

# Asymmetries in progression in higher education in Taiwan: Parental education and income effects

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## Abstract

A unique data set on Taiwan was employed to investigate the socioeconomic family backgrounds of students attending universities. Our empirical study found that individuals attending university are more likely to come from better-educated families than are those who do not attend university. Students attending public universities, which receive higher government subsidies, tend to come from wealthier families. Furthermore, our results show that the relationship between the size of the government subsidies and family background is not purely progressive. Students attending normal universities/teacher training colleges received the highest subsidies but tended to come from the least-educated families. Students attending the top five public universities come from the most affluent families of Taiwanese society.

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## 1. Introduction

Education is invariably heavily subsidized by governments in many countries around the world, with the government's involvement often being justified on the basis of market imperfections and income distribution considerations. Within the market for education, market imperfections can take on a variety of forms, the most commonly cited

being the presence of positive externalities from schooling, and the constraints of the capital markets (in terms of restricting borrowing against future human capital). Although various appeals to market imperfections have provided support for intensive educational policies, these are clearly not the only rationale for government education programs, since education also provides a mechanism for the redistribution of societal income and the welfare of its citizens (Fernandez and Rogerson, 1995).

This paper set out to empirically examine the characteristics of the beneficiaries of public expenditure on higher education in Taiwan, along with an

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evaluation of the distributional consequences of government spending. In common with many countries around the world, higher education in Taiwan is heavily subsidized by the government. In the 1998 fiscal year, government spending on higher education accounted for 0.56% of the island's GDP; this figure is comparable to the average percentage spent by 28 OECD countries (1%) and that spent by 17 non-OECD countries (0.9%).<sup>1</sup>

In Taiwan, subsidies for higher education generally come in the form of government-financed low-tuition public universities. Depending on the score achieved in the Joint Entrance Examinations, a student is assigned to major in a particular field, at a specific university or college in Taiwan. In general, public universities are more prestigious, and hence, more favored by students. If the likelihood of students from low-income families attending public universities were to be greater than the likelihood of those from higher-income families attending the same universities, then public support for higher education would prove to be an effective transfer of resources from higher-income individuals to lower-income individuals.

Our study differs from a recent study carried out in Argentina (Rozada & Menendez, 2002) in four respects. First, our study used nationally based data combining annual birth certificate records with the national joint entrance examination files, whilst the social and economic status of families was represented by the parents' educational attainment and income levels. Second, we employed a two-part model to estimate the conditional probability of entering public university and the conditional probability of entering different types of public universities. Third, while socioeconomic variables were the major concerns of this study, we also controlled for individual characteristics and year and city/county fixed effects, which are confounding factors in individual educational attainment. Fourth, and the most important of all, we were able to distinguish among the different types of public universities that students attended and further establish the relationship between the level of government subsidies and family background.

Several results of our empirical study stand out. First, college students are more likely to come from better-educated families. Second, compared to students attended private universities, students attending public universities tend to come from

the wealthier families of Taiwanese society. Among the public universities, students attending normal universities (teacher training institutions) received the greatest subsidies from the government, followed by the students at the top five public universities, and then by the students at the other lower-tier public universities. We found that students at the top five public universities come from the best-educated families, followed by the students at the other lower-tier public universities. Students at normal universities (teacher training institutions) tend to come from poorer families. Taking all of these results together, the findings of this study suggest that public spending on higher education tends to subsidize the wealthier families in Taiwan. The only exception to this is that students who choose to attend normal universities in order to benefit from heavy government subsidies are generally from poorer families.

This paper is organized as follows: the next section provides the background to the system of higher education in Taiwan, followed, in the subsequent sections, by a brief literature review and a description of the data set. The penultimate section provides the empirical estimation results, followed in the final section by the conclusions drawn from this study.

## 2. Higher education in Taiwan

In Taiwan, all college and university students must pass the fiercely competitive College and University Joint Entrance Examination. Around 120,000 students have enrolled to take the examination each year between 1991 and 1997. Prior to 1995, the overall admission rate to colleges and universities was around 44%, but this subsequently jumped to 49% in 1996, and 60% in 1997. Typically, following the examination, students list and rank both their preferred major and their preferred choice of institution. Depending on their examination scores, students are then assigned to major in a particular field at a specific institution.

In contrast to the educational system in the US, public universities or colleges, in general, are regarded as being much more prestigious than their private counterparts in Taiwan, and indeed, represent the primary choice for Taiwanese students. In 2001, there were a total of 57 universities (27 public and 30 private) and 78 colleges (23 public and 55 private) in Taiwan, and of these, the private universities and colleges accounted for almost

<sup>1</sup><http://www.oecd.org/dataoecd> (10/2003).

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