Student loan and credit risk in Korea☆

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HIGHLIGHTS

- We analyze factors affecting default of student loans in Korea, using nationwide data.
- Default of student loans is a function of gender, major, loan amount, etc., being consistent with prior studies.
- The effect of age and marital status in our analysis is not consistent with prior studies.
- We first document new variables affecting student loan defaults such as grace period and repayment period.

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ABSTRACT

This study first analyzes factors affecting default of student loans in Korea, using nationwide data. Default of student loans is a function of gender, major, loan balance, etc., being consistent with prior studies. However the effect of age and marital status in our analysis is not consistent with prior studies. We first document new variables affecting student loan defaults such as grace period and repayment period.

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1. Introduction

The delinquency rate of US student loan has exceeded 11.2% (Federal Reserve Bank of New York, 2013). The risk of student loan default is regarded as a potential factor that may possibly trigger the next economic crisis (Stiglitz, 2013). Indeed, the 2008 financial crisis started when the housing-loan delinquency rate exceeded 10% (Palacios and Kelly, 2014). In addition, while total consumer debt has increased by 61% over the last 10 years, the size of private and federal student loan has jumped 362% to 1.1 trillion USD. This reaches 10% of total consumer debt as of 2013 (Shah, 2014). Hence, student loans are a serious issue in US.

Korea faces similar problems. While the annual growth rate of consumer debt was 6% in 2013, the growth rate of education debt was 12%. Importantly, 33% of the educational debt, amounting to about 10 billion USD, was borrowed by college students (The Bank of Korea, 2014); the amount of college student loan has increased by 2.5 billion USD each year from its inception in 2009. Furthermore, loans are expected to grow to 26 billion USD by the mid-2020s. In addition, the number of loan defaulters surged by 32% to 40,419 in 2012 (Korea Student Aid Foundation, 2013). Conclusively, the loan balance and defaults keep ballooning, foreshadowing significant financial and social problems in Korea.

Such trends and risks partially result from various policy shifts and pressures. Education has always been an important and strategic issue in Korea. College tuition has increased considerably while the government has little room to support education costs due to budget constraints. More and more students depend on student loans for their education. The government is facing the risk of much loss from student loans in the current system. It cannot politically and socially afford large scale defaults in student loans. Hence, the growing credit risk in student loans is a complex problem for students, themselves, and for the society as a whole.

We examine factors affecting student loan defaults in Korea. We extend existing literature by adding new variables about loan

characteristics and academic attributes. While prior studies have the limitation of using narrow data of a certain university or region, we use a unique nationwide student loan data. The dataset of Korean student loans also provides an international comparison, giving the opportunity to extend existing literature primarily focusing on US situation.

2. Literature review

Existing literature on student-loan default focuses on the USA where the student loan is an important issue for higher education (Gross et al., 2009). Since the 1980s, the USA has tilted to using student loans from using scholarships in order to expand the opportunities for higher education. Since then, academic studies have examined several key aspects of student loans. There are several consensuses in the literature. Men are more likely to default than women (Podgursky et al., 2002). The older the borrower, the higher the probability of default (Herr and Burt, 2005). Student-loan default increases with the number of family members to take care of and being divorced or widowed (Volkwein and Szelest, 1995). The higher the income, the lower the default (Wilms et al., 1987). The lower the grade, the higher the default (Christman, 2000). Students majoring in humanities and social science experience higher default mainly attributable to their lower future earnings (Schwartz and Finnie, 2002). Debt balance increases default rate (Choy and Li, 2006). Our empirical analysis will include those traditional variables and examine whether such consensus holds. In addition, we will examine how loan characteristics affect default that existing literature has disregarded. Our analysis is also the first about the Korean student loan.

There are also debates. In Flint (1997), scholarships do not affect default; however in Greene (1989), the more students receives scholarships, the lower the default rate; in Steiner and Teszler (2005), financial support tends to yield a lower default rate. In Woo (2002), two-year community college students default more than four-year university students do, which Knapp and Seaks (1992) disagree with. Such controversial findings in existing studies may be attributable to their data limitation because existing studies use limited data specific to certain regions and universities. We fill this gap in the literature using nationwide data without any sample selection bias.

3. Empirical specification and data

We use the Korean Direct Loan data of 1 161 478 accounts between the second-semester of 2009 and the second-semester of 2012. The Korean Direct Loan means mortgage style loans where monthly repayments are fixed for a set period.[1]

All data are from KOSAF (Korea Student Aid Foundation), a government agency established to provide student loans. Since default from an account eventually affects all accounts of its borrower, our unit of analysis is the borrower. Thus, consolidating the accounts into borrowers, we have 626 575 students.

We use the logit model including almost all variables from prior literature, while excluding some variables irrelevant to Korea, such as race. Our dependent variable is default. Default occurs when a borrower is overdue more than six months. This is the practical procedure and definition used by KOSAF and the Korean government.

We examine an extensive list of independent variables including loan characteristics. The independent variables are grouped

into five categories: (1) demographic characteristics: gender, age, marriage, income, etc.; (2) academic characteristics: major, grade, student classification,[2] etc.; (3) loan characteristics: loan balance, grace period, loan accounts, etc.; (4) financial-support characteristics: interest subsidies and scholarships; (5) institution characteristics: type of institution, province of institution, etc. This categorization extends Flint (1997).

4. Results

Descriptive statistics are presented in Table A.1 of Appendix. Out of a total of 626 757 students, the number of defaults amounts to 35 274, implying that the default rate is around 5.63%. The major findings, as presented in Table 1, are as follows. About demographic characteristics, men are more likely to default. However, women tend to apply for loans more than men do, contrasting with Mortenson (1989) in that women use less debt due to their risk aversion. Possibly, male students can access family wealth or part-time blue-color working opportunities better. The younger the borrower, the higher the default. This result also contrasts with the finding of the previous studies (Herr and Burt, 2005). This difference may come from the unique feature of the Korean student loan system, i.e. (1) the qualifying age of a Direct Loan borrower increased after the inception of an alternative, income-contingent loan (ICL) in 2010; (2) students from high-income families apply for a Direct Loan, because they are not allowed to apply for an ICL. Consequently, Direct Loan holders are comprised of older students from high income level families. Therefore, the negative relationship between age and default can be found. The married are less likely to default than the single. This also differs from previous studies (Volkwein and Szelest, 1995). Our interpretation is that, in Korea today, being married when young is a luxury given the cost of marriage ceremony, marriage infrastructure (e.g. housing and home appliances) and household management. Those who can afford such luxury will default less. As for income, the higher the income, the less likely the default.

Academic characteristics of students affect the default rate of student loan. Students majoring in humanities, art and physical education have a higher default rate than other majors, everything else being equal. These academic fields may imply lower employment rate and wage, increasing default risks. Interestingly, students in higher year of college default more. This result implies the importance of job prospect in affecting defaults of student loans. If a student stays longer in school, he delays entering the job market. The bleaker the job market prospect, the longer the postponement in entering the job market. Furthermore, staying too long in school and not entering the job market on time can deteriorate the quality of human capital.

The higher is the student's scholastic grade, the lower the default. Defaults occur more for freshmen, readmission students and transfer students. If a freshman fails to meet the minimum criteria for income-contingent loan (ICL), she can only apply for Direct Loan. Readmission students tend to restart their study after they fail in the previous programs due to low grades. Thus, our results suggest that academic record can signal the characteristics as diligence, academic capability and credit risk. Transfer students default more than others; this conflicts Woo (2002) in which the more schools a student attends, the lower the default.

As for loan characteristics about which we are the first to document in the literature, the longer grace period and repayment period, the less likely the default. Thus, rescheduling debts maturity and grace period can increase the debt capacity of

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[1] In Korea, two types of loan programs are offered; (1) Direct Loan, (2) Income Contingent Loan, and if student applicants are from the upper 20% income level, they should apply for Direct Loan.

[2] Student classification variable includes being Readmission student or Transfer student, etc.