reports all the attitudes of the students, and completes the structural model that links all the constructs measured in the study.

6.7 Conclusion

Southwest China is chosen as the data site of this study, partly because Southwest China is like a microcosm of present-day China in terms of social, economic and educational dimensions. The data collection for the study was based on a carefully designed and pilot-tested questionnaire survey in selected public universities.

Based on the conceptual framework presented in Chapter 2, Figure 6.1 shown an operational model for the data analysis with hypothesised links among the variables. Statistical methods, such as basic descriptive data analysis, factor analysis and structural relationship modelling are utilised in the process of data analysis.

Taking into account validity and reliability, coding strategies and approaches are rather carefully discussed in subsections of this chapter. The choices of variables such as working sector and occupational status etc. are made after a realistic consideration of the special Chinese political, social, economic and historical context. Both Chinese and English literature on the measurement of socio-economic variables in studies of China is rather scarce. Therefore it is noticeable that the references in this study are mostly from Western studies. This is also the main reason why this chapter presents all variables and measures in such a detailed manner.

The next three chapters focus on data analysis and empirical findings following the steps presented in Figure 6.1. Chapter 7 deals with socio-economic background of the students, Chapter 8 investigates the costs and finances of their studies, and Chapter 9 examines students' attitudes and career aspirations.

Chapter Seven:

Students' Socio-economic Background in Higher Education in Southwest China

7.1 Introduction

This chapter examines the socio-economic background of higher education students in Southwest China, i.e. Stage I data analysis as proposed in Chapter 6 (see Figure 6.1). Specifically, different dimensions of socio-economic background are considered and tested empirically. In addition, the relationships between different socio-economic components and whether students are enrolled in elite or non-elite institutions are investigated using path analytical techniques.

7.2 Analysis plan

The approach used to analyse the socio-economic background of higher education students in the Chinese context follows three steps as described below.

First, sample data that describe student characteristics are compared with population estimates from both the Southwest region and the whole country. The student characteristics considered include home socio-economic variables such as parental educational attainment, parental occupational status, family income, and family size; and community variables such as geographic location, educational facilities, and gender. The purpose is to identify any systematic characteristics of those who are more likely to attend higher education. Second, building from theory and previous research, exploratory factor analysis is used to identify variables that measure different components of socio-economic status. A measurement model is then developed using confirmatory factor analysis. The third step links students' socio-economic background with their enrolments in elite or non-elite universities, using linear structural relations analysis.

Figure 7.1 presents a hypothesised conceptual model linking students' socio-economic background with their access to elite universities. Four variables relating to students' socio-economic background are hypothesised to have an influence on whether students are enrolled in elite or non-elite universities.

Together these four variables capture a comprehensive picture of students' socio-economic background: home social status; home economic status; community socio-economic environment and home environment. Gender and ethnicity are also included in the analysis as control variables.
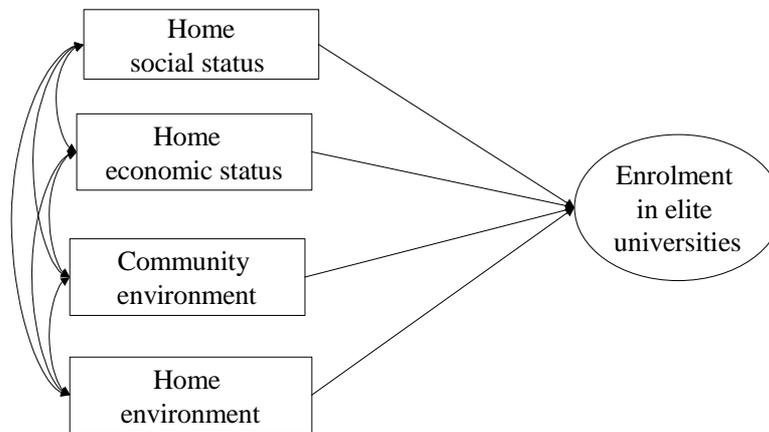
Figure 7.1 Path diagram for a hypothesised conceptual model linking students' socio-economic background with their access to elite universities

7.3 Results

This section reports the results of the analysis in four subsections. Following the analysis plan mentioned earlier, the subsections are organised around specific questions related to the issues of access, equality, measuring socio-economic status and relationships between students' socio-economic background and their enrolments in elite or non-elite universities.

7.3.1 Who has access to higher education in Southwest China?

Among the sampled students, 90 per cent of them were born between 1981 and 1983. All higher education students belong to the 10.2 per cent of their age cohort who have made it to the tertiary education level, and the 6.5 per cent who have made it to Bachelor' degree programmes in the Chinese higher education system (see Table 7.1).

Table 7.1 School careers of those born between 1981 and 1983 in China

School career	New entrants (10,000s)*	Survival rate of the age group (%)**
Primary school entrants 1987-89	2123.1	97.3
Junior secondary entrants 1993-95	1643.9	77.4
Senior secondary entrants 1996-98	722.4	34.0
Higher education entrants 1999-2001	216.3	10.2
Bachelor's degree programme entrants 2001	138.2	6.5

Source: NSBC (2002).
Note: *Admission numbers are the average of the years concerned. **The survival rate for primary school entrance is calculated as an average of official figures whereas the other three are calculated relative to the first number.

Most students come from nuclear families, i.e. family members are only parents and children. Only 13 per cent of the students are from extended families (i.e. three and more generations living in the same house) while 19 per cent of total households in the country are extended families. Among students, 5.1 per cent live with a single parent and 1.3 per cent do not live with parents. About 47 per cent of the respondents are single children. Families are grouped into three categories in Figure 7.2, i.e. single child, with older siblings and with younger siblings.

32.4

46.6

21.0

☐ with younger siblings
■ with older siblings
☐ single child
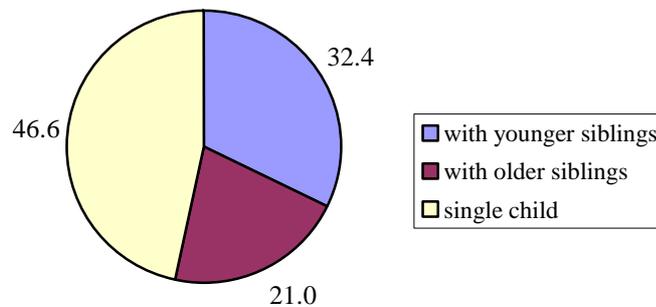
Figure 7.2 Family size

Table 7.2 provides a comparison of educational attainment at the national, regional and individual sample level. Only 3.6 per cent of the national population (above the age of six) have higher education versus 23.5 per cent of

the parents of the respondents sampled. Moreover, while 12 per cent of the population's highest level of completed education is secondary education, 36.6 per cent in the sample group (i.e. parents of higher education students) are secondary graduates.

Table 7.2 Parental educational attainment of the sample compared with the nation and region (percentages)

Education attainment	The nation total*	South-west region*	Father	Mother	Parents**
Less than primary	9.5	15.7	9.8	20.3	8.2
Complete primary	38.2	48.4	9.4	10.0	7.0
Some secondary	36.5	26.2	26.7	27.3	24.8
Complete secondary	12	7.3	30.6	32.4	36.6
Higher education	3.8	2.4	23.5	9.9	23.5
Total	100	100	100	100	100

Source: Data of the nation total are from NSBC (2002). Data for the Southwest region are the calculated averages of Sichuan, Guizhou and Yunnan (2001).
Note: * Population above age 6. **Combination of father's and mother's education taking the higher one of the two.

The contrast becomes even more striking when comparing the sample by region. For example, 60 per cent of parents of students in higher education have completed upper secondary or higher education compared with only 9.7 per cent of the entire population, over the age of six, in Southwest China. It is clear that the majority of the student group come from a small group of well-educated families in the country, and this effect is even more pronounced in the region.

It is worth noting that 40 per cent of urban residents in the country had a yearly disposable income below the national urban average level (6,860 Yuan in 2001) and more than half of rural residents had a lower yearly income than the national rural average (2,234 Yuan). Moreover, the average income levels both for urban and rural are lower in Southwest China than those of the national average.

Table 7.3 provides a comparison of annual income per capita of the urban and the rural residents of the country with that of the sample. The table shows that there is a strong representation of well-off children in the student group. For example, 73 per cent of the students' families have two income earners, over half of the students' parents earn an income above the national average for urban residents and 41.2 per cent of the students' parents have income in the top two deciles of the population.

Table 7.3 Comparison of income groups by rural/urban classification and the sample, 2001 (per capita annual)

National urban residents		National rural residents		The sample	
Percentile	Income (Yuan)	Income (Yuan)	Percentage	Income (Yuan)	Percentage
1st 5%	2465	Below 2500	62.1	Below 2500	17.5
1st decile	2803	2500-3000	10.3	2500-2999	3.3
2nd decile	3856	3000-4000	12.5	3000-3999	6.8
2nd quintile	4947	4000-5000	6.2	4000-4999	5.4
3rd quintile	6366	Above 5000	8.9	5000-6999	13.8
4th quintile	8164			7000-9999	12
9th decile	10375			10000-14999	20.2
10th decile	15115			15000 above	21
Total			100		100

Source: NSBC (2002: 325 and 343). Questionnaire survey (December 2002). Both sources count incomes for the year 2001.

Note: Income of the sample counts parental yearly income plus additional income from other resources in the family. The income of the sample in this table is the total family income divided by number of income earners in the family.

7.3.2 Inequalities within the student group

China is still basically an agrarian country where roughly 60 per cent of the population live in rural areas. In this study, rural students make up only 33 per cent of the sample. This is consistent with other findings by Li and Min (2001) that 80 per cent of the students studying in the universities in Beijing are urban children.
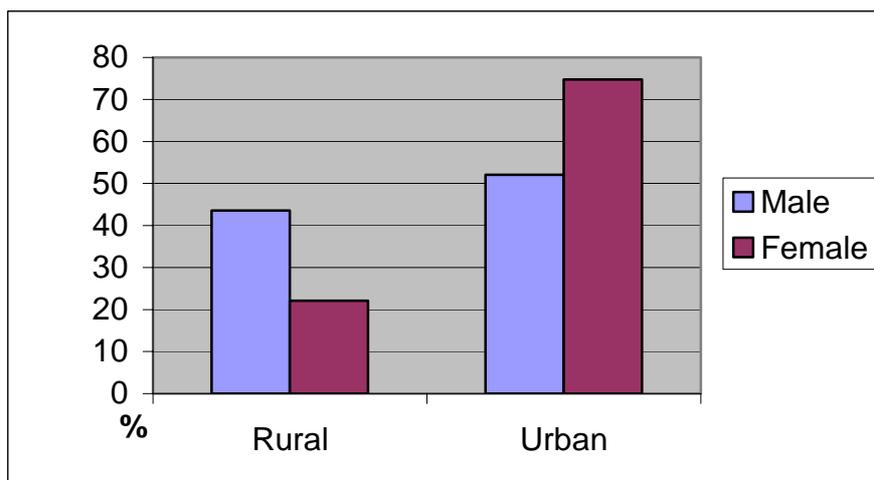
Figure 7.3 Gender distribution by rural/urban origin (per cent)

The disparity between rural and urban students is also visible vis-à-vis gender. As shown in Figure 7.3, girls from rural areas make up only 22 per cent of the female students in the sample while boys from rural areas represent 44 per cent of the male students. This implies that the boys' access to higher education is less influenced by their geographic origins than that of girls. This fact coincides with Li and Tsang's (2002) findings that parents tend to have higher educational expectations for boys than for girls in rural China, and that girls are often deprived of their education opportunities when the family is in economic hardship.

Parental educational attainment also contributes to the inequality of access between rural and urban students. In Table 7.4, urban parents tend to have higher levels of education attainment than rural parents in general. Mothers tend to have less education than fathers in both rural and urban areas but rural mothers are the most poorly educated group of all.

Table 7.4 Rural /urban distributions by parental education (row per cent)

Father's educational attainment							
	Less than primary	Complete primary	Some secondary	Complete secondary	Non-degree tertiary	Degrees	Total N
Rural	25.1	17.0	35.2	21.7	0.5	0.5	383
Urban	4.8	5.2	22.3	34.1	10.8	22.8	712
Total N	132	107	304	348	82	146	1137
Mother's educational attainment							
Rural	48.2	16.8	25.8	8.7	0.3	0.3	380
Urban	5.6	6.4	28.0	44.6	5.5	9.9	715
Total N	231	114	311	369	40	72	1137

Note: Non-response rate for rural/urban: 3.8%.

Using parental annual income obtained from the questionnaire, and after imputing the missing values, respondents are grouped into ten deciles of family income, with 10 per cent in each decile. Table 7.5 shows a summary of some of the students' social characteristics within the three lowest income groups and the three highest income groups. Urban students tend to be in the higher income categories while the rural students are predominantly represented in the lowest income categories. Approximately 72 per cent of the rural students are in the lowest three income deciles, while only 10 per cent of them appear in the highest three income deciles. In addition, the parents in the lowest three income deciles very often work in non-skilled occupations. The majority of single children are in the highest income groups.

Table 7.5 Distributions of students in economic strata (percentage)

Income strata	Female	Rural	Father non-skilled	Mother non-skilled	Parent with higher education	Single child family
Lowest 30%	30	72	55	70	3.6	27
Highest 30%	58	10	4	10	43	70

Note: The 30% lowest income is just under the line of national average income level (4,613 Yuan) regardless of rural/urban difference, in which urban resident' income is 2-3 times higher than that of rural in year 2001.

Students of minority ethnicity represent 15.7 per cent in the sample though they account for only 5.7 per cent of higher education students nationally (China Education Yearbook 2002: 92). However, it is worth noting that the proportion of minority population in the region is 25.4 per cent. There are three "Nationality Academy" universities at this region (12 of them total in the country), which are specially established for minority students doing studies in their own language. In such universities, over 70 per cent are minority students while the maximum quota for Han students varies between 10 to 30 per cent.

The social economic background of the minority group in the sample is not very different from that of the other students. The general characteristics of the minority students are: 44.5 per cent of them are from rural areas; 45.6 per cent of them are female; and urban girls make up the majority within female minority students, etc[20].

7.3.3 Measuring socio-economic status in a Chinese higher education setting

Exploratory Factor Analysis techniques are applied to extract factors measuring socio-economic background for higher education students in a Chinese context. Family socio-economic variables such as parental educational attainments, parental occupations, home possessions and family income, and community variables such as home geographic location, rural/urban folk registration,

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[20] The minority students are not the focus of this study. Therefore this issue is simplified here. Nevertheless, Chinese minority education provokes debates and some studies (Trueba and Zou 1994) find positive state preferential policies for minority students in China, while others accuse the Chinese government of 'Hanifying' minority students (Kelly and Liu 1998; Hansen 1999) and providing inadequate support to develop higher education for minority students (Huang, J. 2000). Some interesting studies worth mentioning are: Hannum and Xie (1998) conducted a study about social stratification in China that treated minority status as an analytic variable; and Hannum (2002) conducted a study about minority educational stratification using census data.

neighbourhood educational facilities, proportions of youth going to college, and family size are used in the analysis.[21]

As this study intends to measure the comprehensive socio-economic background of the students in the Chinese universities measured by four hypothesised independent latent variables shown in Figure 7.1, Confirmatory Factor Analysis and dimensionality analysis have been carried out to obtain a measurement model. After taking into consideration the possible problems posed by multicollinearity (Campbell and Parker 1983; Leahy 2000; Grewal, Cote and Baumgartner 2004), an acceptable measurement model was developed with three dimensions of measuring the socio-economic background of the students.

The factor loadings, standard errors, and t-values of the latent variables of socio-economic background are presented in Figure 7.4. As expected from the hypothesised model in Figure 7.1, all the socio-economic background latent variables correlate with each other. The correlations between the latent variables are all below 0.80 point, after having dropped some indicators (Heise 1969; Parker and Smith 1984; Grewal, Cote and Baumgartner 2004) to avoid the possible problem of multicollinearity in the data. The correlations among the latent variables and fit statistics of the measurement model are reported in Table 7.6.

Table 7.6 The dimensionality and fit statistics of the measurement model for socio-economic background

Theoretical variable, ξ	ξ_1 (HSOC)	ξ_2 (HECO)	ξ_3 (COM)
ξ_1 Home social status (HSOC)			
	1.00		
ξ_2 Home economic status (HECO)	0.54	1.00	
	(0.03)		
	20.24		
ξ_3 Community environment (COM)	0.70	0.53	1.00
	(0.03)	(0.03)	
	25.92	17.11	

Note: Fit statistics: Chi-square: 6.63; df: 3; P-value: 0.085; RMSEA: 0.032; RMR: 0.011; GFI: 1.0; AGFI: 0.99.

An additional effort is made to confirm the measures of students' socio-economic status by Discriminant Analysis. A factor score is obtained by using Exploratory Factor Analysis with components of home social status, economic

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[21] See Table A3.2 in Annex 3 for correlation matrix of inputs in Exploratory Factor Analysis for socio-economic background.

status and community environment, i.e. parental educational attainments, family income and community variables. By categorising the factor scores into quintiles, a new variable is created, i.e. student's socio-economic status in five categories (or classes). A Discriminant Analysis is conducted to confirm if each case is correctly classified into the five socio-economic strata. 96.8 per cent of the cases are correctly classified with both 'enter independents together' and 'stepwise' methods. This confirms that in the Chinese context, education, occupation, home assets and income are the strongest indicators for student's home socio-economic status.

7.3.4 Model fit: the differential influences of socio-economic status on access

One-third of the sampled students study in MOE universities. As was discussed in Chapter 5, the MOE universities have better funding, better reputations and priority in recruiting students with the highest scores on the NCEE from all around the country. MOE universities also have less regional quota restrictions and they tend to charge higher tuition fees. Student ability is unknown in this study but their enrolment in MOE universities can be used as an indicator of high academic achievement. In the hypothesised model, MOE universities are called 'elite'.

The hypothesised model illustrated in Figure 7.1 is fitted to the data set. Following the standard procedure when fitting a model using linear structural relations (i.e. LISREL), all paths are initially open. Paths that are found to be insignificant at the five per cent level are then closed in an order that starts with the left most factors and proceeding to the other factors, i.e. in the order that the factors are placed in the sequencing of the model. For example, from ξs proceeding to ηs in the case shown in Figure 7.4.

Figure 7.4[22] is a graphical presentation of statistical model results from the LISREL approach for estimating effects of socio-economic background on student enrolment in elite universities. It is found that student socio-economic background does exert some effects on their enrolments in elite universities. Home economic status (ξ_1: 0.15) and community (ξ_1: 0.31) also positively influence the 'elite' students. This implies that students in elite universities have the advantage of being from a well-off community and having a good home economy. Although the model explains only 11 per cent of the variance of 'elite' students, the general structure of the hypothesised model fits well the data. Figure7.4 shows that RMR is below 0.05 and GFI and AGFI all exceed 0.90.

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[22] See Annex 4 for the LISREL input file for Figure 7.4.
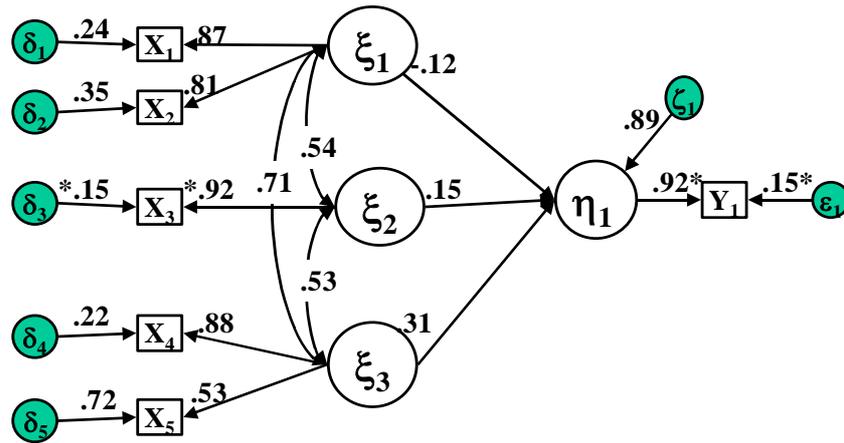
Figure 7.4 Parameter estimates in a model of socio-economic background effects on enrolment in elite universities [23]

Notes: Standardised maximum likelihood (ML) solution; Fit Statistics: Explained variance (R^2): 0.11; RMSEA: 0.025; Root mean square residual (RMR): 0.011; Goodness-of-fit index (GFI): 1.0; Adjusted Goodness-of-fit index (AGFI): 0.99; Chi-square (χ^2)=8.66; df=5; χ^2/df=1.73.

KEYS:

*   Indicates a fixed parameter
ξ Indicates a latent independent variable
η Indicates a latent dependent variable
X   Indicates an observed measure of latent independent variables
δ Indicates an error term on X
Y   Indicates an observed measure of latent dependent variables
ε Indicates an error term on Y
ζ Indicates an error term on η

ξ_1 Home social status (HSOC)
ξ_2 Home economic status (HECO)
ξ_3 Community environment (COM)
X_1 Father's occupation.
X_2 Father's educational attainment
X_3 Family income
X_4 Home geographic location
X_5 Home neighbourhood educational facilities
η_1 Enrolment in elite universities (ELITE)
Y_1 '1' if elite, '0' if non-elite

The results of the statistical analyses show that home social status, measured by father's educational attainment and occupation exerts a weakly negative effect (ξ_1: -0.12) on student academic achievement. This weak effect of home social status on enrolment in elite university needs to be understood within the Chinese social, economic and historical context. As mentioned previously in Chapter 4, during the special historical period of the Cultural Revolution (1966-1976), most of the talented youth lost their opportunities for senior secondary

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[23] The variable ξ and η are measured as latent constructs only when there is more than one observed measure available to indicate the theoretical variable. Where a construct is measured by a single indicator, the theoretical construct is assumed to be identical to the observed measure, and common practice is to set LX or LY at 1, thus assuming no measurement error. In this study, where single indicators occur they are fixed with a measurement error set at 0.15 points. The rationale for this choice is that any measure of social phenomena will arguably contain error.

and higher education while a fortunate few young people attended universities but received little real education. The implications from the statistical analyses and the historical background in this case is that educational attainments for this particular parents' generation may still be used as an indicator of social status in Chinese society today. However, this factor has temporarily lost its influential power.

Gender has no effect on 'elite' in all of the tests. The reason could be that male and female students are almost equally represented in the sample. Being Han seems to be an advantage but it is difficult to be certain since the minority students only represent 15 per cent of the sample.

7.4 Discussion of results

Urban students are over represented in the universities in question while their share in the population is the opposite. Rural students only accounting for 33 per cent of the sample and rural girls only account for one-third of the rural group and 22 per cent of the female students in the sample. This implies that being female in a rural area presents the most significant barrier to access to higher education in Southwest China.

Urban students tend to be more heavily weighted to the upper social strata than their rural counterparts, with better-educated parents in high skilled occupations and a better family economy. Among urban students, females are generally from even higher socio-economic strata, and the majority of them are from urban areas. Li and Tsang have called for caution in analysing gender inequality in rural China in a local social, economic and cultural context, as "gender inequality in education is a contributor to and a reflection of gender inequality in the larger society" (Li and Tsang 2002). Nonetheless, this study intends to look at the student group as a whole and male and female student are almost equally distributed in the sample. Therefore, the gender issue has not been highlighted here, though it deserves further investigation in the future studies.

The student group as a whole is mostly made up of high-income families, with over 40 per cent of them coming from families in the top 20 per cent, income wise, in the country. Moreover, 60 per cent of the students' parents belong to the top 16 per cent of people in China in terms of education level. It is obvious that this student group as a whole is from the higher socio-economic strata in the country, with a simple comparison of the group with the national population, although around 20 per cent of them still fall into the lowest socio-economic stratum.

Using Exploratory and Confirmative Factor Analysis, this chapter has estimated a measurement model of students' socio-economic background, with home social status measured by parental educational attainment, home economic status measured by family income, and community environment composed by home geographic location and neighbourhood educational facilities.

Using LISREL techniques, the hypothesised links between socio-economic background and student access to elite universities are tested. The statistical results confirm the significant influences of socio-economic background on student enrolment in elite and non-elite universities. The variance explained by the model is small (0.11). Still, caution must be exercised when concluding that socio-economic background plays only a small role in explaining student academic ability. This deserves further research, beyond the scope of this study. Nevertheless, the conventional assumptions made by previous research may still hold in this case, i.e. 'the long arm' of socio-economic origin does have an influence on student achievement as well as their access to higher education.

The next chapter examines the costs of studies and investigates how students and their families finance their studies.

Chapter Eight:

The Direct Private Costs and Financing of Higher Education in Southwest China

8.1 Introduction

This chapter measures the private costs of education and explores how students finance their studies in the Chinese universities investigated. In particular, different components of costs incurred and various financing methods used during their campus lives are examined. In the end, the relationships between costs and finances and socio-economic components are explored and tested using correlation analysis and path analysis techniques.

8.2 Analysis plan

The approach taken to analyse the direct private costs and financing of students' higher education follows a three-step plan, outlined below:

The first step describes the total direct costs students incur, their financial resources and ability to finance their studies, which are examined and discussed in detail.

In the second step, the relationships between the costs and finances of the students and their socio-economic background are explored, using a bivariate analysis technique.

The third step links socio-economic background, enrolment in elite or non-elite universities, with costs and finances using linear structural relations (LISREL) techniques.

Figure 8.1 presents a hypothesised conceptual model linking students' socio-economic background with their enrolment in elite universities, costs and financing of their studies. The socio-economic background variables measured and links with enrolment at elite universities hypothesised and tested in the previous chapter are kept constant in this model. Because the majority of students in Chinese higher education are in fact dependent on their family economically, the variation in utilising external financial resources such as financial assistance or borrowing money is examined in the model.

The arrow directed from 'enrolment in elite universities' to 'private cost' is an assumption arising from the observation that elite universities cost more. The arrow directed from 'enrolment in elite universities' to 'external finance' represents the hypothesis that students with higher academic achievement might have better access to external financial assistance. The arrow directed from 'private cost' to 'external finance' is a hypothesis that students having higher costs might need more financial resources than just the family.
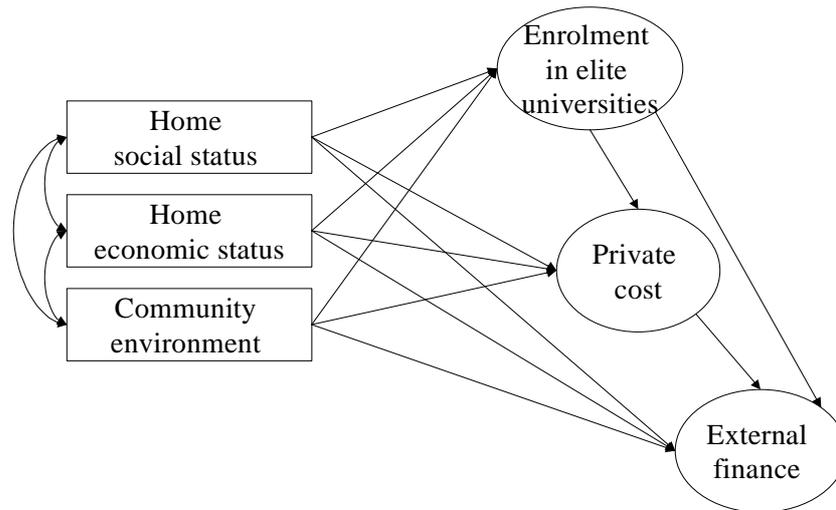
Figure 8.1 Path diagram for a hypothesised model of linking student's socio-economic background with enrolment in elite universities, private cost and external finance

8.3 Results

8.3.1 Counting the direct private costs of higher education

Table 8.1 presents a statistical description of various private costs incurred by higher education students. The differences between the highest and lowest costs are striking, with the highest costs being 100 times the lowest costs. The total mean cost in the Table is 9,219 Yuan (equivalent to US$ 4,904 PPP). Since the mean scores are often distorted by a few extreme high costs (Reynolds 2000), median and standard deviation values (s.d.) are also presented in the Table for reference.

Overall, the estimates of costs in this study show that the average total private cost of higher education in Southwest China is between 8,500-9,000 Yuan (about US$ 4,521-4,787 PPP) per academic year, which is only slightly lower than that in the other regions such as Beijing (Huang 2000; Li and Min 2001, 2003). Average tuition constitutes 35.9 per cent of the average total cost in this case. Finally, considerable differences in costs are also found between students in different provinces, different institutions, and different fields of study as well.

Table 8.1 Descriptive statistics of various counts of direct costs of the sample (Yuan)

	No of cases	Minimum	Maximum	Mean	Median	s.d.
Total cost	1153	600	42300	9219	8465	3930
Tuition fees	1139	100	36000	3307	2400	2086
Living budget	1149	300	15000	3918	4000	1686
Travel cost	1056	10	10000	765	400	1003
Study cost	1147	300	37000	4495	3750	2912
Living cost	1153	200	20765	4747	4400	2215

Note: Missing value: 0.

Table 8.2 provides a comparison of costs between the provinces. The estimates in Table 8.2 are consistent with known social and economic conditions in the various provinces. Although the average costs of higher education in this region are less than that in advanced regions, the Table indicates where it is less expensive to access higher education in Southwest China. Overall, 42.2 per cent of students (52.6 per cent of the rural students, 37.1 per cent of the urban group in the sample, and 84 per cent of those enrolled in Province 2 and 3) agreed that comparably lower cost is one of the reasons they chose their current university.

Table 8.2 Comparison of average costs in different provinces (Yuan)

Costs	The whole sample		Province 1		Province 2		Province 3	
	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.
Total cost	9219	3930	11726	4321	7984	3699	7912	2126
Tuition fees	3307	2086	4699	1726	2938	2565	2276	673
Living cost	3918	1686	4494	1828	3349	1597	3897	1414
Travel cost	765	1003	926	1072	640	1143	715	730

8.3.2 Who finances students?

The majority of families of students are involved in financing their higher education with 42 per cent of parents paying all the costs of their children's studies. Only a few students (seven cases or 0.7 per cent of the sample) receive total coverage of both study and living costs from other sources than their parents while 29 per cent of the students have to use other resources besides their parents for fully covering the costs of their studies and living on campus.

Table 8.3 summarises the financing resources of the student group. To pay upfront tuition fees, 93.4 per cent of students received total or partial support from families (mainly parents); 12.6 per cent of students and/or their families have borrowed money; 12.9 per cent have received some kind of financial assistance (including student loans) either from society or from their host universities; and 6.1 per cent have relied on part-time job incomes and/or their own savings to make ends meet.

Table 8.3 Proportions of each financing resource utilised to pay for different costs (percentage)

Sources	Tuition fees	Living costs	For both costs	N of cases
Family	93.4	98.3	91.1	97.7
Borrowed money	12.6	7.1	6.4	14.5
Financial assistance	12.9	21.3	15.1	32.5
Self working and/or saving	6.1	17.9	5.7	20.6

To pay for the living costs of the students, 98.3 per cent of the parents together with other family members, are involved in financing this cost; 7.1 per cent of students and their families have borrowed money; 21.3 per cent of them used some kind of financial assistance from society or their host universities; and 17.9 per cent partially supplement their living costs with part-time jobs or savings.

In covering both study and living costs, 6.4 per cent of the students and their families have borrowed money; 15.1 per cent of them have received financial assistance; and 5.7 per cent have made efforts to share costs through working or savings.

As a whole, 14.5 per cent of students and their families have borrowed money, 32.5 per cent have received some financial assistance and 20.6 per cent have relied on part-time work or savings to contribute to financing their education.

8.3.3 How do different resources finance students' higher education costs?

Family is the biggest source of financing higher education students in Southwest China, which often covers 90 per cent of the total costs. The second biggest resource is external financial assistance, of which student loans constitute more than 80 per cent of the funds to finance tuition fees and roughly 29 per cent of living costs. Table 8.4 sums up how different resources cover study and living costs of students.

As is shown in the table, more financial assistance resources are available to support student living costs than tuition payments. The resources of external financial assistance other than student loans tend to be very modest and come mainly from the host university[24]. Apparently, more students borrow or take student loans for the upfront payment of tuition fees. The amount of student loans is regulated in a way that students can take a loan either to cover tuition fees or their living costs but not both[25]. Approximately 10 per cent of the students have taken a student loan. The table also shows that students make more contributions to supplement their living costs, through part-time jobs or savings (see Table 8.4).

Table 8.4 Proportions of costs covered by different financing sources (percentage)

	Finance tuition fees					Finance living costs				
	Family	Borrow	Assist.	Self	Loan	Family	Borrow	Assist	Self	Loan
N of cases	93.4	12.6	12.9	6.1	10.4	98.3	7.1	21.3	17.9	6.3
Mean	89.8	44.1	16.3	9.8	73.4	90.1	33.5	13.3	14.0	54.8
Median	100	40.0	10.0	5.0	79.0	100	20.0	10.0	10.0	50.0
Mode	100	20.0	10.0	10.0	100	100	10.0	10.0	10.0	50.0
Minimum	3.0	2.0	0.01	0.1	2.0	1.0	1.0	0.01	0.10	2.0
Maximum	100	100	100	70.0	100	100	100	100	100	100

Note: Number of valid cases for Finance tuition fees is 1090. Number of valid cases for Finance living costs is 1087.

8.3.4 Student loans

Student attitudes towards the student loan programme are presented in Table 8.5. The responses are generally positive toward the current student loan programme, although many students report problems associated with

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[24] Only two cases received full coverage for tuition fees from home community financial assistance, another two cases received assistance from their host universities to cover living costs fully.

[25] Three students in the sample managed to cover both tuition fees and living costs completely with student loans because their tuition fees were among the lowest and they kept their living costs to the minimum.

accessibility and procedures of the programme. Students exhibit confidence in their ability to repay loans in the future but they are neutral on the potential pressure associated with debts. This indicates a change in the traditionally negative attitude in China towards debt as students generally disagree with the statement that 'taking loan is embarrassing'.

Only 10 per cent of the students have taken student loans while 62 per cent of them wish to take student loans. Most loan takers are from comparatively less disadvantaged socio-economic backgrounds. Nevertheless, the preference for taking a student loan is significantly but negatively correlated with students' socio-economic background variables although the correlations are weaker than those for loan takers (see Table 8.7, the last two columns). Many students have added comments at the end of the questionnaire indicating that they would like policy makers to have an open mind to expanding the availability of student loans to a wider range of people, and to trust students to pay back their loans on time.

Table 8.5 Students' attitudes towards the current student loan programme

Response/attitudes	Mean
The student loan programme is for the good of students in need	5.7
You believe in having the capacity to pay back the loan within the repayment period	5.2
Low interest, convenient	5.4
Student loan procedure is too complicated	5.3
It is too difficult to get a student loan from the bank	5.1
There is a lack of information about the regulations and criteria for taking students loans	4.9
Loans create pressure on students	4.0
Taking a loan is embarrassing	2.3

Note: non-response rate 2.9%.

8.3.5 Correlations between students' socio-economic background and their costs and finances

Using bivariate analysis techniques, statistically significant positive correlations are found between students' socio-economic background variables and costs. Table 8.6 shows that socio-economic background variables are rather strongly positively correlated with total costs and especially with costs of living. This coincides with Li and Min's (2003) findings. In their study of institutions in Beijing they find that students from higher social strata, with better-educated parents and a good family economy tend to spend more and have better economic conditions in universities. The cost of studying is not as strongly

correlated with socio-economic background as cost of living. This is mainly due to that the fact that tuition fees are generally fixed costs that apply to all students regardless of their socio-economic background. However, in reality different programmes have different fees and students with more resources tend to spend more on items related to their studies.

Table 8.6 Correlations of costs with socio-economic background variables

Socio-economic background variables	Total cost	Living cost	Study cost
Father's educational attainment	0.41	0.40	0.24
Mother's educational attainment	0.41	0.41	0.25
Father's occupational status	0.40	0.44	0.20
Mother's occupational status	0.40	0.44	0.20
Family size	0.28	0.24	0.20
Home assets	0.50	0.56	0.22
Family income	0.54	0.61	0.25
Rural/urban registration	0.40	0.41	0.21
Home geographic location	0.44	0.43	0.28
Home neighbourhood educational facilities	0.32	0.34	0.17
Neighbourhood's youth going to college	0.35	0.37	0.20

Note: All significant at the 0.01 level (2-tailed).

Table 8.7, which explores total cost of higher education students, reveals that having family as a financing resource is positively correlated with socio-economic background. All other financing sources are negatively correlated with all socio-economic variables. This implies that students from higher socio-economic strata are less likely to borrow money or need external financial assistance. The comparatively small contributions made by students' part-time jobs and savings to their education costs show very minor negative correlations with their socio-economic backgrounds.

Table 8.8 offers an insight into how financing resources are organised and applied by the students and their families. First, the estimates show that those who have borrowed money or received financial assistance are not the ones with high costs. Those with high costs seem to be supported only by family resources since there is a positive correlation between total cost and financial resources.

Second, family resources are negatively correlated with all other financial resources such as borrowing and financial assistance. This implies that strong family support prevents borrowing and external assistance. Apparently Chinese traditional values against debts are still visible in this case as students' families try to avoid borrowing as long as they can manage.

Table 8.7 Correlations of financing resources with socio-economic variables

Socio-economic background variables	Borrow	Assist	Self	Family	Student loan	Loan preference
Father's educational attainment	-0.21	-0.21	-0.08*	0.15	-0.24	-0.10
Mother's educational attainment	-0.24	-0.25	(-0.04)	0.17	-0.31	-0.12
Father's occupational status	-0.24	-0.29	-0.09	0.16	-0.32	-0.09
Mother's occupational status	-0.25	-0.24	-0.08	0.19	-0.31	-0.10
Family size	-0.18	-0.20	-0.03	0.12	-0.21	-0.15
Home assets	-0.37	-0.36	(-0.05)	0.19	-0.36	-0.14
Family income	-0.34	-0.32	-0.06*	0.23	-0.35	-0.12
Rural/urban registration	-0.32	-0.32	-0.09	0.18	-0.34	-0.11
Home geographic location	-0.30	-0.31	-0.09	0.16	-0.30	-0.10
Home neighbourhood educational facilities	-0.24	-0.22	-0.07*	0.15	-0.22	-0.13
Neighbourhood's youth going to college	-0.25	-0.25	(-0.02)	0.15	-0.21	(-0.04)

Note: All estimates are significant at the 0.01 level (2-tailed). * Significant at the 0.05 level (2-tailed). The ones in parentheses are not significant.

Third, Table 8.8 also shows that resources other than the family are organised in a consistent manner since they are rather moderately positively correlated with each other. This means that students in financial need, together with their families, have made efforts to organise resources to finance their studies. Further, this implies that the students who received some financial assistance are the ones in need, although the amounts are often limited.

Table 8.8 Correlations of total cost with financing resources

	Total cost	Student loan	Borrow	Assist	Self	Family
Total cost	1.00					
Student loan	-0.27	1.00				
Borrow	-0.21	0.07*	1.00			
Assist	-0.27	0.50	0.21	1.00		
Self	(0.01)	0.17	0.18	0.25	1.00	
Family	0.20	-0.37	-0.10	-0.21	(-0.02)	1.00

Note: All correlations are significant at the 0.01 level (2-tailed). *Significant at the 0.05 level (2-tailed). The ones in parentheses are not significant.

8.3.6 Model fit: the differential influences of socio-economic background, enrolment in elite universities, costs and finances

Six different statistical models are tested against the data set to observe the hypothesised associations indicated in Figure 8.1. Socio-economic background constructs and their links to enrolment in elite universities, built and tested in a previous chapter (Chapter 7), are consistent; the construct of costs includes options for study cost, living cost and total cost; and there are two options for external financing, i.e. financial assistance (a construct of financial assistance for tuition fees and living cost) and one for borrowing (a construct of borrowings occurred for tuition fees and living cost).

As with the procedure applied in Chapter 7, all paths in the model are initially left open. Then paths that are not statistically significant at the five per cent level are fixed and closed. The parameter estimates and variances explained by the tested models linking socio-economic background of higher education students with costs and finances are presented in Table 8.9 and 8.10.

Table 8.9 shows that socio-economic background has a positive effect on all costs generally. Home social status (ξ_1) exerts a moderately positive effect on all costs (η_{2a}: 0.31, η_{2b}: 0.25, η_{2c}: 0.28). Home economic status (ξ_2) has a strong positive effect on living spending (η_{2b}: 0.36) but no effect on study cost. This implies that well-educated parents encourage more spending on education generally while a good family economy supports affluent living on campus. Community (ξ_3) has no effect on costs.

The estimates in Table 8.9 show that socio-economic background has a rather limited influence on students' access to financial assistance. Home social status (ξ_1) and home economic status (ξ_2) have no effect on access to external financial assistance. Community (ξ_3) has strong negative effects on financial assistance (η_3: -0.33, -0.31, -0.23). This coincides with what the researcher observed on field trips – most financial assistance programmes in the universities conveniently target students from rural and poor areas.

Finally, as is shown in Table 8.9, enrolment in elite universities (η_1) has positive effects on costs, i.e. strongly on study cost (η_{2b}: 0.43) and weakly on living cost (η_{2c}: 0.13) but helps 'elite' students little in accessing financial assistance (η_3: 0.09). Ultimately high costs, especially high living costs (η_{2c}) have a moderately negative effect on students' access to financial assistance (η_3: -0.24).

Table 8.9 The independent (gamma) and dependent (beta) standardised maximum likelihood regression weights with their standard errors and *t*-values in three models of costs and financial assistance

	Model A (Total cost as η_2)		Model B (Study cost as η_2)		Model C (Living cost as η_2)	
	η_{2a}	η_3	η_{2b}	η_3	η_{2c}	η_3
ξ_1	0.31 (0.04) 8.38	---	0.25 (0.03) 7.87	---	0.28 (0.04) 7.48	---
ξ_2	0.15 (0.04) 3.94	---	---	-0.09 (0.04) -2.10	0.36 (0.04) 9.51	---
ξ_3	---	-0.33 (0.04) -7.48	---	-0.31 (0.05) -6.66	---	-0.23 (0.04) -6.08
η_1	0.43 (0.03) 14.51	0.09 (0.04) 2.23	0.46 (0.03) 14.79	---	0.13 (0.03) 3.34	---
η_{2a}		-0.13 (0.05) -2.94				
η_{2b}				---		
η_{2c}						-0.24 (0.04) -6.53
R^2	0.43	0.14	0.31	0.14	0.37	0.15
Fit statistics	RMR: 0.017; GFI: 0.99 AGFI:0.98; χ^2/df=2.63		RMR: 0.016; GFI: 0.99 AGFI: 0.98; χ^2/df=2.25		RMR: 0.021; GFI: 0.99 AGFI: 0.97; χ^2/df=3.08	

Note: --- indicates parameter not statistically significant and is closed.
KEYS:
ξ_1 Home social status (HSOC) η_1 Enrolled in elite universities (ELITE)
ξ_2 Family economic status (HECO) η_2 Cost: (a) Total cost; (b) Study cost; (c) Living cost
ξ_3 Community environment (COM) η_3 Financial assistance (ASSIST)

Table 8.10 shows the parameter estimates and variances explained in three tested models on costs and another external financing resource, i.e. borrowing money for education. All the latent variables in the tests in Table 8.9 are held constant except that η3 is changed from financial assistance into borrowing (a construct of occurred borrowing to pay for tuition fees and living cost). All estimates on costs (η_{2a}, η_{2b}, η_{2c}) presented in Table 8.10 are consistent with those in Table 8.9.

Table 8.10 shows that compared to financial assistance, borrowing is much more strongly influenced by socio-economic background. Home social

status (ξ_1) has a weakly positive effect on borrowing (η_3: 0.18) for living cost. Home economic status (ξ_2) has a moderately negative effect on borrowing (η_3: -0.25, -0.25, -0.14). Community (ξ_3) exerts strong negative effects on borrowing (η_3: -0.52, -0.56, -0.58). The foremost implication from these results is that borrowing occurred mostly among students from economically disadvantaged families and communities.

Table 8.10 The independent (gamma) and dependent (beta) standardised maximum likelihood regression weights with their standard errors and *t* values in three models of costs and borrowing money for education

	Model A (Total cost as η_2)		Model B (Study cost as η_2)		Model C (Living cost as η_2)	
	η_{2a}	η_3	η_{2b}	η_3	η_{2c}	η_3
ξ_1	0.31 (0.04) 8.28	---	0.25 (0.03) 7.87	---	0.28 (0.04) 7.49	0.18 (0.06) 3.11
ξ_2	0.15 (0.04) 4.01	-0.25 (0.04) -6.88	---	-0.25 (0.04) -6.82	0.36 (0.04) 9.49	-0.14 (0.04) -3.59
ξ_3	---	-0.52 (0.04) -13.40	---	-0.56 (0.04) -13.95	---	-0.58 (0.06) -9.07
η_1	0.43 (0.03) 14.37	0.15 (0.03) 5.21	0.46 (0.03) 14.79	0.08 (0.04) 2.65	0.14 (0.03) 4.42	0.22 (0.03) 7.41
η_{2a}		---				
η_{2b}				0.14 (0.03) 4.26		
η_{2c}						-0.35 (0.04) -10.01
R^2	0.43	0.42	0.31	0.45	0.37	0.51
Fit statistics	RMR: 0.027; GFI: 0.96 AGFI: 0.91; χ^2/df=10.25		RMR: 0.024; GFI: 0.96 AGFI: 0.91; χ^2/df=10.49		RMR: 0.027; GFI: 0.97 AGFI: 0.90; χ^2/df=11.81	

Note: --- indicates parameter not statistically significant and is closed.
KEYS:
ξ_1 Home social status (HSOC) η_1 Enrolled in elite universities (ELITE)
ξ_2 Family economic status (HECO) η_2 Cost. (a) Total cost; (b) Study cost; (c) Living cost
ξ_3 Community environment (COM) η_3 Borrowing money (BORROW)

Enrolment in elite universities (η_1) offers very different outcomes vis-à-vis financing the costs of higher education students. As it is shown in Table 8.9,

'elite' students have a modest advantage in obtaining financial assistance. Meanwhile, in Table 8.10, enrolment in elite universities (η_1) has a weakly positive influence on borrowing (η_3: 0.15, 0.08, 0.22). Study cost (η_{2b}) has a weakly positive effect on borrowing (η_3: 0.14) while living cost (η_{2c}) has a strong negative effect (-0.35).

The variances explained (R^2s in Table 8.9 and Table 8.10) by the model are rather substantial. The results in Table 8.9 and Table 8.10 show that the model has explained 31 per cent of study cost, 37 per cent of living cost, 43 per cent of total cost, about 14 per cent of external financial assistance, and more than 40 per cent of the variance in borrowing. All the fit statistics presented in Table 8.9 and Table 8.10 indicate that the model fits the data well.

a: Total cost and financial assistance   b: Total cost and borrowing money
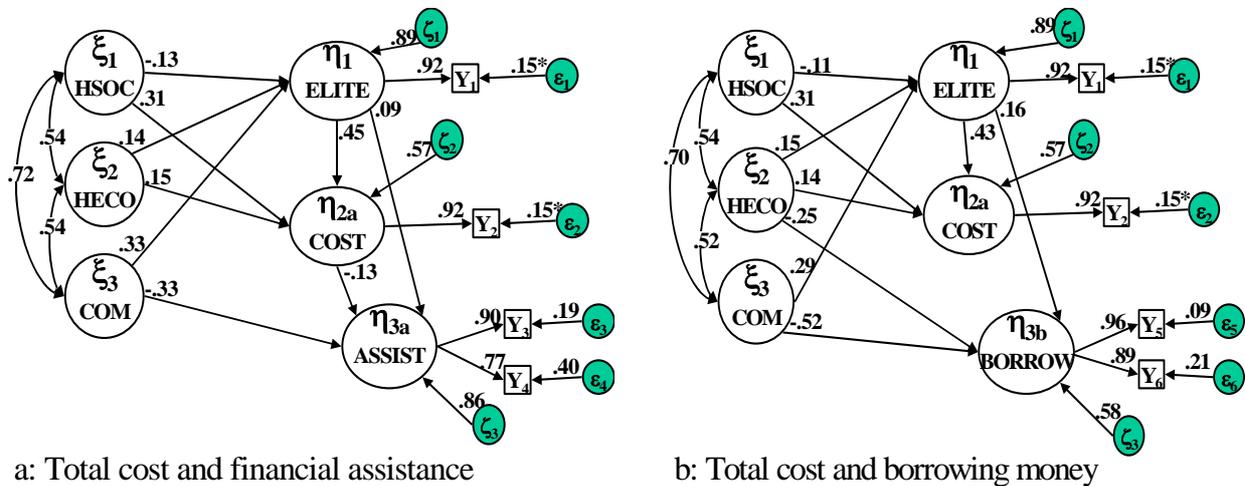
Figure 8.2 Parameter estimates in a model of socio-economic background effects on enrolment in elite universities, total cost of studies and, financial assistance (a) and borrowing for education (b)

Notes: (1) ML solution. (2) Structural paths not statistically significant are set to zero and not presented in the Figure. (3) Full ML solution with t-values, and fit statistics are provided in Table 8,8 and Table 8.9 model A.

KEYS:

* Indicates a fixed parameter	η_1 Enrolled in elite universities (ELITE)
ξ Indicates a latent independent variable	Y_1 '1' if elite, '0' if non-elite
η Indicates a latent dependent variable	η_2 Total costs of student's higher education (COST)
Y Indicates an observed measure of latent dependent variables	Y_2 Total costs of one year study and live on campus
	η_{3a} Financial assistance (ASSIST)
ε Indicates an error term on Y	Y_3 Assistance for tuition fees
ζ Indicates an error term on η	Y_4 Assistance for living cost
ξ_1 Home social status (HSOC)	η_{3b} Borrowing for education (BORROW)
ξ_2 Family economic status (HECO)	Y_5 Borrow for tuition fees
ξ_3 Community environment (COM)	Y_6 Borrow for living cost

Figure 8.2[26] is a graphical presentation of Model A in both Table 8.9 and Table 8.10, i.e. it shows the estimates of linking socio-economic background with enrolment in elite universities, total cost and, financial assistance and borrowing for education.

8.4 Discussion of results

The average total private cost of one year on campus for higher education students estimated in this study (i.e. about 9000 Yuan) is slightly lower than the estimates made by Li and Min (2001, 2003) in the eastern region of China. Tuition fees constitute about 36 per cent of total cost on average. Costs vary greatly among students and differences are found between universities and provinces as well. Although the state and universities claim standardised tuition charges for all students, the evidence from this study and others (Seeberg 2000a and 2000b; Li and Min 2000, 2001) have proven otherwise.

Family is the biggest financial resource for students and covers 90 per cent of their costs. However, 14.5 per cent of the students and their families have borrowed money to finance their higher education. Financial assistance initiated by social forces and universities is rather limited in both amounts and scopes of coverage. Nevertheless, financial assistance including the Student Loan Programme has reached 32 per cent of the students but covered less than 50 per cent of the costs of those students. As a small resource, 20 per cent of the students have contributed up to 10 per cent of their costs by working part-time or through personal savings.

Although only roughly 10 per cent of the students have received student loans, over half of the university students have expressed a strong demand to expand access to the student loan programme. Moreover, students have rather positive attitudes towards the loan programme in general. It is also evident in their opinions that the traditional Chinese disapproval towards debts (Johnstone *et al.* 1998: 11) has changed and should no longer be used as an excuse for hindering the programme, which should be improved both in terms of access and procedures.

The relationship between students' socio-economic variables and the costs of studies is clear in the results of bivariate analysis. Significant positive correlations are found between every socio-economic variable and costs (see Table 8.6). Meanwhile, the correlations of socio-economic variables with financing resources other than family are all negative (see Table 8.7). These estimates provide some rather logical implications that socially and

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[26] See Annex 4 for LISREL input file for Figure 8.2.

economically better-off families tend to invest more in their children's education in general and avoid debts at the same time. Further, the estimates imply that financial assistance programmes, though limited in amounts and scope, have reached the socially and economically disadvantaged groups.

The general structure of the hypothesised model fits the data relatively well (see Table 8.9, 8.10 and Figure 8.2). First of all, fit statistics such as RMR lower than 0.05, GFI and AGFI above 0.90, all indicate a well-fit model. Second, the coefficients of variation are also measures indicating a good model. In this case, the variation explained by the model is substantial as over 30 per cent of the variation in costs, more than 40 per cent of variation in borrowing and about 14 per cent of the variation in financial assistance is accounted for in the data.

The estimates from using LISREL analysis techniques show certain patterns of relationships between socio-economic background, enrolment in elite universities, costs and finances of higher education students. First, home social status encourages spending on educational costs generally while home economic status supports a more affluent life style on campus rather than spending only on studies. Community has no effect on costs but works strongly against debts and financial assistance. Although there have been complaints and criticism concerning the inefficiency and inadequacy of financial assistance (Li and Min 2001; Shen 2001; Hao, 2001), the statistical results offer some insights into the reality. The zero effect of home social and economic statuses on financial assistance indicates certain fairness in the process of accessing financial assistance. Nevertheless, being from an advanced community is an advantage for students, which not only helps them to access elite universities but also protects them from debt.

Those who enrol in elite universities definitely incur more costs for themselves and their families, which have made many of them go into debts but have helped very little in terms of access to financial assistance. Students who have high living costs do not have debt or any need for external financial resources other than family support while high study costs are the main reason for incurring debts.

The next chapter explores students' attitudes and their future career aspirations.

Chapter Nine:

Students' Attitudes and Future Career Aspirations
in Higher Education in Southwest China

9.1 Introduction

This chapter focuses on the attitudes and future career aspirations of higher education students. Specifically, student motivation to attend higher education, students' reasons for selecting specific universities at which to study and their future career aspirations, are examined empirically. Different dimensions of student career aspirations are also considered and explored. In addition, the relationships between socio-economic background, enrolment in elite universities, costs and financing of studies, and future career aspirations of the students are investigated using linear structural relations (LISREL) techniques. The impacts of costs and finances on students' career aspirations are thus hypothesised and tested. Finally, the chapter presents a statistical model to visualise a pattern of social mobility in present-day China.

9.2 Analysis plan

The approach taken to analyse the attitudes and career aspirations of higher education students follows three steps presented below.

First, characteristics of students' attitudes and career aspirations are examined. Specifically, student motivation to attend higher education and their reasons for selecting universities are examined to explore the social and economic considerations within the process of selecting and attending higher education. Analytical techniques such as Exploratory Factor Analysis are used to identify certain patterns in students' attitudes.

Second, future career aspirations of higher education students are explored. Specifically, sample data that describe the working sectors that students aspire to are compared with that of their parents. Further, building from theory and previous research, Exploratory Factor Analysis is used to select variables that measure different dimensions of career aspirations.

In the third step, linear structural relations analysis (LISREL) is applied to examine the relationships between socio-economic background, enrolment in

elite universities, costs and financing of studies, and future career aspirations of higher education students.
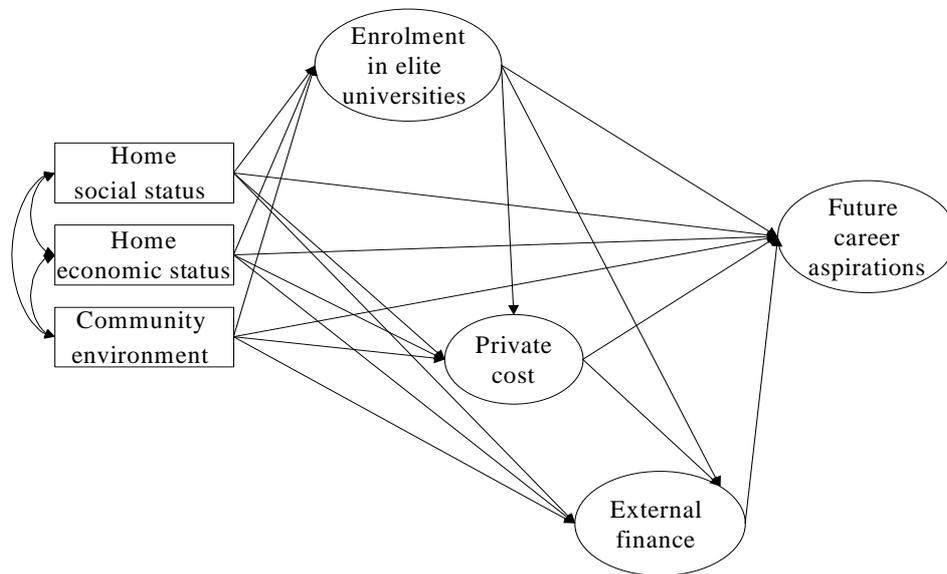
Figure 9.1 Path diagram for a hypothesised model linking students' socio-economic background with enrolment in elite universities, private cost, access to external finance, and future career aspirations

Figure 9.1 presents a hypothesised conceptual model linking all the factors mentioned above. Measures of social and economic background and their links with enrolment in elite universities, and the mediating links to costs and finances, are held consistent in this model. Following the procedures applied previously in Chapters 7 and 8, all relations are initially unrestrained. Paths that are found to be statistically insignificant at the five per cent level are then closed in the order in which the factors appear in the sequencing of the model. Ultimately, the model is tested with three options of costs, i.e. total cost, study cost and living cost, and with several options of future career aspirations derived from theory, previous research and the data set collected for this study.

The hypothesised links directed from 'Enrolment in elite universities', 'Private cost' and 'External finance' to 'Future career aspirations' are built on Gottfredson's (1981, 1996) theory of compromise in vocational psychology. Namely, individuals with the least pressure to compromise choose occupations that satisfy their interest first; individuals with moderate pressure to compromise choose occupations that first satisfy their desired prestige; and finally, individuals under great pressure to compromise choose occupations that are close to their social roles, such as gender, family obligations as daughters and

sons, and the socially perceived correct and meaningful occupations in the community.

9.3 Results

The section reports the results of analysing student attitudes regarding their motivations to attend higher education, the reasons behind their choices of universities, and their future career aspirations.

9.3.1 What motivates students to attend higher education?

Reponses to seven items concerning students' original motivation to attend higher education are presented in Table 9.1. Since all responses are on 1-7 point Likert scales, values higher than 4.0 indicate positive attitudes.

As is shown by the mean scores in Table 9.1, the utility value of higher education stands out as the most important reason of the students pursuing higher education, i.e. improving social standing and getting a good job. Personal enjoyment (studying) and parental pressure have also influenced the students' decision to attend higher education.

Table 9.1 Reasons for attending higher education

Category/value orientation	Response items	Mean	s.d.
1. Utility/money, status, career	Higher education as the best way to improve social standing	5.3	1.7
	Higher education as the way to get a good job	4.8	1.9
	No good job without higher education	4.5	2.1
2. Intrinsic/attainment	Liking study and gaining knowledge	4.7	1.8
	Want to experience higher education	3.6	1.9
3. Pressure	Parents insisted	4.6	2.1
	All friends go college	3.7	2.0

Note: Number of valid cases is 1156. Non-responses are treated as missing.

In reality, 77 per cent of the students admitted that they are enrolled in universities that are not their first-choice institutions. Table 9.2 explains the reasons why they did not achieve their first choice. As shown by the mean scores, most of them did not gain admittance due to insufficient marks on the NCEE, and limited places for the study fields they applied to. These two reasons

are correlated in most cases in China since universities select the best achievers when there are more applicants than places available for certain study subjects.

Table 9.2 Stated reasons of not being enrolled in first-choice university

Responses/Reasons	Mean	s.d.
1. Entrance score is not sufficient to attend the first-choice university	5.0	2.2
2. Limited places for the major applied in the first-choice university	4.7	2.1
3. Want to be near where parents live	3.1	2.1
4. Expensive travel long distance to the first-choice university	2.6	2.1
5. Expensive living standard in the city of the first-choice university	3.2	2.2
6. Tuition charge is too high in the first-choice university	3.3	2.2

Note: Number of valid cases is 882. Non-responses are treated as missing.

Using Exploratory Factor Analysis techniques, economic constraints are found to be one of the reasons some students did not enrol at their first choice universities. This factor, driven by concerns for travel costs, high living costs and high tuition, explains 40 per cent of the variance in the data. This finding offers evidence that economic concerns have become a factor that influences the decision making of students attending higher education.

By further questioning students as to the reasons for attending the particular institutions that they are enrolled at, the responses in Table 9.3 show similar patterns to those found previously in Table 9.2. Again, economic concerns such as 'lower tuition' and 'near home' constitute a factor that explains 13 per cent of the variance. This confirms that economic reasoning influences student enrolment decisions.

Table 9.3 Stated reasons of being enrolled at present university

Response/reasons	Mean	s.d.
1. Entrance score is just sufficient for this university	3.8	2.3
2. This university offers a major you want to study	4.6	2.1
3. Parents want you to attend this university	3.3	2.0
4. The major you are studying offers potential for a good job	4.1	1.8
5. This university offers good quality education	3.8	1.7
6. Tuition is cheaper in this university	4.1	2.1
7. The university is near your home	3.4	2.3
8. This university is your second choice	3.1	2.5
9. You are enrolled in this university by chance	4.0	2.4

Note: Number of valid cases is 1156. Non-responses are treated missing.

9.3.2 What future careers do the students aspire to?

First of all, the data show that the students aspire to work in sectors that are very different from those that their parents work in. As shown in Figure 9.2, almost half (47.7 per cent) of the students want to work for private enterprise while only a few parents work in this sector. Before 1997, almost every higher education graduate found employment in the state sector. By the end of 2001, state-owned units still employed 68.7 per cent of the total work force (NBSC 2002b).

The fact that only 24 per cent of the students aspire to work for the public sector has serious implications for the role of the state in sponsoring and financing higher education. It implies that the private sector in China is under substantial pressure to absorb half (or more than half) of the graduates.

	Self employed	Private employee	State employee	Other
■ Students	17.3	47.7	24.1	10.9
■ Fathers	33.8	7.1	43.1	16.0
□ Mothers	38.1	4.9	32.6	24.4
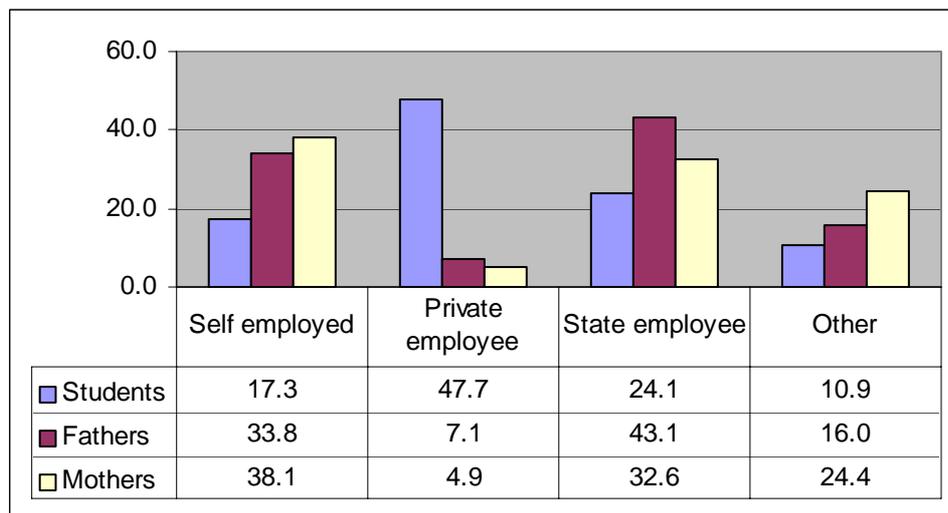
Figure 9.2 Students' desired sector of employment, compared with parents (%)

Note: 'Other' includes 'unemployed and retired' parents, 'collective enterprises', and non-responses as well as uncertain sectors.

Table 9.4 presents students' responses to the question probing the most important things students consider when they make choices regarding their future careers. As mentioned previously in Chapter 6, the responses are in forced-choice format, i.e. each item presents certain forced compromises for students to make choice (see Annex 2). Thus, the means show not only the preferences of students but also evidence of whether the students make compromises in their choices. In Table 9.4, the items that score the highest relate to intrinsic-attainment values, i.e. only taking jobs of personal interest, and only taking jobs that are challenging. Nevertheless, utility values such as jobs in big

cities and jobs with high salaries are not prioritised in the choices of many students.

Table 9.4 The most important considerations for choosing a future job after graduation

Response items	Mean	s.d.
1. Only for jobs at big city	3.1	1.8
2. Only for jobs with high salary	3.8	1.8
3. Only for jobs suit study major	3.7	1.7
4. Only for jobs with social meaningfulness	3.7	1.7
5. Only for jobs near parents	3.6	1.8
6. Only for jobs of personal interest	5.4	1.6
7. Only for jobs which fully show your capacity	5.7	1.5
8. Continue to post-graduate study	5.1	1.8
9. Go abroad to study	4.0	2.1

Note: Number of valid cases is 1156. Non-responses are treated missing.

Three factors are identified among the seven forced-choice responses, using Exploratory Factor Analysis techniques. Table 9.5 shows that the data support the theoretical variables proposed by Gottfredson (1981, 1996). We name the first factor (which explains 36 per cent of variance) in Table 9.5 'intrinsic' because the indicators emphasise personal interest; the second factor (which explains 20 per cent of variance) is termed 'prestige'; and the third is named 'safe' (which explains 15 per cent of variance). It is named 'safe' here because the responses show a pattern of social correctness in Chinese society, i.e. remain close to parents to take care of them when they are old; learn something to be used for the future; and follow the social rules and norms of correctness.

Although responses such as 'Continue post-graduate education' and 'Study abroad' are not of the forced-choice format, they still score comparably high in Table 9.4. This means that many students aspire to continue higher education in China or abroad, which is considered a high career aspiration in the current Chinese context. A further implication from these choices is that costs will be higher and students and their families will continue to invest in education over the longer term. Then the next question would be: Who is able to fulfil these choices and how?

Table 9.5 Factor loadings of compromise variables of occupational aspirations

	1	2	3
Only for jobs which fully show your capacity	0.89	0.03	0.11
Only for jobs of personal interest	0.88	0.05	0.13
Only for jobs with good salary	0.08	0.85	0.06
Only for jobs in big city	-0.02	0.84	0.13
Only for jobs near parents	-0.08	0.02	0.83
Only for jobs with social meaningfulness	0.34	0.09	0.70
Only for jobs suited to major	0.29	0.40	0.59

Note: Rotation method: Varimax with Kaiser Normalisation. Total variance explained: 70%.

Table 9.6 provides the correlations between socio-economic background variables and students' career aspirations. Only students' aspirations for continuing higher education to post-graduate level and, especially, education abroad are positively correlated with socio-economic background variables, and statistically significant (see the last two columns at the right side of Table 9.6). This implies that students, who are motivated to remain longer in education, and strive for higher social status, are from better-off socio-economic background. However, Table 9.6 also reveals that students' choice of working sector has no significant correlation with any of the socio-economic background variables. All the forced compromise choices are either negatively correlated with socio-economic background variables, or have no statistically significant correlation at all.

Table 9.6 Correlations of future aspirations with socio-economic background variables

	Jobs suit study major	Jobs for social meaning	Jobs near parents	Jobs show capacity	Post-graduate study	Study abroad
Father's educational attainment	-0,11	-0,10	-0,09	-0,07*	0,12	0,20
Mother's educational attainment	-0,13	-0,13	-0,10	-0,08	0,12	0,23
Father's occupational status	-0,15	-0,13	-0,08*	-0,07*	0,10	0,15
Mother's occupational status	-0,18	-0,17	-0,12	-0,12	0,13	0,18
Family size	-0,12	-0,10	-0,06*	-0,09	(0,05)	0,14
Home assets	-0,19	-0,18	-0,10	-0,07*	0,07*	0,24
Family income	-0,19	-0,17	-0,09	-0,08*	0,09	0,18
Rural/urban registration	-0,13	-0,15	-0,14	-0,07*	0,11	0,20
Home geographic location	-0,14	-0,15	-0,11	-0,10	0,12	0,21
Home neighbourhood educational facilities	-0,14	-0,15	-0,07*	-0,10	0,09	0,15
Neighbourhood's youth going to college	-0,18	-0,15	(-0,05)	-0,08	0,10	0,15

Note: All significant at the 0.01 level (2-tailed). *Significant at the 0.05 level (2-tailed). The values in parentheses are not significant. The aspiration options that are not significantly correlated with any of the socio-economic variables are not shown in the Table.

Ultimately, if students' career aspirations are rather weakly correlated with their socio-economic backgrounds, it implies that factors other than socio-economic background probably carry more weight in the choice process. This is explored in the next section.

9.4 Model explaining the effects of socio-economic background, enrolment in elite universities, cost and finance on students' career aspirations

Five latent variables that measure career aspirations of higher education students are built, using Confirmatory Factor Analysis techniques. They are described below:

1. Least compromise: INTRIN, a construct built on the basis of 'Only jobs of personal interest' on a 1-7 point scale.

2. Moderate compromise: PRESTI, a construct formed on the basis of the measure 'Only for jobs with good salary' on a 1-7 point scale.

3. High level compromise: SAFE, a latent construct indicated by 'Only for jobs suit study major' and 'Only for jobs with social meaningfulness' on a 1-7 point scale.

4. Further educational aspiration: HIGH, a construct formed by 'Continue post-graduate education' and 'Go study abroad' on a 1-7 point scale.

These four factors are options for final outcome variables in the model shown in Figure 9.1. They are compromise factors, namely interest, prestige, safety, and one aspiration factor manifested as pursuing post-graduate education and further education abroad. A step-by-step approach is used to treat each of the four options as the dependent variable in the model, one at a time. Since it was found in Chapter 8 that different costs have varied effects on external finances, three options of costs, namely study cost, living cost and total cost, and two external financing sources (i.e. financial assistance and borrowing) are carried throughout the models. Thus, 12 models are fitted to the data set. Estimates of the resulting parameters and test statistics are reported in a summary table in the following subsections, together with a path diagram representing the statistical model.

9.4.1 Estimation results of model tests of effects of students' socio-economic background, enrolment in elite universities, costs and financial assistance, and borrowing, on career aspirations

Table 9.7 provides a summary of the results of the model tested using LISREL techniques, that estimates the effects of socio-economic background, enrolment in elite universities, costs, financial assistance and borrowing on future career aspirations of higher education students.

Table 9.7 Standardised maximum likelihood regression weights of effects of socio-economic background, enrolment in elite universities, costs (Total cost η_{2a}, Study cost η_{2b}, Living cost η_{2c}) and external finances (Financial assistance η_3 and Borrowing η_4) on students' future career aspirations

Model A: Total cost as η_2							
	ξ_1	ξ_2	ξ_3	η_1	η_{2a}	η_3	η_4	R^2
η_{5a}	---	---	---	-0.15	---	---	---	0.02
η_{5b}	---	---	---	---	-0.10	-0.14	0.07	0.02
η_{5c}	---	---	---	-0.23	---	---	0.22	0.10
η_{5d}	---	0.11	0.42	-0.21	0.14	0.22	0.17	0.15
Model B: Study cost as η_2							
	ξ_1	ξ_2	ξ_3	η_1	η_{2b}	η_3	η_4	R^2
η_{5a}	---	---	-0.30	-0.14	-0.13	-0.10	-0.23	0.07
η_{5b}	---	---	---	---	---	-0.12	0.09	0.01
η_{5c}	---	---	---	-0.21	---	---	0.22	0.10
η_{5d}		0.12	0.42	-0.21	0.13	0.21	0.16	0.16
Model C: Living cost as η_2							
	ξ_1	ξ_2	ξ_3	η_1	η_{2c}	η_3	η_4	R^2
η_{5a}	---	---	-0.22	---	-0.16	-0.10	-0.25	0.05
η_{5b}	---	---	---	---	-0.17	-0.14	---	0.03
η_{5c}	---	---	---	-0.14	-0.32	---	---	0.15
η_{5d}	---	0.16	0.43	-0.15	---	0.20	0.16	0.16

Note: --- Parameter not significant and fixed. R^2 indicates variance explained. All fifteen optional tested statistical models are fit with χ^2/df= 6.63-9.43; RMR: 0.026-0.034; GFI: 0.95-0.97; AGFI: 0.90-0.93.

KEYS:

ξ_1 Home social status (HSOC)	η_3 Financial assistance (ASSIST)
ξ_2 Home economic status (HECO)	η_4 Borrowing for education (BORROW)
ξ_3 Community environment (COM)	η_{5a} Personal ability & interests (INTRIN)
η_1 Enrolment in elite universities (ELITE)	η_{5b} High salary (PRESTI)
η_{2a} Total cost of one year on campus (TOTCOST)	η_{5c} Study major and social meaning (SAFE)
η_{2b} All spending for study costs (STUDYC)	η_{5d} Continuing education (HIGH)
η_{2c} All spending for living on campus (LIVCOST)	

In Table 9.7, all the factors except home social status (ξ_1) exert effects on the five alternatives of outcome variable, i.e. student career aspirations. Different options of costs show different effects on career aspirations while all the effects from other factors remain rather consistent throughout the testing of cost options. It is also noticeable that the variances of all the career aspirations are minimally explained by the model (see R^2 s in the Table 9.7). One possible explanation of the unexplained variance is that when students are questioned in this study they are in their third term of university life. To many of them, graduation and job seeking is still far away (two and a half years in the future).

As shown in Table 9.4, students are very keen to pursue careers that fulfil their intrinsic aspirations, which means that they are under the least pressure to make compromises vis-à-vis their career choices. Estimates in Table 9.7 show that the model only explains about roughly five per cent of the variance of intrinsic career aspiration (η_{5a}) and three per cent of aspiration for prestige (η_{5b}). Hence the parameter estimates explain only little of the variance in the dependent variables specified in the model. Nevertheless, more than 10 per cent the variance in 'safe' choice (η_{5c}), indicating a compromise of an individual under great pressure, is explained by the model. The model further explains 16 per cent variance in the highest career aspiration, i.e. to continue education home or abroad (η_{5d}).

Following the sequencing order from left to the right in Table 9.7, the first of the socio-economic constructs, home social status (ξ_1) has no direct effect on any of the career choices. This implies that parents' educational attainment and occupation have lost their direct influence in shaping students' career development. Home economic status (ξ_2) has a weakly positive effect on the aspiration of continuing education (η_{5d}: 0.11, 0.12, 0.16). The community variable (ξ_3) has a strong positive effect on aspirations of continuing education (η_{5d}: 0.42, 0.42, 0.43). This suggests that a good home economy combined with adequate community support lead students to pursue further educational goals instead of taking an interesting job.

Second, enrolment in elite universities (η_1) has negative effects on all compromise choices in career aspirations including continuing education abroad. It probably gives a sense of security to be enrolled at an elite university. Therefore students do not have to either make compromise for career, or pursue further education, which is supposed to bring more prestige in the Chinese labour market.

The third point is that effects exerted by costs on the career choices vary. All costs have some negative effects on compromised career choices. Only study cost (η_{2b}) has a weakly positive effect on continuing education (η_{5d}, 0.13). The positive effect of study cost implies that students who invest more in their studies are preparing themselves to move higher on the educational ladder by

pursuing further education in China and abroad. Living cost (η_{2c}) has only a strong negative effect on 'safe' choice (η_{5c}: 0.32), i.e. the compromise made under the great pressure, but has no effect on choices for continuing education. This suggests that high spending on living on campus expresses somewhat of a life style choice, which is not a purposeful investment for those students' future careers.

Fourth, financial assistance (η_3) has rather moderately positive effects on continuing education (η_{5d}: 0.23, 0.22, 0.21). One would expect that the students who have had financial difficulties, and who have received some assistance (student loan and/or scholarships) would choose a good salary job or immediate employment upon graduation in order to pay back debt rather than pursuing further education. In this case, the students who have received financial assistance would seem to aspire to continue post-graduate education and education abroad. This pattern would suggest that receiving financial assistance (scholarships or student loans) does not create pressure on students to make compromises in their career choices. Instead, the availability of financial assistance has somehow encouraged students to advance on the educational ladder.

Finally, as is shown in Table 9.7, borrowing for education (η_4) is the only variable in the model that has a moderately positive effect on the 'compromise choice' when an individual is under great pressure, i.e. safe choice (η_{5c}: 0.22, 0.22). This finding may suggest that students whose families are in debt for their education would possibly make compromises in their choices of future careers.

Nevertheless, the weakly positive effects of borrowing (η_4) on continuing education in China and abroad (η_{5d}: 0.177, 0.157, 0.183) bring elements of surprise into the model. Of course, continuing to post-graduate studies and education abroad means more costs. Students who have gone into debt for their college education might have a long term investment plan given the promising high monetary and non-monetary returns in the Chinese labour market for those with an advanced degree from a Chinese university or from a Western developed country.

The next subsection offers a graphical presentation of the statistical model.

9.4.2 A pattern of social mobility in present-day Chinese society: a graphical presentation of statistical modelling results

As mentioned in Chapter 5, over 80,000 Chinese students pursue higher education abroad each year. The ones who return with a degree from Western developed countries are almost assured a well-paid position with either the state

or the private sectors. It is understandable that such higher education is costly and is beyond the affordability of ordinary income Chinese families. Figure 9.3[27] is a graphical presentation of tested statistical models linking socio-economic background, enrolment in elite universities, study cost and living cost, financial assistance, borrowing for education, and aspiration for continuing education in China and abroad. The figure is also a complete presentation of the model this study intends to build on from Stage I to III (see Figure 6.1, 7.1, 8.1 and 9.1).

In Figure 9.3, among the socio-economic background variables, home social status (ξ_1) has moderate positive effects on study cost (η_{2b}), living cost (η_{2c}), and a weak effect on and borrowing (η_4) but has no direct effect on future career aspirations (η_{5d}). Home economic status (ξ_2) exerts a strong positive influence on living costs (η_{2c}), and a weakly positive effect on continuing education (η_{5d}), but weakly and negatively influences borrowing (η_4). Community environment (ξ_3) is the most influential factor among the socio-economic background variables. It has strong positive effects on student enrolment in elite universities (η_1) and aspiration to continue education to a higher level (η_{5d}) but strong negative effects on external finances (η_3 and η_4). This coincides with the cruel reality of rural and regional disparities in present-day China. The advantages of a good community are more important than family socio-economic strength for individuals' career development.

Among the intermediating variables, enrolment in elite universities (η_1) has a strong positive effect on study cost (η_{2b}), weakly positive effects on living cost (η_{2c}) and external finances (η_3 and η_4) but a negative effect on continuing education (η_{5d}). Meanwhile, study cost (η_{2b}) has only weakly positive effects on borrowing (η_4) and continuing education (η_{5d}) while living cost (η_{2c}) has rather strong negative effects on external finances (η_3 and η_4), but no effect on continuing education to a higher level (η_{5d}). Eventually, external finances (η_3 and η_4) have some weak but positive effects on continuing education (η_{5d}).

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[27] See Annex 4 for LISREL input file for Figure 9.3.

a: Study cost as η_{2b} b: Living cost as η_{2c}
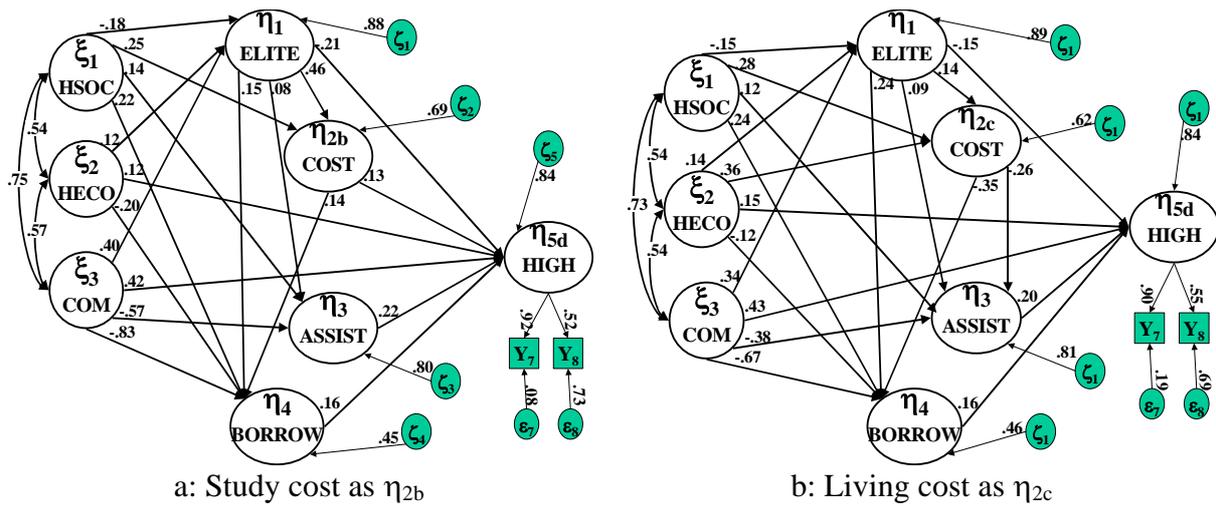
Figure 9.3 Parameter estimates in a model of socio-economic background effects on enrolment in elite universities, study cost and living cost, financial assistance and borrowing, and career aspirations

Note: ML solution. Structure paths that are not statistically significant are closed down in the model and not presented in the figure. Fit statistics for the model: a: $\chi^2/df=8.08$; RMR: 0.030; GFI: 0.95; AGFI: 0.91. b: $\chi^2/df=8.15$; RMR: 0.030; GFI: 0.95; AGFI: 0.91.

KEYS:

* Indicates a fixed parameter	ξ_2 Family economic status (HECO)
ξ Indicates a latent independent variable	ξ_3 Community environment (COM)
η Indicates a latent dependent variable	η_1 Enrolled in elite universities (ELITE)
Y Indicates an observed measure of latent dependent variables	η_{2b} Study cost (STUDYC)
	η_{2c} Living cost (LIVCOST)
ε Indicates an error term on Y	η_3 Financial assistance (ASSIST)
ζ Indicates an error term on η	η_4 Borrowing for education (BORROW)
ξ Indicates a latent independent variable	η_{5d} Continuing education (HIGH)
η Indicates a latent dependent variable	Y_7 Education abroad
ξ_1 Home social status (HSOC)	Y_8 Continue to post-graduate education

Additionally, Table 9.8 presents total, direct and indirect effects of the factors on the outcome variable of the model presented in Figure 9.4, i.e. career aspiration as continuing education measured by 'post-graduate education' and 'education abroad'. Home social status has no statistically significant direct effect on continuing education (see Figure 9.3) but a weak indirect one (0.12) mediated by variables such as costs and borrowing, as shown in Table 9.8. The positive weak effect of home social status fits the pattern existing in many advanced Western societies, where more and higher education is a necessity for middle class offspring to keep their social status and to avoid downward mobility (Keller and Zawalloni 1964; Rehberg and Westby 1967).

Table 9.8 Standardised maximum likelihood regression weights for the total, direct and indirect effects of eight predictors on future career aspirations of continuing education in China and abroad

	Continuing education η_{5d} (a: Study cost as η_{2b})			Continuing education η_{5d} (b: Living cost as η_{2c})		
	Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect
Independent variables						
Home social status ξ_1	0.07	#	0.07	0.04	#	0.04
Home economic status ξ_2	0.07*	0.11	-0.03	0.07*	0.14	-0.07
Community environment ξ_3	0.21	0.46	-0.26	0.24	0.49	-0.25
Dependent variables						
Enrolment in elite university η_1	-0.12	-0.22	0.10	-0.12	-0.17	0.06
Cost $\eta_{2b}\,\eta_{2c}$	0.17	0.14	0.03	-0.10	#	-0.10
Financial assistance η_3	0.22	0.22	---	0.21	0.21	---
Borrowing η_4	0.16	0.16	---	0.18	0.18	---

Note: # Direct effect not estimated: *p* > 0.05 not statistically significant. * Total effect insignificant: *p* > 0.05 not statistically significant. --- Indirect effect not estimated: *p* > 0.05 not statistically significant.

However, the influential role of family economy and the comparatively weak position of home social status are indicative of today's China and the fundamental changes happening in the society – one building a market economy while undergoing fundamental restructuring. Former social elites are losing ground and the 'new rich' are using their economic power to achieve new social elite status by investing in their children's higher education. At the same time the former elites are fighting to maintain their status by supporting their children pursuing even more education.

Table 9.8 also shows that the total effects of community on the aspiration of education abroad are not as strong as its direct effects would seem to suggest. This implies that the beneficial effect of coming from a well-off community is diminished as more of the variance is explained by intermediating variables such as enrolment in elite universities. Further, study cost has a stronger positive total effect on education abroad than is directly shown in the model. It implies that students who have invested more in their studies are more likely to pursue further education abroad while, students who spend a lot on a comfortable life on campus probably have less intention to go further even though their family economy might allow them to.

Nonetheless, students' current socio-economic conditions in higher education, i.e. enrolment in elite universities, costs, financial assistance and

borrowing, work as both direct and intermediating factors to influence their decision whether or not to pursue further education abroad.

9.5 Discussion of results

The most cited motivation of students' attending higher education is to improve their social position although all sorts of interests are in play in their decision making process. Besides the utility value of higher education, many students attend higher education for enjoyment and because of social pressure as well (see Table 9.1). Eventually the utility value of higher education influences choices when students select a university, e.g. the universities they attend offer programmes of good employment potential, tuition fees are cheaper, etc. (see Table 9.3). Furthermore, it seems that few students change their course for reasons other than academic achievement since insufficient NCEE scores are the most cited reason that students do not attend their first-choice institution (see Table 9.2). Nevertheless, economic concerns are visible in the decision-making process of higher education students attending and selecting universities.

As for career aspiration, although nearly 50 per cent of the parents work in the state sector, the majority of students aspire to work in the private sector. For students, the intrinsic values of jobs have the most importance in their consideration of future career. Most of them aspire to jobs that fulfil their personal interests and capacity (see Table 9.4). Moreover, many students consider continuing their education at a higher level such as post-graduate studies. Indeed, given the fact that over 20 per cent of university graduates face unemployment after graduation, the pressure of finding jobs for higher education graduates is high in China. Post-graduate education is looked upon as an alternative to avoid unemployment upon graduation[28]. It also functions as a 'postponed' choice for students whose career paths remain undecided. Pursuing further education abroad has become an even more appealing option of career development for many but it is a very costly choice, one many ordinary Chinese families cannot afford.

The results of correlation analysis indicate that socio-economic background correlates rather weakly with career aspirations of the students. However, it is positively correlated with the choice of post-graduate studies and education abroad (see Table 9.6). The subtle influence of socio-economic background on career aspirations of the students becomes evident in the model tested using the LISREL approach. In particular, home social status exerts

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[28] Observation of campus newspapers and public media information on June 22, 2003
http://www.chinagk.net/jyqx/2.htm.

indirect positive effects on the aspirations of continuing education via encouraging investment in studies while home economic status and community have direct positive influences on this choice (see Figure 9.3 and Table 9.8). Ultimately, factors such as socio-economic conditions of higher education students on campus, i.e. enrolment in elite or non-elite universities, costs and external finances, have not only directly influenced students' career aspirations but also mediated the influences of socio-economic backgrounds on career development of the students.

   Overall, the general structure of the hypothesised model fits the data relatively well (see Table 9.7 and Figure 9.3) since fit statistics such as RMRs are all below 0.05, and GFI and AGFI are all above 0.90. Although the coefficients of variation are rather small in this case, the model still explains 18 per cent of the variance in education abroad.

Chapter Ten:

Synthesis and Conclusion

10.1 Introduction

This chapter first summarises the findings of the empirical studies in Chapters 6, 7, 8, and 9. Then it presents a synthesis of the empirical results complemented with historical reflections drawn from the review of developments in higher education presented in previous chapters. Finally some reflections on methodology and implications for future research are provided.

10.2 A summary of the empirical findings

The summary follows the order in which the variables were investigated in the empirical studies, i.e. socio-economic background of higher education students, costs and financing of studies, and future career aspirations.

10.2.1 Socio-economic background of the students

All the variables used in the empirical studies are observed in the questionnaire survey. Due to the scarcity of references to the measurement of socio-economic background in the Chinese educational context, most of the variables are measured based on theory and previous research drawn from Western scholarly literature as discussed in Chapters 2 and 6.

During the design of data collection and processing, the Chinese context was taken into consideration and the relevance of measuring parental occupations, community socio-economic conditions, and other variables measuring aspects of the socio-economic background of students were carefully examined and discussed. Factor analysis and discriminant analysis techniques were used to identify indicators that measure collectively a comprehensive picture of the socio-economic background of higher education students. Finally, a measurement model of socio-economic background was built with three latent constructs, using Confirmatory Factor Analysis as model building tool.

The sample data provide a glimpse of the current reality of Chinese higher education. First, urban students present more than 60 per cent in universities while the majority of the national population is rural. Second, the universities are crowded with students from the best-educated parents and students from top-income families in the country. Third, although male and female students are almost equally present in universities, rural girls constitute only 22 per cent of the female student group on campuses.

Linear structural relations (LISREL) analysis techniques were used to test a hypothesised model linking socio-economic background of higher education students with their enrolment in elite or non-elite universities. LISREL results indicate that the model fits the data very well although the variance explained is rather modest – only 11 per cent.

Nevertheless, the estimates suggest that socio-economic background plays a role in distinguishing 'elite' students from the others where family economy and socio-economic conditions of community have contributed to elite enrolments. It must be noted that the weak but negative influence from parental social status might partially be due to a specific period effect (i.e. the Cultural Revolution from 1966 to 1976), as many of the parents of the current higher education generation lost their opportunities for education at upper secondary and higher levels during the Cultural Revolution.

10.2.2 Costs and finances of students

The private cost of higher education is substantial in China. The empirical findings from this study investigating university students in Southwest regions coincide with findings elsewhere in the country. The average cost per student to study and live on campus for one academic year far exceeds the average family annual income of the country.

Study and living costs vary substantially among students in different provinces, different universities, different study subjects, and even among students in the same classroom. Generally, the costs incurred by students increase along with their family income and there is a significant position correlation between socio-economic background and student costs. In addition, the gap between the lowest level of spending and the highest among the students is huge and the variation is explained, over 30 per cent, by socio-economic background together with the 'elite' status of students. Families with higher social status encourage more spending on studies while a good family economy supports a more luxurious life style on campus.

An absolute majority of students' families are involved in financing their higher education. Family is the biggest financial resource for almost all students

and more than half the students have their costs covered solely by resources from their families. Although various financial assistance initiatives (including a Student Loan Programme) have reached one-third of the students, these external resources only cover a limited proportion of their costs. Many of the students and their families take on debt and some students take part-time jobs in order to make modest contributions to cover their living costs on campus. Students expressed positive attitudes towards the student loan programme and made strong demands for expansion of access to student loans.

Socio-economic background is an important factor predicting student access to external financial resources. A strong family economy and a well-off community environment work against access to financial assistance, but also help avoid debt. Enrolment in elite universities generates more costs and pushes some students into debt but helps little when attempting to access financial assistance. There is no significant link between high spending on living and external financial resources but family social status indirectly helped students' access financial assistance via investment in studies. However, socio-economic background, enrolment in elite universities and costs help to explain 14 per cent of the variation in financial assistance and over 40 per cent of the variation in borrowing for education.

10.2.3 Attitudes and future career aspirations of students

Utility values of higher education are central in the considerations of students attending and selecting universities. Many students look upon attending higher education as the best way to improve their social standing and as the 'ticket' to secure employment. Insufficient academic achievement has been the major reason that many students do not attend their first choice universities – far beyond economic barriers. This coincides with the fact that little of the variance in enrolment in elite universities is explained by socio-economic background, a finding that suggests that the actual access to certain higher education institutions largely depends on students' performance in the National College Entrance Examinations (NCEE).

Concerning their future career after graduation, students first strongly aspire to get jobs in the private sector instead of the public sector – the biggest employer in the country. Second, prior considerations for future jobs are very intrinsic and a high salary carries much less importance than personal interests. Third, despite the high costs of their education at the moment, many students aspire to pursue post-graduate studies and education abroad.

Results from the linear structural relations (LISREL) analysis show a pattern of social mobility in China, linking socio-economic background of

higher education students, enrolment in elite universities, costs and finances, and future career aspirations. Although the socio-economic background of students has limited impact on the decision to enter the elite or non-elite institutions – because the NCEE examinations function as the academic quality 'gatekeeper' -- socio-economic background influences whether or not students move further and higher on the educational ladder, both directly and indirectly via investing in their higher education.

Family economy exerts a moderately positive influence and socio-economic conditions of community have strong positive effects on students' advancing on the educational ladder. More indirectly, home social status exerts modest but positive effects on aspirations to study abroad via supporting investment in studies. Ultimately, costs and financing of the students function as intermediating factors influencing students' career development as some of those with debts aspire for high salary jobs and immediate employment upon graduation to cash out their investment in education.

The very strong influence of community in the higher education pattern mirrors the severe social and economic disparities between rural and urban localities, and between Eastern and Western regions of China. The pattern shows that family economy is important for educational success, but having a home in the 'right' community is even more important.

It is worth noting that the majority of students have actually moved to a higher stratum in the society given the fact that more than 70 per cent of their parents have no higher education. Students start on unequal footings depending on their socio-economic background, and they are not equal even though they have the same student status during their studies. The difference and inequality exists in the ways they study and live on campus. The unequal socio-economic status on campus at present is likely to become attenuated in the near future as some students will advance on the educational ladder, facilitated by their family socio-economic strength and the possibilities provided by their prosperous home community, while others will not be able to do so.

10.3 Synthesis of a social pattern in Chinese society

Traditionally, higher education in China had an intimate relationship with the ruling class through a sophisticated examination system, i.e. the civil service examinations. Birth origin was a powerful factor in determining an individual's upwards mobility, though the ancient Chinese system advertised fairness in the selection of civil servants based on personal ability in Confucian learning. At

that time, family economy was less influential than family social status in this competition process.

Planted as something foreign into Chinese soil, higher education at the beginning of twentieth-century China had more or less continued the task of its Chinese ancient ancestor to assist the national ideology, and to sustain the bureaucratic system and social stratification. Even though a variety of radical actions were subsequently taken by the CCP leaders to fight against the inequality generated and sustained in this system, the results were more or less a failure. By the beginning of the twenty-first century, China had embraced a fast growing socialist market economy and Chinese higher education had become an institution of social stratification. Out of disappointment, or so it would seem, the following conclusion was advanced by other observers:

> In an ironic twist, the mandarin culture has returned, and when coupled with Western-style educational outcomes, social reproduction through educational attainment is becoming a reality – a condition that imperial China assiduously tried to avoid. Mao's attempt to fashion a mass-based educational system catering to the needs of the peasantry is being transformed into a triumph of middle-class ideology (Kelly and Liu 1998).

Nevertheless, China is not alone in finding itself in this unfavourable situation. In Europe, higher education had been used as a tool to try to promote equality since WWII but has also functioned as a 'social stratifier' by either promoting or transmitting inequality in the redistribution of social privileges, economic resources and political powers among social groups, as was shown in social research results since the 1960s (Boudon 1973; Jencks *et al.* 1972; Husén, 1972, 1975, 1989). Indeed, it is well known that family socio-economic status has a significant impact on individuals' social mobility in the West.

Throughout this monograph, results from historical analysis and empirical data have shed some light on the differences between the present-day Chinese system of higher education and its Western and Chinese predecessors.

First, the bond between higher education and officialdom is still there but it is not as strong as it was at the time of the mandarin culture. This bond was especially weakened after the Chinese government eliminated the tradition of centralised job-assignment of college graduates in 1997 (see Chapter 5).

Second, the Chinese middle class is still under formation in a nation still processing through political and economic transition. As expressed by students in Chapter 9, higher education is the best way to secure a quality job and a desired socio-economic position in society. The university students surveyed come from diverse homes but their families have made their best effort to

support their primary, secondary and higher education. The data in this study indicate that a strong family economy is more important than home social status (see Figure 9.4), and this is different from the Chinese ancient period.

Third, community as a socio-economic variable strongly influences students' upward mobility. China had regional disparity even during ancient times but the current situation may have become even more severe due to the unequal pace of following the economic reforms of the last two decades. Today, urban children, not rural ones, have the most advantages in their pursuit of education and careers while those in Eastern coastal areas, not the central hinterlands as in old times, are most advantaged on the path to the top of the educational ladder (e.g. further education abroad). Nevertheless, it is difficult to tell whether the pattern of socio-economic inequality among Chinese students is similar to, rather than different from, that of the West. This should be investigated by means of a comparative study, but this was outside the scope of this study.

10.4 Reflections on the methods used in this study

Methodologically, this thesis offers a fairly balanced combination of qualitative and quantitative approaches. On the one hand, the thesis has made a journey through the history of Chinese higher education from the ancient system to the changes and struggles of modern times. It gives a comprehensive background to understanding the pattern of social mobility in the present-day Chinese context.

Using the empirical data collected using the questionnaire survey, the monograph has presented a statistical model to visualise the mobility pattern found in China today. Further, the study offers a comprehensive measurement of the socio-economic backgrounds of students in the Chinese education system instead of using a single indicator or an index as most sociologists have done previously. As far as the author knows, this comprehensive measurement of socio-economic background is the first attempt of its kind in the Western or Chinese literature.

10.5 Reflections on theoretical issues

Studies of social mobility are usually the speciality of sociologists, with longitudinal data. Although the data in the study are limited to one specific social group and to a fixed point in time, the interdisciplinary approach has overcome some of the limitations inherent in the data set.

The monograph intended to explore Chinese patterns of social mobility through investigating a group of students enrolled in universities. Higher education has been of the most importance in promoting social mobility in Chinese society since the ancient times. Theoretically, the sociological approach laid the foundation for the theoretical framework of the study, while the perspectives of economics and psychology completed the framework by taking the impact of Chinese higher educational policies on students' upwards mobility into account. The interdisciplinary framework is supported by the empirical statistical results.

10.6 Implications for policy

First, the study has determined that Chinese students and their families have looked upon higher education as a good way of improving social standing, and they make great efforts in order to move up the educational ladder. This justifies the application of a cost sharing policy, where the students and their families contribute to offset the cost of their education. Given the fact that most Chinese families have limited financial means to support their children's studies at university, student loans should be made more accessible for a greater proportion of students. Financial assistance should be encompassing in scope and accessible to students from lower socio-economic strata, especially girls from rural areas.

Second, since the majority of the students in this study aspire to take jobs in the private sector, rather than the public sector, the state should involve private enterprises more in financing and otherwise supporting higher education instead of shifting the burden almost exclusively to students and their families. At present, social forces other than the State contribute a smaller proportion of higher education funding than do students and their families (see Table 5.4).

10.7 Implications for future research

An attractive idea for future research is to expand the data collection to cover the entire higher education sector in China at present and to complement this with a collection of data from higher education students in another system or country, e.g. a Western country that is the birthplace of modern higher education institutions. A comparison between the Chinese pattern found in this study and the pattern observed in a sophisticated higher education system – Australia,

Norway, Sweden, or the United States – would show the differences between the Chinese system and its Western counterparts.

Another area with potential for future research also marks a shortcoming of this study, i.e. the deeper exploration of gender differences. Although the gender issue was not a priority in this study, which intended to look at the student group as a whole, a comparative study to compare the pattern of female students with that of male students in the same circumstances could be revealing.

Finally, within a similar interdisciplinary framework, a study of patterns of social mobility could be made ideally with a longitudinal data set. Statistical modelling is an advantage that could be put to good further use in future empirical studies.

Annexes

Annex 1: Map of China and Structure of Education in China

Figure A1.1 Map of China showing the South-Western regions

Source: http://www.china.org.cn/e-xibu/2JI/2bNew-/N-2.html.
Retrieved on June 9, 2003.

Age / Grade		
23 / Grade	Postgraduate, Master's Degree (3-4 years), Doctoral Degree (3-4 years)	
22 / 17	Bachelor's Degree (4-5 years university)	
21 / 16		
20 / 15		Short-cycle vocational diploma (2-3 years college)
19 / 14		
18 / 13		
17 / 12	Upper secondary level general (3 years)	Secondary level vocational diploma (3-4 years)
16 / 11		
15 / 10		
14 / 9	Junior secondary (3-4 years)	
13 / 8		
12 / 7		
11 / 6	Primary level (5-6 years)	
10 / 5		
9 / 4		
8 / 3		
7 / 2		
6 / 1		
5	Preschool	
4		
3		

Adult education (TV, radio, vocational and higher learning)

Compulsory 9 years

Figure A1.2 Schematic presentation of the general education system in China, 2001

Annex 2: Questionnaire

How were you chosen to answer this questionnaire?

- This questionnaire is used to collect data on costs and financing of modern higher education in South-west China. Through this questionnaire, we hope to find out the reality of cost sharing of higher education from the student perspective.
- Sichuan University and South-west University of Finance and Economy in Sichuan Province, Yunnan University and Yuannan University of Finance and Economics in Yunnan Province, Guizhou University and Guizhou University of Finance and Economics in Guizhou Province were chosen to be the base of this questionnaire investigation.
- In each university, all students enrolled in 2001 were put on a list and then, through strict random sampling procedure, 200 students were selected. These 200 students represent the entire 2001 group at this university to answer this questionnaire.
- You are one of these 200 chosen students at this university.

STUDENT QUESTIONNAIRE

School Name ⬚

Major: _____

Case ID ☐☐☐☐☐☐☐☐
(To be filled by researcher)

Attention: The questionnaire is printed double-sided; Please do not miss any question.

In this booklet you will find questions about:
- You and your family;
- Your home and the community your home is located;
- Your college; and
- The ways your college education is financed.

Please read each question carefully and answer as accurately as you can. You will usually answer by "ticking" a box. For a few questions you will need to write in a short answer.

If you make a mistake when "ticking" a wrong box, cross out you error and mark the correct box. If you make an error when writing in an answer, simply cross it out and write the correct answer next to it.

Your answers will be kept confidential, and will only be accessible by the researcher.
Thank you!

1   **In which year were you born?**   Year: 19   .

2   **Are you female or male?**   Female ☐   Male ☐

3   **Which ethnic group do you belong to?**

Please write down your ethnicity: _____ .

> The following questions are about your mother and father (or those person(s) who are like a mother or father to you, for example, guardians, stepparents, foster parents, etc.).

4   **What are your parents' working statuses currently?**

The individual farmer who works on his/her own land should go to " Self-employed" a) or b).

     (Please <tick> only one box for each of your parents.)

	Father	**Mother**
a) Self-employed, with employees………………..	☐	☐
b) Self-employed, no employees………………….	☐	☐
c) Government employee…………………………	☐	☐
d) Collective and/or rural enterprise employee…...	☐	☐
e) Employee of private company, Sino-foreign joint-venture or foreign company…...	☐	☐
f) Unemployed, retired or home duties……………	☐	☐

5   **What are your parents' main jobs? (e.g. school teacher, carpenter, sales manager, farmer…)**

     If they are not working now, please tell us their last main jobs.

Your father's job title: _____

Your mother's job title: _____

6   What do your parents do in their main jobs? (e.g., teaches middle school students, builds houses, manages a sales team, fishery, poultry …)

If they are not working now, please tell us their last main jobs.

Please use a sentence to describe the kind of work your **father** does or did in that job.

_____

Please use a sentence to describe the kind of work your **mother** does or did in that job.

_____

7   What is the highest level of education of your parents?

(Please <tick> only one box for each of your parents.)

	Father	**Mother**
a) No school at all……………………………..	☐	☐
b) Did not complete primary school……………….	☐	☐
c) Completed primary school……………………….	☐	☐
d) Did not complete junior middle school ….……...	☐	☐
e) Completed junior middle school………………….	☐	☐
f) Completed senior middle school or vocational, technical high school) …………	☐	☐
g) Been to college …………..…………………....	☐	☐

8   Do your parents hold any degree(s)?

(Please <tick> the degree(s) your parents hold.)

	Father	**Mother**

None ……..……………………………☐   ☐

A Bachelor Degree …………………………☐   ☐

A Master Degree……………………………☐   ☐

A Doctoral Degree or above………………..☐   ☐

The following questions are about your home, and the community where your home is located. We know that most of you are now living on campus. The information we need here is the home area you live with your parents and other family members.

---

9   How many brothers and sisters do you have?

(Please <tick> only one box on each row. When appropriate, remember to <tick> the 'None' box)

	None	One	Two	Three or more
a) Older sisters…………………………...	☐	☐	☐	☐
b) Younger sisters……………….….…	☐	☐	☐	☐
c) Older brothers………………………….	☐	☐	☐	☐
d) Younger brothers………………….…..	☐	☐	☐	☐

10   Who usually lives at home with you?

(Please <tick> the box/boxes which apply.)

a) Mother (or other female guardian)………………………. ☐

b) Father (or other male guardian)…………………………. ☐

c) Brother(s) (including stepbrothers)……………………….☐

d) Sister(s) (including stepsisters)………………………… ☐

e) Grandparent(s)…………………………………………….. ☐

f) Others……………………………………………………… ☐

11   What are the regular sources of income in your family?

(Please <tick> the box/boxes which apply.)

a) Father's income…………………………. ☐

b) Mother's income……………………….. ☐

c) Sister's income………………………….. ☐

d) Brother's income……………………….. ☐

e) Grandparents' income…………………... ☐

f) Saving interests…………………………. ☐

12   What was your family's yearly income last year?

If you are not sure, you can check with your parents, or give a best estimate.

Yearly income of your parents: _____Yuan.

Yearly income from other family members and sources:_____Yuan.

13   What kind of house does your family live in?

a) A rented flat………………………………..………………… ☐

b) A rented house/villa…………………………….……………. ☐

c) A flat bought from the company your parents work for ………...☐

b) A flat bought from the housing market………………………… ☐

e) A house/villa bought from the housing market………………… ☐

f) A house built by your family in the countryside ………………. ☐

g) A western-style building built by your family………………….. ☐

14 **In your home, are there:**

(Please <tick> the box/boxes which apply.)

a) Refrigerator …………………… ☐   j) CD/VCD player …………………………☐

b) Washing machine ………………. ☐   k) Photo camera …………………………….☐

c) Sewing machine ………………... ☐   l) Video camera …………………………..☐

d) Microwave ……………………… ☐   m) Musical instrument (e.g. piano, violin)…..☐

e) A room of your own …………… ☐   n) Computer …………….………….………..☐

f) Telephone ……………………….. ☐   o) A link to the Internet………...…………….☐

g) TV ………………………………. ☐   p) Motorcycle ……….. ………………………..☐

h) Video recorder ……………….….☐   q) Motor car …………………………………☐

i) Stereo/Radio ……………………..☐   r) Other (Please specify) _____ .

15 **Where is your home located?**

Please write down the name of the place: _____ _____

                                              Province   Township

Are your family registered as: Urban ☐   Rural ☐

Is your home located in: *(Please <tick> only one box.)*

a) A big city…...…………..☐   d) Countryside of a big city………... ☐

b) A medium city……...…..☐   e) Countryside of a medium city….. ☐

c) A small town…..……….☐   f) A remote village………………….☐

16 **Nearby your home (within 10 km from your home), are there:**

(Please <tick> the box/boxes which apply.)

a) Primary school (s) …………………………………………… ☐

b) Junior middle school (s) …………………………………….…. ☐

c) Senior middle school (s), vocational and technical schools….… ☐

d) College(s)……….…………………………………………….… ☐

17   What proportion of students who graduate with you from your *senior middle school* went to college?

(Please <tick> only one box.)

a) Less than 1 out of 100 students………………………..☐

b) 1-25 out of 100 students…………………………………☐

c) 26-50 out of 100 students………………………….….. ☐

d) 51-75 out of 100 students………………………….…...☐

e) Over 76 out of 100 students…………………………....☐

18   In your *home neighbourhood*, is it usual for senior middle school graduates to go to college each year?

(Please <tick> only one box.)

a) Less than 1 out of 100 students………………………..☐

b) 1-25 out of 100 students…………………………………☐

c) 26-50 out of 100 students………………………….…...☐

d) 51-75 out of 100 students………………………….…...☐

e) Over 75 out of 100 students…………………………....☐

The following are questions about your college education, and how you and your family pay for your tuition fees and living costs during your college education.

19   Why do you attend college?

Please tick the position on a scale between 1 and 7 where "1" means you completely disagree and is not at all your reason, and "7" means you completely agree and it is your real reason.

Completely disagree ⟵⟶ Completely agree

| **1** | **2** | **3** | **4** | **5** | **6** | **7** |

(Please <tick> only one box each row)

a)	You just like study to gain knowledgeable	1	2	3	4	5	6	7
b)	You just want to experience college life	1	2	3	4	5	6	7
c)	Your parents insisted that you go to college	1	2	3	4	5	6	7
d)	A college certificate guarantees a good job in the future	1	2	3	4	5	6	7
e)	A college education is the best way to improve social standing	1	2	3	4	5	6	7
f)	Graduates from Senior middle school can't find good jobs	1	2	3	4	5	6	7
g)	All your friends go to college	1	2	3	4	5	6	7

20   Is this college your first choice of study institution?   Yes☐   No☐

If the answer is NO, please identify the reason why you did not go to the college you wished:

Please tick the position on a scale between 1 and 7 where "1" means you completely disagree and is not at all your reason, and "7" means you completely agree and it is your real reason.

Completely disagree ⟵⟶ Completely agree

| **1** | **2** | **3** | **4** | **5** | **6** | **7** |

(Please <tick> only one box each row)

a)	Your entrance exam mark was not sufficient	1	2	3	4	5	6	7
b)	It is too far from home, travel is expensive	1	2	3	4	5	6	7

c)	Living at the first-choice college is too expensive	1	2	3	4	5	6	7
d)	Your parents wanted you to be close to home	1	2	3	4	5	6	7
e)	The tuition charge at the first-choice college is too high	1	2	3	4	5	6	7
f)	There were limited positions for the major you applied	1	2	3	4	5	6	7

21   You are enrolled in your current college because:

Please tick the position on a scale between 1 and 7 where "1" means you completely disagree and is not at all your reason, and "7" means you completely agree and it is your real reason.

Completely disagree ⟵──────────────⟶ Completely agree)

1	2	3	4	5	6	7

(Please <tick> only one box each row)

a)	Your entrance mark is just sufficient for this college	1	2	3	4	5	6	7
b)	This college offers the major you want to study	1	2	3	4	5	6	7
c)	This is the college your parents wanted you to attend	1	2	3	4	5	6	7
d)	The major you are studying can lead to a good job in the future	1	2	3	4	5	6	7
e)	This college provides a good quality education	1	2	3	4	5	6	7
f)	This college charges comparably lower tuition fees	1	2	3	4	5	6	7
g)	This college is located near to your home	1	2	3	4	5	6	7
h)	This college is your second choice	1	2	3	4	5	6	7
i)	You are enrolled in this college by accident	1	2	3	4	5	6	7

22   What was the amount of *tuition and fees* the college charged to study *at the start of* this academic year?

Please write down the amount:

Tuition Fee: _____ Yuan.

Fees for domitory: _____ Yuan.

Other fees (please write down the amounts):

Type of the fees:	Amount (Yuan):
Fee for course books	
Fee for study materials	
Fee for insurance	
Fee for water and electricity	
Class fee and other	

23   What are your current living costs?

Please write down the amount: _____ Yuan/per month.

_____ Yuan/per semester.

Within this amount, besides the fees paid to the college, what minimum amount do you have to spend on study related costs (books, study materials and so on)?

Please write down the amount: _____ Yuan/per month.

_____ Yuan/per semester.

24   In addition to above costs, how much travel money do you have for your school holidays?

Please write down the amount: _____Yuan/per semester.

25   What are the resources financing your college *tuition fees, and your living costs(including travel money) this academic year*?

Please write down the percentage of Tuition fees and Living costs each source covers, in the box(s) to the right.

	Financing resources	Tuition fees (%)	Living costs (%)
A	*Your family*		
a)	Your parents		
b)	Your grandparents		
c)	Your sister(s) or/and brother(s)		
d)	Other family relatives or friends		
B	*Financial assistance from the college*		
e)	Scholarship from the college		
f)	Partial or complete tuition exemption from the college		
g)	Some financial assistance from the college		
C	*Financial assistance from the society*		
h)	Scholarship or any type of financial assistance from the community where your home is located		
i)	Scholarship or any type of financial assistance from an organisation or company		
D	*Borrowed money*		
j)	Your family borrow from other people		
k)	Your family borrow from a bank		
l)	You borrow from other people		
m)	You take student loan		
n)	You borrow from a bank (other loan)		

E	*Yourself*		
o)	Your part-time job		
p)	Your savings		
Total		100%	100%

26 In which sector do you expect to work after you graduate from college?

(Please <tick> only one box.)

a) Any sector where you can find a job ……………………………………… ☐

b) Self-employed, with business partner…………………………………….… ☐

c) Self-employed, with employees …………………………………….……….. ☐

d) Collective and/or rural enterprises or organisations……………………….. ☐

e) Private companies, Sino-foreign joint-venture or foreign companies …………. ☐

f) Government enterprises and organisations ……………………………….... ☐

27 What are the most important things for you to choose your future job after your college education?

Please tick the position on a scale between 1 and 7 where "1" means you completely disagree and is not at all your reason, and "7" means you completely agree and it is your real reason.

Completely disagree ◄————————► Completely agree

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

a)	Irrespective of job, only if it is in a big city.	1	2	3	4	5	6	7
b)	Irrespective of company, whoever gives a high salary	1	2	3	4	5	6	7
c)	Irrespective of company and place, only take a job that suits your studies	1	2	3	4	5	6	7

d)	Irrespective of salary, only a socially meaningful job	1	2	3	4	5	6	7
e)	Irrespective of job, only to be near your parents	1	2	3	4	5	6	7
f)	Irrespective of place and company, only a job you like	1	2	3	4	5	6	7
g)	Irrespective of company and job, only a job where you can show and fully use your competence.	1	2	3	4	5	6	7
h)	Continue to post-graduate studies	1	2	3	4	5	6	7
i)	Study abroad	1	2	3	4	5	6	7

28   If you and your family have to borrow or borrowed to finance your college, what will be/was the source?

a) Borrow from relatives, friends or other people…………. ☐

b) Take student loan……………………………………….. ☐

c) Borrow from a bank (other loan)………………………..☐

29   Your opinions or attitudes towards current student loan programme

Please tick the position on a scale between 1 and 7 where "1" means you completely disagree and is not at all your reason, and "7" means you completely agree and it is your real reason.

Completely disagree ←——————————————→ Completely agree)

1	2	3	4	5	6	7

(Please <tick> only one box each row)

a)	The student loan programme is for the good of students in need	1	2	3	4	5	6	7
b)	You believe students have the capacity to pay back the loan within the repayment period	1	2	3	4	5	6	7
c)	Low interest, convenient	1	2	3	4	5	6	7
d)	Student loan procedures are too complicated	1	2	3	4	5	6	7

e)	It is too difficult to get student loans from the bank	1	2	3	4	5	6	7
f)	There is a lack of information about the regulations and criteria for taking students loan	1	2	3	4	5	6	7
g)	Loans put pressure on students	1	2	3	4	5	6	7
h)	Taking a loan to go to college is embarrassing	1	2	3	4	5	6	7

After having answered all the questions, what are your reflections? Please note your opinion and input is very important for our research.

Please write down your opinions, suggestions reflections on the questions, and the questionnaire:

_____

_____

_____

_____

_____

_____

Thank you for your time and co-operation!

Annex 3: Supplementary Tables

Table A3.1 The development of regular higher education in China 1949-2001[29].
(Chapter 4, Fig.4.1)

Year	N Institutions	Total enrolment (in million)	New entrants (in million)
1949	205	0.10	----
1953	181	0.21	0.02
1957	229	0.44	0.10
1960	1289	0.96	0.32
1965	434	0.67	0.16
1977	404	0.63	0.63
1985	1016	1.70	0.62
1988	1075	2.06	0.67
1989	1075	2.08	0.59
1990	1075	2.06	0.61
1996	1032	3.02	0.97
1997	1020	3.17	1.00
1998	1022	3.41	1.08
1999	1071	4.13	1.60
2000	1041	5.56	2.21
2001	1225	7.19	2.68
2002	1396	9.03	3.21

Source: NBSC (2002b); MOE (2003b). *China education yearbook 1949-1981*.

---

[29] The Table does not include the 868 public adult education institutions at posts-econdary levels alongside the regular higher education institutions and thousands of classes for adult students attached to the regular universities with over four million students enrolled currently. Also excluded are over one-thousand non-governmental and/or private (Minban) institutions offering post-secondary education in China.

Table A3.2 Matrix of correlation coefficients for measures of socio-economic background

	ASSET	OCCFA	OCCMO	EDFA	EDMO	FMZ	COM1	COM2	COM3	TINCOM	COM4
ASSET	1.000										
OCCFA	0.600	1.000									
OCCMO	0.624	0.694	1.000								
EDFA	0.535	0.666	0.588	1.000							
EDMO	0.572	0.562	0.703	0.639	1.000						
FMZ	0.449	0.366	0.473	0.344	0.415	1.000					
COM1	0.594	0.574	0.664	0.479	0.573	0.506	1.000				
COM2	0.618	0.517	0.577	0.474	0.510	0.488	0.707	1.000			
COM3	0.350	0.246	0.294	0.223	0.275	0.274	0.345	0.358	1.000		
TINCOM	0.582	0.437	0.432	0.373	0.363	0.237	0.362	0.418	0.238	1.000	
COM4	0.466	0.378	0.429	0.396	0.412	0.330	0.457	0.443	0.258	0.333	1.000

Keys:
ASSET: Counts and weights of home possessions (18 items)
OCCFA: Father's occupation (Coding ISCO88)
OCCMO: Mother's occupation (Coding ISCO88)
EDFA: Father's educational attainment
EDMO: Mother's educational attainment
FMZ: Family size
COM1: Rural/urban registration
COM2: Home geographic location
COM3: Home neighbourhood educational facilities
TINCOM: Total family yearly income in 10 deciles
COM4: Proportion of home neighbourhood youth going to college

Annex 4: LISREL input files

Chapter 7:

Input 7.1. Program for the model estimating the effect of socio-economic background on 'elite' enrolment status (Fig. 7.4)

DA NI=41 NO=1156 MA=KM

LA
 ethnic f2a f2b f2c f2d f2e f2f f2g f2h f2i asset elite gender occfa occmo edfa edmo fmz com1 com2 com3 tincom siopsf siopsm living study totcost lfamily lborrow lassist lself tfamily tborrow tassist tself com4 ntincom nliving nstudy ntotcost edp

KM=edup.cor

MO NY=1 NE=1 NX=5 NK=3 LX=FI LY=FI BE=FU,FI PS=DI TE=SY TD=DI,FR

SE
 12 14 16 22 20 21/

LE
ELITE

LK
HSOC   HECO   COMMUNITY

VA 0.15 TE(1,1)
VA 0.15 TD(3,3)

FI TE(1,1)
FI TD(3,3)

FR LY(1,1)
FR LX(1,1)LX(2,1)LX(3,2)LX(4,3)LX(5,3)

PD
OU MI SE ME=ML TV SC EF ND=3

Chapter 8:

Input 8.1. Program for the model estimating the effects of socio-economic background on enrolment in elite universities, total cost of education, and financial assistance (Fig. 8.2 a)

DA NI=41 NO=1156 MA=KM

LA
 ethnic f2a f2b f2c f2d f2e f2f f2g f2h f2i asset elite gender occfa occmo edfa edmo fmz com1 com2 com3 tincom siopsf siopsm living study totcost lfamily lborrow lassist lself tfamily tborrow tassist tself com4 ntincom nliving nstudy ntotcost edp

KM=edup.cor

MO NY=4 NE=3 NX=5 NK=3 LX=FI LY=FI BE=FU,FI PS=DI TE=SY TD=DI,FR

SE
 12 27 34 30 14 16 22 20 21/

LE
ELITE COST ASSIST

LK
HSOC HECO COMMUNITY

VA 0.15 TE(1,1)TE(2,2)
VA 0.15 TD(3,3)

FI TE(1,1)TE(2,2)
FI TD(3,3)

FR LY(1,1)LY(2,2)LY(3,3)LY(4,3)
FR LX(1,1)LX(2,1)LX(3,2)LX(4,3)LX(5,3)

FR BE(2,1)BE(3,1)
FR BE(3,2)

FI GA(3,1)GA(3,2)GA(2,3)

PD
OU MI SE ME=ML TV SC EF ND=3

Input 8.2. Program for the model estimating the effects of socio-economic background on enrolment in elite universities, total cost of education, and borrowing (Fig. 8.2 b)

```
DA NI=41 NO=1156 MA=KM

LA
 ethnic f2a f2b f2c f2d f2e f2f f2g f2h f2i asset elite gender occfa occmo edfa edmo fmz com1
com2 com3 tincom siopsf siopsm living study totcost lfamily lborrow lassist lself tfamily
tborrow tassist tself com4 ntincom nliving nstudy ntotcost edp

KM=edup.cor

MO NY=4 NE=3 NX=5 NK=3 LX=FI LY=FI BE=FU,FI PS=DI TE=SY TD=DI,FR

SE
 12 27 33 29 14 16 22 20 21/

LE
ELITE   COST   BORROW

LK
HSOC   HECO   COMMUNITY

VA 0.15 TE(1,1)TE(2,2)
VA 0.15 TD(3,3)

FI TD(3,3)
FI TE(1,1)TE(2,2)

FR LY(1,1)LY(2,2)LY(3,3)LY(4,3)
FR LX(1,1)LX(2,1)LX(3,2)LX(4,3)LX(5,3)

FR BE(2,1)BE(3,1)

FI GA(2,3)GA(3,1)

PD
OU MI SE ME=ML TV SC EF ND=3
```

Chapter 9:

Input 9.1. Program for the model estimating the effects of socio-economic background on enrolments in elite universities, cost of study, financial assistance, borrowing, and future career aspirations (Fig. 9.3 a)

```
DA NI=41 NO=1156 MA=KM

LA
 ethnic f2a f2b f2c f2d f2e f2f f2g f2h f2i asset elite gender occfa occmo edfa edmo fmz com1
com2 com3 tincom siopsf siopsm living study totcost lfamily lborrow lassist lself tfamily
tborrow tassist tself com4 ntincom nliving nstudy ntotcost edp

KM=edup.cor

MO NY=8 NE=5 NX=5 NK=3 LX=FI LY=FI BE=FU,FI PS=DI TE=SY TD=DI,FR

SE
 12 26 34 30 33 29 10 9 14 16 22 20 21/

LE
ELITE  COST  ASSIST  BORROW  HIGH

LK
HSOC  HECO  COMMUNITY

VA 0.15 TE(1,1)TE(2,2)
VA 0.15 TD(3,3)

FI TE(1,1)TE(2,2)
FI TD(3,3)

FR LY(1,1)LY(2,2)LY(3,3)LY(4,3)LY(5,4)LY(6,4)LY(7,5)LY(8,5)
FR LX(1,1)LX(2,1)LX(3,2)LX(4,3)LX(5,3)

FR BE(2,1)BE(3,1)BE(4,1)
FR BE(4,2)BE(5,2)
FR BE(5,1)BE(5,3)BE(5,4)

FI GA(5,1)GA(4,2)GA(2,3)GA(2,2)

PD
OU MI SE ME=ML TV SC EF ND=3
```

Input 9.2. Program for the model estimating the effects of socio-economic background on enrolments in elite universities, living costs, financial assistances, borrowing, and future career aspirations (Fig. 9.3 b)

```
DA NI=41 NO=1156 MA=KM

LA
 ethnic f2a f2b f2c f2d f2e f2f f2g f2h f2i asset elite gender occfa occmo edfa edmo fmz com1
com2 com3 tincom siopsf siopsm living study totcost lfamily lborrow lassist lself tfamily
tborrow tassist tself com4 ntincom nliving nstudy ntotcost edp

KM=edup.cor

MO NY=8 NE=5 NX=5 NK=3 LX=FI LY=FI BE=FU,FI PS=DI TE=SY TD=DI,FR

SE
 12 25 34 30 33 29 10 9 14 16 22 20 21/

LE
ELITE   COST   ASSIST   BORROW   HIGH

LK
HSOC   HECO   COMMUNITY

 VA 0.15 TE(1,1)TE(2,2)
 VA 0.15 TD(3,3)

FI TE(1,1)TE(2,2)
FI TD(3,3)

FR LY(1,1)LY(2,2)LY(3,3)LY(4,3)LY(5,4)LY(6,4)LY(7,5)LY(8,5)
FR LX(1,1)LX(2,1)LX(3,2)LX(4,3)LX(5,3)

FR BE(2,1)BE(3,1)BE(4,1)
FR BE(3,2)BE(4,2)
FR BE(5,1)BE(5,3)BE(5,4)

FI GA(5,1)GA(3,2)GA(2,3)

PD
OU MI SE ME=ML TV SC EF ND=3
```

Annex 5: Product Moment Correlation Coefficients for the Data Set

The product moment correlation coefficients are estimated using the PRELIS 2.5 computer programme and 41 variables from the student questionnaire survey (see Chapter 6 and 9 for mnemonics).

1 ethnic	2 f2a	3 f2b	4 f2c	5 f2d	6 f2e
7 f2f	8 f2g	9 f2h	10 f2i	11 asset	12 elite
13 gender	14 occfa	15 occmo	16 edfa	17 edmo	18 fmz
19 com1	20 com2	21 com3	22 tincom	23 siopsf	24 siopsm
25 living	26 study	27 totcost	28 lfamily	29 lborrow	30 lassist
31 lself	32 tfamily	33 tborrow	34 tassist	35 tself	36 com4
37 ntincom	38 nliving	39 nstudy	40 ntotcost	41 edp	

```
   1
-0.048    1
-0.038   0.539    1
-0.066   0.33    0.345    1
-0.079   0.198   0.154   0.488    1
 0.003   0.156   0.147   0.319   0.352    1
-0.065   0.05    0.101   0.288   0.357   0.144    1
-0.076   0.027   0.106   0.316   0.374   0.118   0.714
 0.048  -0.015  -0.079  -0.029   0.053  -0.031   0.053
 0.05    0.038  -0.078  -0.018   0.033   -0.1   -0.007
 0.089   0.003  -0.086  -0.193  -0.188  -0.108  -0.057
 0.178  -0.027  -0.018  -0.133  -0.158  -0.034  -0.128
 0.013   -0.04  -0.094  -0.068  -0.035  -0.004  -0.024
 0.018  -0.031  -0.083  -0.182  -0.145  -0.108  -0.063
 0.073  -0.027  -0.098  -0.204  -0.207  -0.138   -0.1
 0.024  -0.011  -0.061  -0.122  -0.113  -0.099  -0.074
 0.07   -0.014  -0.054  -0.144  -0.144  -0.107  -0.052
 0.19    0.062  -0.025  -0.157  -0.173  -0.078  -0.109
 0.1     0.021  -0.042   -0.15   -0.16  -0.146  -0.018
 0.119   0.045  -0.031   -0.16  -0.171  -0.126  -0.067
 0.136   0.017  -0.013  -0.136  -0.179  -0.065   -0.07
 0.066  -0.027  -0.085  -0.167   -0.14  -0.073  -0.027
 0.022  -0.015  -0.067  -0.163  -0.143  -0.089  -0.065
 0.074  -0.022  -0.091  -0.196   -0.18  -0.136   -0.09
 0.049  -0.068  -0.096  -0.227   -0.23   -0.05   -0.08
 0.073   -0.04  -0.038  -0.046   -0.06   0.027  -0.016
 0.079  -0.059  -0.068  -0.125  -0.137   0.004  -0.043
-0.05    0.036  -0.026   0.043   0.006   0.004   0.036
-0.124  -0.005  -0.012   0.157   0.139    0.02  -0.045
-0.059  -0.033  -0.061   0.042   0.069  -0.041  -0.048
-0.013   0.012   0.008   0.005   0.052  -0.113   0.001
```

-0.062	0.051	0.01	-0.068	-0.044	0.05	0.026
-0.113	-0.076	0.049	0.12	0.178	0.023	-0.059
-0.111	-0.031	-0.068	0.077	0.098	0.057	-0.044
0.014	-0.016	-0.009	0.072	0.154	0.008	0.069
0.175	-0.031	-0.088	-0.194	-0.168	-0.052	-0.044
0.128	-0.011	-0.086	-0.189	-0.181	-0.106	-0.052
0.075	-0.06	-0.095	-0.234	-0.252	-0.057	-0.112
0.112	-0.036	-0.036	-0.084	-0.1	-0.02	-0.05
0.116	-0.053	-0.073	-0.163	-0.186	-0.035	-0.087
0.043	-0.015	-0.058	-0.126	-0.127	-0.107	-0.053

1						
0.057	1					
0.033	0.499	1				
-0.077	0.085	0.255	1			
-0.14	0.021	-0.006	0.156	1		
-0.047	0.013	0.032	0.185	0.068	1	
-0.087	0.093	0.17	0.599	0.133	0.166	1
-0.133	0.14	0.197	0.632	0.121	0.18	0.701
-0.074	0.14	0.222	0.555	0.145	0.176	0.706
-0.088	0.139	0.255	0.591	0.154	0.223	0.595
-0.153	0.092	0.207	0.512	0.202	0.148	0.421
-0.076	0.119	0.208	0.594	0.127	0.234	0.578
-0.115	0.141	0.233	0.639	0.239	0.202	0.543
-0.098	0.087	0.138	0.427	0.172	0.112	0.307
-0.068	0.089	0.19	0.582	0.209	0.121	0.444
-0.068	0.104	0.151	0.568	0.108	0.162	0.952
-0.13	0.151	0.205	0.629	0.11	0.19	0.699
-0.123	0.026	0.096	0.488	0.231	0.182	0.411
-0.035	0.036	0.152	0.282	0.428	0.124	0.238
-0.075	0.04	0.163	0.421	0.444	0.173	0.355
0.054	0	0.017	-0.102	0.026	-0.024	-0.023
0.104	-0.045	-0.013	-0.559	-0.154	-0.262	-0.385
0.02	0.069	0.008	-0.273	-0.037	-0.016	-0.18
0.071	-0.028	0.03	-0.039	0.143	0.034	-0.061
0.026	-0.006	0.043	0.024	0	-0.034	0.034
0.071	-0.025	-0.118	-0.614	-0.01	-0.227	-0.365
0.023	0.059	0.062	-0.333	-0.072	0.025	-0.213
0.15	0.019	0.1	-0.079	-0.009	-0.094	-0.137
-0.091	0.103	0.163	0.496	0.179	0.161	0.407
-0.083	0.089	0.197	0.756	0.23	0.199	0.6
-0.157	0.043	0.092	0.546	0.249	0.186	0.47
-0.066	0.092	0.166	0.352	0.568	0.119	0.309
-0.132	0.078	0.162	0.503	0.53	0.174	0.436
-0.062	0.153	0.243	0.586	0.161	0.185	0.7

1	
0.636	1

0.769	0.695	1				
0.551	0.412	0.503	1			
0.685	0.492	0.592	0.546	1		
0.599	0.518	0.554	0.582	0.73	1	
0.364	0.286	0.349	0.389	0.407	0.465	1
0.434	0.387	0.373	0.286	0.362	0.424	0.285
0.707	0.723	0.607	0.444	0.592	0.539	0.292
0.95	0.637	0.778	0.568	0.69	0.605	0.356
0.391	0.348	0.343	0.286	0.35	0.362	0.284
0.254	0.269	0.288	0.268	0.233	0.283	0.169
0.361	0.356	0.37	0.332	0.327	0.373	0.249
-0.088	0.003	-0.05	-0.043	-0.077	-0.078	-0.012
-0.413	-0.286	-0.328	-0.401	-0.489	-0.529	-0.255
-0.165	-0.137	-0.171	-0.234	-0.25	-0.272	-0.13
-0.065	-0.059	-0.025	-0.012	-0.075	-0.077	0.008
0.05	0.048	0.059	0.041	0.055	0.054	0.013
-0.434	-0.328	-0.373	-0.364	-0.45	-0.505	-0.329
-0.217	-0.221	-0.212	-0.241	-0.227	-0.276	-0.18
-0.121	-0.127	-0.06	-0.047	-0.18	-0.152	-0.096
0.48	0.432	0.457	0.409	0.486	0.5	0.336
0.625	0.525	0.546	0.416	0.547	0.614	0.398
0.454	0.402	0.419	0.342	0.401	0.432	0.297
0.325	0.331	0.349	0.286	0.293	0.361	0.194
0.443	0.422	0.44	0.361	0.393	0.461	0.273
0.698	0.935	0.851	0.445	0.549	0.556	0.316

1						
0.406	1					
0.403	0.725	1				
0.463	0.363	0.374	1			
0.211	0.234	0.245	0.261	1		
0.353	0.335	0.349	0.599	0.929	1	
-0.067	-0.047	-0.081	0.051	0.065	0.073	1
-0.374	-0.379	-0.417	-0.434	-0.076	-0.213	0.11
-0.159	-0.194	-0.164	-0.189	-0.067	-0.13	0.282
-0.012	-0.063	-0.09	-0.065	0.148	0.1	0.061
-0.008	0.023	0.058	0.047	0.082	0.086	0.585
-0.429	-0.359	-0.429	-0.469	-0.04	-0.195	0.055
-0.221	-0.238	-0.225	-0.304	-0.115	-0.209	0.188
-0.087	-0.134	-0.132	-0.207	0.097	0.008	-0.012
0.351	0.426	0.487	0.343	0.212	0.308	-0.057
0.905	0.574	0.607	0.561	0.282	0.446	-0.067
0.479	0.434	0.451	0.995	0.265	0.586	0.042
0.296	0.295	0.313	0.339	0.918	0.859	0.058
0.439	0.408	0.434	0.694	0.82	0.971	0.055
0.409	0.721	0.7	0.361	0.285	0.374	-0.019

1

0.327	1					
0.253	0.435	1				
-0.041	0.117	-0.068	1			
0.847	0.303	0.287	0.031	1		
0.298	0.699	0.314	0.184	0.34	1	
0.381	0.318	0.723	0.096	0.346	0.441	1
-0.413	-0.216	-0.004	0.066	-0.43	-0.236	-0.066
-0.495	-0.241	-0.033	0.029	-0.548	-0.297	-0.106
-0.452	-0.237	-0.118	0.055	-0.51	-0.318	-0.202
-0.184	-0.086	0.15	0.083	-0.119	-0.142	0.11
-0.309	-0.164	0.065	0.079	-0.298	-0.259	-0.039
-0.292	-0.184	-0.028	0.045	-0.344	-0.242	-0.091

1					
0.472	1				
0.386	0.612	1			
0.272	0.388	0.348	1		
0.372	0.559	0.705	0.898	1	
0.46	0.568	0.423	0.355	0.45	1

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