Mediation Effects of Educational Loan Repayment Model

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ABSTRACT

In this paper we identify six constructs of student loan repayments; perception that loan repayment will affect the quality of life after graduation, awareness of loan repayment issues, perception towards loan agreement, parental influence, students’ attitude towards loan repayment and intention to repay loan. We then apply structural equation modelling (SEM) approach to test the mediation effects concerning the relationships between the constructs in our theoretical model. The results show that the students’ attitude construct mediates partially the relationship between parental influence and intention to repay loan, and between perceptions of the impact of loan after graduation and intention to repay loan. The relationship between students’ attitude and awareness of loan repayment issues created by media is fully mediated by parental influence.

Keywords: student loan, constructs, mediation, hypothesis

INTRODUCTION

As established in many studies, defaults are often associated with external factors, such as students’ background, failure to get a job, unemployment, income uncertainty, academic experiences, and the characteristics of the institutions in which students enrol for their degrees. There are only a handful of studies (Abu Bakar et al., 2006; Christman, 2000; Flint, 1997; Livingstone & Lunt, 1992) that have focused on borrowers’ attitude towards loan repayments. The issue of attitudes towards loans is often overlooked, both in literature and in practice; this is considerably disappointing as the question of attitudes is of crucial importance when seeking to draw the final evaluation of a loan scheme. It is one thing to propose a loan scheme for a given target group, but to have an individual in these groups actually take advantage of these loans is another matter.

For most students, the decision to borrow creates many uncertainties during graduation, such as the task of getting a job in order to repay the loan and the high cost of studies, which they may not be able to complete on the given period of the loan. Under those conditions, it is highly probable that attitude will play a major and significant role in the student’s decision to repay. For the public policy maker, over-estimating and overly optimistic assumptions of students’ willingness to repay may cause the whole scheme to be misplaced and objective unachieved. Furthermore, in the developing country, students’ attitudes towards loans can hardly be separated from the more general problem of attitudes towards higher education, family lifestyles, and employment after graduation.

Previous researches in a Western context have typically studied only one aspect which causes default, such as the study on the attitude itself or perceptions of impact of loan after graduation itself. There is, as yet, no
An in-depth study has been conducted to investigate whether or not these factors are inter-related. As indicated by Schwartz (1999, p. 322), the common perception is that borrower attitudes are related to student loan default, but that "there has been no systematic study of borrower attitudes toward student loan default". Essentially, a lack of research in a Western context on educational loan defaults is recognized, as stated by Gross et al. (2009): "...we are struck by the relative dearth of recent research on student loan default using large national data sets and rigorous statistical methods... a series of studies on student loan default have not been undertaken for more than a decade...the time has come to fill the gap" (p. 27).

Likewise, research in a non-Western context on the attitude and perceptions of impacts of loans after graduation have been carried out by Abu Bakar et al. (2006); however, thus far, there are no studies on the relationship between the factors. This study argues the possibility of integrating these different factors into one model. Despite the importance of borrowers’ attitude, the literature on borrowers’ attitude is nevertheless limited. As a result, relatively little is known concerning attitude and the measurement in terms of educational loans. There have also been no empirical studies investigating the relationship between students’ attitude and the intention to repay the loan, students’ attitude and parental influence, as well as students’ attitude and perceptions of the impact of loan after graduation. Little has been known about the roles of media and loan agreement in this context, but how this factor relates requires further investigation. With this in mind, this study intends to consider how the factors mentioned are related to each other. In particular, this study intends to answer the following research questions:

From the students’ perspective, are the impact of the relationship of parental influence, awareness created by media, perceptions of the impact of loan after graduation and perceptions towards loan agreement, students’ attitude and the intention to repay the loan direct? In other words, are there any mediating effects embedded within the relationship between the hypothesised model?

This study will open up important questions which have been previously unaddressed in the context of educational loans. The breadth of this study would extend the knowledge regarding factors affecting repayment and defaults of which attitude appears to be the main cause (Abu Bakar et al., 2006; Christman, 2000; Monteverde, 2000). Thus, there is a need for a more generalisable research framework that systematically investigates the causes and the impact of students’ attitude on the intention to repay the loan in a non-Western context. As a result this study can be classified as an attempt to investigate the effects of students’ attitude on the intention to repay the loan with data collected from amongst final-year undergraduate students in public universities in Malaysia. In the process the study investigate the mediating effects embedded in the educational loan repayment model. It is hoped that this study would help improve current knowledge relating to students’ attitude towards loan repayment and to thereby offer practical insights to policy makers and organisations providing loans. The findings are expected to provide valuable information on factors in the form of a model that can signal a prediction in terms of repayment/default.

**RESEARCH METHOD**

This study employs multiple methods for data collection. The benefit of using multiple methods is that it enables triangulation to take place. Triangulation is the use of different data collection methods in order to check that the data are telling us what we think they are; this strengthens the integrity of inferences drawn from the data. In social science, triangulation often refers to the claim that comparing findings from two or more different research methods enables the researcher to conclude whether an aspect of a phenomenon has been accurately measured (Moran-Ellis et al., 2006). Patton (2002) has suggested four different categories of triangulation:

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1. Evaluate data produced by different research methods (e.g., quantitative and qualitative);
2. measure data from different processes using qualitative and quantitative sources (e.g., interviews, questionnaires, observations);
3. Use different analysis techniques;
4. Investigate data from diverse theoretical viewpoints.

Accordingly, in this study, focus-group discussions and followed by in-depth interviews were conducted in order to validate and clarify the focus-group findings, which subsequently alerted the researchers to issues requiring exploration through a quantitative approach (a questionnaire survey) conducted. The main objective of the quantitative part of our study is to test, on a larger scale, the findings generated from the literature review and the small-scale qualitative phase, using structured questionnaires presented to a large sample of respondents. Semi-structured interviews were conducted to cross-check the quantitative findings as a means of triangulating the data. Both our qualitative and quantitative data also involve coding; the responses are computerised in a format appropriate for using NVIVO 8.0, SPSS 15.0 and AMOS 18.0 in the analysis. The multiple research methods involved collecting, analysing and interpreting quantitative and qualitative data in a single study or in a series of studies which actively investigate the same underlying phenomenon (Leech & Onwuegbuzie, 2007). Both methodologies ‘describe their data, construct explanatory arguments from their data, and speculate about why the outcomes they observed happened as they did’ (Sechrest & Sidani, 1995, p. 78).

Rationale for the Mixed Approach

Both methodologies possess various advantages and disadvantages. Qualitative methods are argued to be unscientific and theoretically open to subjective bias by the individual researcher, and not open to inspection or replication. In contrast, quantitative methods seek regularities in human lives by separating the social world into empirical components known as ‘variables’, which can be represented numerically (Payne & Payne, 2004). Quantitative studies concentrate on testing theoretical hypotheses and thereby generalising the results to a broader population, whereas qualitative studies focus on the details of social interaction and the specificity of reality that social actors generate (Corbetta, 2003). Quantitative research methods are most commonly associated with deductive explanatory approaches which begin with a known theory—usually by attempting to provide evidence for or against a pre-specified hypothesis. Quantitative research is accordingly linked to the notion of science as objective truth or fact, and begins with pre-specified objectives focused on testing preconceived outcomes. When applying quantitative methods, numerical estimation and statistical inference from a generalisable sample are used in relation to a larger ‘true’ population of interest. As a result, quantitative research is most often considered to be a method demonstrating causal relationships under standardised (controlled) conditions (Bryman & Bell, 2007). The preferred quantitative research method includes operationalising concepts in order to facilitate measurement, as well as working with larger samples (Mangan et al., 2004). On the other hand, qualitative findings are non-numerical; therefore, conclusions cannot be drawn based on statistical inferences. Notably, qualitative methods seek to understand the rationale individuals bring to their own actions rather than explaining statistical patterns (Payne & Payne, 2004).

This study also utilises both quantitative and qualitative data; whilst quantitative data are objective and focused on the phenomenon of interest, qualitative data emphasise descriptions as opposed to quantifying, and relate to an inductive approach. There are three main benefits to employing multiple methods in the
current study, as different methods may be used for different research purposes. First, focus groups and interviews are conducted before the pilot study in order to validate existing items extracted from the literature and to generate new items, thereby producing a set of items that best represent the constructs. This provides the researcher with more confidence that the current study focuses only on the most important issues at hand. And second, the quantitative survey pays off in improved instrumentation and also in sharpening the researcher understands of the findings. With this in mind, the breadth of data produced by the quantitative approaches are supplemented by the depth and richness of the findings achieved through the qualitative methods. Finally, interviews are conducted to cross-check the quantitative findings to conclude whether an aspect of a phenomenon has been accurately measured.

**CONTEXT OF STUDY AND UNIT OF ANALYSIS**

This section presents the context selected for this study and the unit of analysis used. Malaysia is selected as representative of non-Western countries owing to a number of reasons. For instance, its national culture of collectivism is substantially different from that of a typically Western country, which is characterised by individualism (Hofstede, 1980). Moreover, this study also facilitates the assessment of external validity and the generalisation of theories in a non-Western context. Characteristically, in Malaysia, students rely on the government to provide financial assistance for enrolment in higher education; however, student loan defaults have become a huge debate amongst the Malaysian public and have therefore added burden to the government. Accordingly, in order to develop a strategy for minimising loan defaults, it is important to analyse whether or not research findings on student loan default in Western countries are applicable to, and collaborate with, a non-Western country’s context.

One of the first steps taken when conducting social research is to determine the unit of analysis. The unit of analysis is the social object or entity, the properties or characteristics of which are the focus of study (Baker, 1994; Corbetta, 2003). The choice of an appropriate unit of analysis is dictated by the research objectives and questions, and is therefore linked to the way in which data should be collected. In order to allow for complete data analysis at different levels, a general rule of thumb is that data should always be collected at the lowest level unit of analysis possible, irrespective of that which is being studied (Bernard, 2000); This is owing to the fact that the data at an individual level can be aggregated or transformed into data at a higher level (group, company, and network), whereas the reverse process (disaggregating data) may not be possible. Therefore, the appropriate unit of analysis in both the qualitative and quantitative parts of this study is notably a student. Many researches explore the interaction of debt and attitudes using a student population (Davies & Lea, 1995; Etzioni, 1988; Paulsen & St. John, 2002; Porter, 1999; Porter et al., 2006; Price, 2004; Pearse, 2003). Essentially, students are an interesting group to study in the context of education debt for a number of reasons. First, they are the group of respondents borrowing loans for their education and could provide vital information about different aspects of concepts in the study (Chapman, 2006; Scott, 2001). Secondly, student respondents are particularly desirable in this instance, as students are generally literate and can effectively verbalise definitions, and the scopes of difficult and technical terms (Singell, 2002; St. John, 2003); therefore, the students contribute to the generation of measurement domains and items within the study as the information obtained was quite in-depth and rich. Finally, students as respondents are easily accessed and followed up with in the case of further questions after the end of the focus groups and interviews (Podgursky et al., 2002).
For the purpose of this study, final-year undergraduate students from public universities in Malaysia were selected owing to various reasons. First, the students are the borrowers of this type of loan and therefore represent the largest population borrowing government loans. Second, students from public universities represent the highest borrowers from the National Higher Education Fund Corporation (NHEFC)—the largest organisation providing loans in Malaysia. Notably, although, under the scope of NHEFC, total polytechnics institutions are higher when compared to total public universities, in terms of total loans provided, the total amount for students in public universities is higher (NHEFC, 2010). Finally, students who experience loan-borrowing are also involved directly with the process of repayment; therefore, reliable and adequate data can be obtained for the purification of measurement scales and hypotheses testing. This allows the researcher to clearly measure the constructs and estimate effectively students’ relationships with those constructs.

THEORETICAL MODEL

Following from the discussion in the previous section, the following theoretical model is drawn as depicted in Figure 1.

![Theoretical Model Diagram]

**Notes:**
LP—Perceptions toward loan agreement; AW—Awareness created by media; PQ—Perceptions of the impact of loan after graduation; PI—parental influence; AT—students’ attitude; IR—intention to repay loan

Figure 1: Theoretical Model

ANALYSIS

In this study, four hypotheses involved mediation. Mediation can be examined in several ways; one alternative is to add previous paths, one-by-one, to the exploratory model and then accordingly evaluate the model fit. Mediation requires ‘significant correlations among all three constructs’ (Hair et al., 2010, p. 766). In this study, testing for mediation is performed through the following process (also shown in Figure 2):
1. Estimate the direct effect Path 1 between A and C constructs;
2. Estimate the second model by adding construct B, including Path 2 and Path 3;
3. Add construct B.
4. If Path 1 is significant and unchanged after adding construct B, mediation is then not supported;
5. If Path 1 is reduced but remains significant, then partial mediation is supported; and
6. If Path 1 reduced to not significant, full mediation is then supported.

### Figure 2: Mediation Effects

**RESULTS AND DISCUSSIONS**

In the current study, testing for mediation followed the procedures recommended by Hair et al. (2010). Mediation effects are shaped when a third construct intervenes between two other related constructs. Full mediation can then be described owing to the fact that the mediating construct completely explains the relationship between the two construct. However, partial mediation occurs if the relationship between the two constructs can be explained by a mediator construct as well as direct relationships between the two constructs. In this study, four (4) hypotheses were developed—H₁, H₂, H₃ and H₄—which involved testing the mediation effect. The details are shown in Table 1.

<table>
<thead>
<tr>
<th>Notation</th>
<th>Mediation Hypotheses</th>
</tr>
</thead>
<tbody>
<tr>
<td>H₁</td>
<td>The relationship between parental influence and intention is mediated by students’ attitude</td>
</tr>
<tr>
<td>H₂</td>
<td>The relationship between perceptions of the impact of loan after graduation and intention is mediated by students’ attitude</td>
</tr>
<tr>
<td>H₃</td>
<td>The relationship between Perceptions toward loan agreement and students’ attitude is mediated by perceptions of the impact of loan after graduation</td>
</tr>
<tr>
<td>H₄</td>
<td>The relationship between awareness created by media and students’ attitude is mediated by parental influence</td>
</tr>
</tbody>
</table>

Notes: LP—Perceptions toward loan agreement; AW—Awareness created by media; PQ—Perceptions of the impact of loan after graduation; PI—parental influence; AT—students’ attitude; IR—intention to repay loan
First, the direct effects model was examined in order to ensure the existence of the direct relationship between the A and C construct. Subsequently, the mediation model was investigated by adding the mediation constructs. The result is presented in Table 2. The Goodness of Fit indices for both models indicated a good fit; however, the model with mediation constructs was better compared with the direct effects model and confirmed by CMIN/df = 1.758, CFI = 0.962 and RMSEA = 0.042.

<table>
<thead>
<tr>
<th></th>
<th>χ²</th>
<th>DF</th>
<th>χ²/df</th>
<th>CFI</th>
<th>GFI</th>
<th>TLI</th>
<th>AGFI</th>
<th>PGFI</th>
<th>PNFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct effects</td>
<td>529.512</td>
<td>225</td>
<td>2.353</td>
<td>0.931</td>
<td>0.904</td>
<td>0.922</td>
<td>0.883</td>
<td>0.737</td>
<td>0.788</td>
<td>0.056</td>
</tr>
<tr>
<td>Mediation</td>
<td>388.542</td>
<td>221</td>
<td>1.758</td>
<td>0.962</td>
<td>0.927</td>
<td>0.956</td>
<td>0.908</td>
<td>0.742</td>
<td>0.800</td>
<td>0.042</td>
</tr>
</tbody>
</table>

The researchers found that three direct paths were significant: the first path linked parental influence (PI) and intention to repay loan (IR), whilst the other two paths linked perceptions of the impact of loan after graduation (PQ) and intention to repay loan (IR), as well awareness created by media and parental influence; therefore, hypothesis H₄ suggesting that the relationship between agreement perception and students’ attitude was mediated by quality perception was not supported. This was owing to the fact that the direct relationship between perceptions toward loan agreement (LP) to students’ attitude (AT); (γ = 0.07, p = 0.225) did not exist; therefore, the mediation also did not exist (Baron & Kenny, 1986). Regarding the other hypothesis, there was a significant relationship between PI and IR (β = 0.26, p<0.001) before adding the mediation construct; however, when including attitude (AT) as a mediating construct, the relationship value was then reduced though remaining significant (β = 0.23, p<0.001). Therefore, the partial mediation was supported for the H₂.

Similarly, attitude (AT) partially mediated between perceptions of the impact of loan after graduation (PQ) and intention to repay loan (IR). The relationship between PQ and IR remained significant (β = -0.11, p < 0.001) when adding AT as a mediating construct. This supported the partial mediation; thus, H₃ was supported. However, the relationship between awareness created by media (AW) and students’ attitude (AT) was significant (γ = 0.15, p<0.05) before adding mediation construct, but when including PI as a mediating construct, the relationship reduced to insignificant (γ = 0.05, p<0.282). Thus, H₅ was supported, explaining the relationship between AW and AT as fully mediated by PI. The result details are shown in Table 3.
<table>
<thead>
<tr>
<th>Mediation Construct</th>
<th>Direct effect</th>
<th>Mediation</th>
<th>Supported?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students’ attitude (AT)</td>
<td>IR $\leftarrow$ PI $\sim$ 0.26***</td>
<td>AT $\leftarrow$ PI $\sim$ 0.42***</td>
<td>IR $\leftarrow$ AT $\sim$ 0.52***</td>
</tr>
<tr>
<td>Students’ attitude (AT)</td>
<td>IR $\leftarrow$ PQ $\sim$ -0.11***</td>
<td>AT $\leftarrow$ PQ $\sim$ -0.09*</td>
<td>IR $\leftarrow$ AT $\sim$ 0.52***</td>
</tr>
<tr>
<td>Perceptions of the impact of loan after graduation (PQ)</td>
<td>AT $\leftarrow$ LP $\sim$ 0.07 (0.225)</td>
<td>PQ $\leftarrow$ LP $\sim$ 0.34***</td>
<td>AT $\leftarrow$ PQ $\sim$ -0.09*</td>
</tr>
<tr>
<td>Parental influence (PI)</td>
<td>AT $\leftarrow$ AW $\sim$ 0.15**</td>
<td>PI $\leftarrow$ AW $\sim$ 0.27***</td>
<td>AT $\leftarrow$ PI $\sim$ 0.42***</td>
</tr>
</tbody>
</table>

Notes: Significant at 0.001*** Significant at 0.01** Significant at 0.05*; $\leftarrow$ --- relationship
LP— Perceptions toward loan agreement; AW— Awareness created by media; PQ— Perceptions of the impact of loan after graduation; PI—parental influence; AT—students’ attitude; IR—intention to repay loan

CONCLUSIONS AND IMPLICATIONS

We posed the question that from the students’ perspective, what can qualify the model as the determinants of students’ attitude, and what is the impact of this attitude on the intention to repay the loan? Are there any hidden/mediating effects embedded within the relationship between the hypothesised model? The validity of this model was put to test with the help of a large data set collected from students in public universities in Malaysia. The results show that the students’ attitude construct mediates partially the relationship between parental and intention, and between quality perception and intention to repay loan. We also found that the relationship between students’ attitude and awareness of loan repayment issues created by media is fully mediated by parental influence. Owing to the fact that this study explicitly considered the role of parents and media in students’ attitude towards loan repayment, it is very much hoped that the results for these two groups will find the results useful in the way in which student loans can affect repayment. Students who are at the centre of this study should see the findings of this study in new light and a fresh context; they may find their own perceptions about the students’ loans in the collective fashion both informative and educational.
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Dr Shafinar Ismail is a senior lecturer of the Faculty of Business Management, UiTM. She holds a Ph.D (Finance) degree with specialisation in Educational Loan Repayment. Dr Ismail has published over fifteen papers and her research interests on issues relating student loans, asset-backed securities and corporate finance.

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