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**VALIDATING AN OVER-INDEBTEDNESS MEASUREMENT  
SCALE THAT IS SPECIFICALLY TAILORED TO BORROWER'S  
CONTEXT**

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**Abstract**

The aim of this study is to validate an over-indebtedness measurement that is specifically tailored to the borrower's context. Initially, twelve original items were constructed from literature. The validation process involves with pre-testing for content validity, exploratory factor analysis (EFA), and further confirmed validation by confirmatory factor analysis (CFA). Based on a sample of N=510 online questionnaires completed by selected over-indebted borrowers, the scale was refined using exploratory factor analysis (EFA) and PLS-SEM. The resulting and final scale consists of ten items with three categories by EFA, and was then confirmed by the CFA. The findings of this study offer a validated and reliable questionnaire for measuring over-indebtedness from the borrower's context. Thus, future researchers who are seeking to formulate an over-indebtedness model can benefit from this research's outcome, and hence would be able to reduce the number of over-indebted borrowers in the future.

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## 1. Introduction

One of the most significant issues and challenges in the contemporary world over-indebtedness. effects of over-indebtedness are not only linked to borrowers, rather, the institutions as a whole are also impacted; the effects on debtors, financial institutions, and society at large are consequential (D'Alessio & Iezzi, 2013; Debnath & Roy, 2018; Gathergood & Weber, 2014). The formulation of strategies to solve the over-indebtedness problem requires a study of why and how this problem occurs happens. Several research gaps have been identified with regard to over-indebtedness studies in the existing body of literature. One of it is due to the reason because studies on over-indebtedness mostly focused on the measurement of over-indebtedness permitting to the lender's point of view (Bylander et al., 2019; Schicks, 2013, 2014), including the high debt-to-income ratio (Cuesta & Budría, 2015), repayment problems (Debnath & Roy, 2018), and default payment (Ssebagala, 2014). Realizing that the root cause of this problem is from a borrower, thus it is a need to conduct a study on over-indebtedness from a borrowers' perspective. But then, how one can do research of it without a reliable and valid measurement of over-indebtedness that specifically refer to borrowers' perspective?

Schicks (2014) in her study in determine the over-indebtedness from a microfinance borrower had introduces the "borrower's sacrifices" as an over-indebtedness. However, from the researcher best of knowledge, there is no studies had come across in validating and applying the index which been introduced by Schick in conducting studies in over-indebtedness studies. Therefore, the aim of this paper is to validate the instruments and hence, it could be used by other researchers and practitioners in formulating strategies in dealing with over-indebtedness problem.

## 2. Literature Review

As of now, there's no concurred common definition of over-indebtedness, nor any comprehensive assertion on how it has to to be defined and measured (D'Alessio & Iezzi, 2013; Fatoki, 2015; Hiilamo, 2020; Idris et al., 2018; Marron, 2012). In any case, current research of over-indebtedness had defined over-indebtedness by using three main area and measures (Betti et al., 2007; Bylander et al., 2019). These are: by dividing it based on the term subjective, objective, and administrative measures.

The quantitative approach that defines over-indebtedness as an intense quantity of debt in terms of debt ratio is often used as an objective assessment. In this instance, the debt ratio may range from 30% to 50%. (Marron, 2012; Veliziotis et al., 2010). Given that only the debtholder or borrower is believed to have an accurate picture of their own condition of over-indebtedness, self-reporting by the debtholder would be a subjective measure of over-indebtedness. A person is said to be over-indebted if they are having trouble making their payments, requiring them to take on other jobs to support their requirements, or are falling behind on their debts (Carlsson et al., 2017; Disney & Gathergood, 2013; Lusardi & Tufano, 2015; Schicks, 2013). When determining whether someone is over-indebted, administrative measures take into consideration instances when debts have not been returned and if these non-payments have resulted in bankruptcy or other legal action. This might take place in a scenario where a borrower files for bankruptcy and receives warning letters from the appropriate government agencies as a result of nonpayment (Betti et al., 2007). All of the illustrative definitions mentioned above, however, have a number of drawbacks.

By wondering about using the debt-to-income ratio as a dividing line for excessive debt, biases in judgement will be exposed, because each person has a different threshold for the debt-to-income ratio. For instance, a 40% debt-to-income ratio may be regarded as being too much for certain people, while it may be acceptable for another set of borrowers. Furthermore, it has been established that a borrower did not make a default payment because they were unable to pay or were experiencing financial difficulties. This is due to the fact that there are few borrowers have attitude repayment problem that cause loan default (Idris, 2019). Besides, by using a self-reporting measure in determine individual over-indebtedness, the decision might prone to the bias reported by the borrower, where a borrower normally will over-judge themselves of having a financial difficulty during the self-claim reporting (Gathergood & Weber, 2014). Additionally, bankruptcy is frequently seen as an advanced stage or a result of excessive debt (Betti et al., 2007; Gutierrez-Nieto et al., 2017).

Additionally, the debt-to-income ratio, default payment, and bankruptcy are calculated from the perspective of the lender rather than the borrower, which is very different from that of the consumer. Thus, it is evident that a new standard for determining over-indebtedness must be developed from the perspective of the borrower, with less focus on concerns of defaulting or repayment.

For instance, by extending the category of self-reporting in the definition of over-indebtedness, Gutierrez-Nieto et al. (2017) and Schicks (2014) have provided various definitions of over-indebtedness. Schicks defines an over-indebted person as one who routinely misses payment deadlines and is compelled to make exorbitant sacrifices to make up for their debt-related obligations. Situations like defaults or delinquency are hallmarks of extreme conditions of over-indebtedness rather than the norm, given the extent to which many over-indebted people make sacrifices to guarantee that their debt repayments are paid. In order to manage their debt, the over-indebted person makes compromises, such as working overtime or part-time, reducing their consumption of certain foods, or bearing psychological costs like guilt. This definition of “borrower’s sacrifices” introduced by Shicks had been acknowledge by other recent researchers in defining over-indebtedness (as in Debnath & Roy, 2018). However, none of them had applied the introduced measurements and even validate it. With respect with that, thus study aim to validate the over-indebtedness measurements that had been proposed by Shicks. Details on the steps in validating instruments as presented in the next sections.

### **3. Research Methodology**

#### **3.1. Items generation**

Accordingly, we operationalized the over-indebtedness (OID) constructs based on the three dimensions namely basic, economic and psychological sacrifices based on the index items introduced by Schicks (2014). There are a total of 12 index items (please refer to Table 1) which 4 items belong to basic sacrifices (OID\_Basic), 5 for economic sacrifices (OID\_Eco), and 3 items belong to psychological sacrifices (OID\_Psy). A professional translator who was primarily participating in the research project for this specific reason translated all of the original English versions into Malay in accordance with their intended meaning because the original items were in English, and the study was done in Malaysia. The

English native speaker then evaluated the original English text with the translated version and evaluated the content similarity, which served as the foundation for modifications.

**Table 1.** Over-indebtedness items introduced by Schicks (2014)

Author	Measurement
	<p><b>Basic sacrifices</b></p> <ol style="list-style-type: none"> <li>1. Reduce food quantity/quality (cut down eating).</li> <li>2. Reduce education (e.g., taking children out of school).</li> <li>3. Postpone important expenses (e.g., for health, housing, business assets, etc.).</li> <li>4. Work more than usual (e.g., take additional labour, work longer hours, on Sundays, and when ill).</li> </ol>
<b>Schicks (2014)</b>	<p><b>Economic sacrifices</b></p> <ol style="list-style-type: none"> <li>5. Deplete your financial savings (e.g., money in the house or in a savings account).</li> <li>6. Borrow anew to repay (take an additional loan from another lender).</li> <li>7. Sell or pawn assets (e.g., jewellery, cattle, productive, or household assets).</li> <li>8. Seizure of assets (Microfinance borrower's; MFI takes property by force to make up for missed payment).</li> <li>9. Use family/friends' support to repay.</li> </ol> <p><b>Psychological sacrifices</b></p> <ol style="list-style-type: none"> <li>10. Suffer from shame or insults (gossips about you/ exclusion from a contract).</li> <li>11. Feel threatened/harassed by peers/family/loan officer.</li> <li>12. Suffer psychological stress yourself or in your marriage.</li> </ol>

Source: (Idris et al., 2022; Schicks, 2014)

We conducted a face-to-face pre-testing with three over-indebted borrowers and a Content Validity Index (CVI) with 6 experts for the content validity test with the intention to verify the questionnaire in terms of its clarity, wordiness, balance, and overlapping in order to see if the original OID index can be converted to a Likert scale and subsequently applied to the local consumer's indebtedness study context. The experts were 3 personal financial counsellor who had a working experience more than 7 years, and 3 academicians' researcher in the field of indebtedness studies. From the pre-test, 2 items were modified based on the recommendations which are for OID1 and OID2. The original OID1 were suggested to split into two questions, because containing double barrel questions. Therefore, original question from OID1=reduce food quantity/quality (cut down eating), had transformed to OID1= Reduce food quality and OID2= reduce the quantity of food intake (e.g.: from 5 meals to 3 meals). Whereas, for items OID2, the questions had been modified from reduce education (e.g., taking children out of school) to compromise education (e.g., taking children out of private tuition; you discontinued from education). In addition, after calculating the I-CVI, 1 item were dropped (OID 9) because the I-CVI value was less than 0.83, and thus 12 items are ready for the reliability and validity testing.

### 3.2. Participants

Two different groups had participated in the validating process, which involve with a 110 OID borrowers for the Exploratory Factor Analysis (EFA) stage and 410 participants for the Confirmatory Factor Analysis (CFA). Regarding for data collection method, the snowball convenience sampling was used for

the EFA and probability sampling for the CFA. The data collection time was happened on December 2020 for EFA, and February to April 2021 for the CFA. In total, 520 OID borrowers had participated in this survey, and 510 sample are valid for the analysis. Demographic information from the second stage data collection is reported in table 2.

**Table 2.** Demographics profile

Demographic	Range	Frequency	Percent
Age (years)	20 - 25	4	1
	26-30	82	20.3
	31-35	159	39.4
	36-40	159	39.4
Gender	Male	232	57.4
	Female	172	42.6
Monthly Income (RM)	Below 2000	119	29.5
	2001-4000	118	46.5
	4001-6000	63	15.9
	6001-8000	24	5.9
	8001-10000	7	1.7
	More than 10,000	3	0.7
Marital status	Single	73	18.1
	Married	312	77.2
	Others	19	4.7
States	Johor	37	9.2
	Kedah	14	3.5
	Kelantan	15	3.7
	Kuala Lumpur	221	54.7
	Melaka	12	3
	Pahang	16	4
	Penang	23	5.7
	Perak	14	3.5
	Sabah	29	7.2
	Sarawak	15	3.7
Terengganu	8	2	

## 4. Analysis and Results

The tools for evaluating OID were tested using two sets of samples: EFA (n=110) and CFA (n=410). The 7-point Likert scales were used, and they ranged from 1 = Not All True to 7 = Exactly True in accordance with psychology and social scientific practices. These two sets of data had gone thru the data cleaning process, and there was remaining n=106 available for EFA and n= 404 for CFA.

### 4.1. EFA and reliability

As for the result, the KMO value was 0.704 and the values for the Bartlett's Test of Sphericity were statistically significant ( $p < 0.001$ ). Two items were removed due to the low factors loading namely OID3

and OID8. Furthermore, the analysis of Cronbach’s Alpha was performed to assess the reliability of the measurement. The result of the Cronbach’s Alpha measurement produced values ranging from 0.645 to 0.726 which fulfilled the minimum requirement level of reliability for the new instrument validation (Taber, 2018). Table 3 shows the relevant and detailed results of the Exploratory Factor Analysis extracted from the analysis.

**Table 3.** EFA result

<b>KMO and Bartlett’s Test</b>				
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.704		
Bartlett’s Test of Sphericity	Approx. Chi-Square	348.875		
	df	45		
	Sig.	0.000		
<b>Factor Loading</b>				
Items	1 Psychology	2 Basic	3 Economic	Cronbach's
OID11	Feel threatened and disturbed by friends/family/loan officer.	0.826		
OID12	Facing with psychological stress yourself or in your marriage.	0.703		
OID9	Use family/friends' support to repay	0.658		
OID7	Borrow anew to repay (take an additional loan from another lender).	0.639		0.724
OID2	Reduce the quantity of food intake		0.835	
OID1	Reduce food quality (cut down eating outside)		0.809	
OID6	Reduce your financial savings (e.g., money in the savings account).		0.627	0.726
OID4	Postpone important expenses (e.g., for health, housing, business assets, etc.)			0.813
OID5	Work more than usual (e.g., doing part time job, work longer hours, working on weekends).			0.621
OID10	Facing from shame when people talk about you.			0.571
				0.645
Eigenvalue	2.405	2.205	1.763	
% of Variance	24.046	22.054	17.627	
Cumulative %	24.046	46.099	63.726	

#### 4.1. CFA

The confirmatory factor analysis was conducted by using PLS-SEM for the next validation process. Following the operational definitions of OID, we treat the measurements as reflective-reflective higher-order constructs. OID\_BASIC, OID\_ECO and OID\_PSY were the lower order constructs (LOC) and OID is the higher order constructs (HOC). It should be noted that this step is only for assessing the LOC and thus there is no need to assess any statistics emerging from the relationship between the HOC i.e. over-indebtedness (OID) and its indicators, because these indicators are only for identification purposes of the higher-order constructs (Sarstedt et al., 2019).

The reliability and validity for the measurement model of higher-order construct (OID) and its lower-order components (OID\_BASIC, OID\_ECO and OID\_PSY) are assessed for the standard reliability and validity criteria for reflective measurement models. The results in shows that the measures for all the three lower-order constructs meet the satisfactory level of indicator reliability, internal consistency, convergent validity and discriminant validity. The convergent validity in terms of the average variance extracted (AVE) for OID\_BASIC is 0.580, OID\_ECO (0.563) and OID\_PSY (0.507), which surpass the 0.5 AVE cut-off value. The internal consistency (composite reliability) is at the value of 0.806 for OID\_BASIC, 0.793 for OID\_ECO and 0.804 for OID\_PSY, while the discriminant validity for all the lower-order constructs is below the threshold of 0.85. We further than tested the significance of path coefficient between LOC and HOC and the results shown that all the constructs are significant for the relationships between OID\_BASIC, OID\_ECO and OID\_PSY. Table 4 summarise the results from the CFA testing.

**Table 4.** Summary of CFA result

Items	Loadings	CR	AVE	HTMT (Below 0.85)
<b>Over-indebtedness (OID)</b>				
OID		0.838	0.552	Yes
		<b>OID_BASIC</b>		
OID_BASIC		0.8791	0.580	Yes
OID1_B	0.756			
OID2_B	0.801			
OID6_B	0.727			
		<b>OID_ECO</b>		
OID_ECO		0.831	0.563	Yes
OID4_E	0.752			
OID5_E	0.809			
OID10_E	0.683			
		<b>OID_PSY</b>		
OID_PSY		0.825	0.509	Yes
OID7_P	0.640			
OID9_P	0.615			
OID11_P	0.786			
OID12_P	0.795			
<b>Path coefficients</b>				
	Path- coefficients	t-Statistics	P Values	Significant
OID -> OID_BASIC	0.373	17.368	0.000	Significant
OID -> OID_ECO	0.422	22.973	0.000	Significant
OID -> OID_PSY	0.452	23.943	0.000	Significant

## 5. Conclusion and Recommendation for the Future Research

Previous studies in over-indebtedness had mainly focused on measuring over-indebtedness from a lender’s centric frame i.e., defining over-indebtedness based on default payments, high debt-to-service ratio, and bankruptcy. Realizing that the root cause of this problem is from the borrower, and there are no specific and valid measurements of borrower’s over-indebtedness specifically tailored with it, hence the current study had come out with the validation of over-indebtedness measurements, that specifically

concentrate on the borrower's perspective. The validation process involves with content validity, construct validity and reliability. The result from the study demonstrated the validity and reliability of OID's instruments, through a cross-sectional online survey.

Theoretically, this study contributes to the body of knowledge for the over-indebtedness study context, based on the validation of over-indebtedness measurements that are specifically tailored to the borrowers' context. Practically, this measure can be used by future researchers to further the field of study on over-indebtedness in the context of Malaysia or other countries. We hope that in the future, the result from the field study can help future researchers and other related agencies in formulating a strategy for alleviating the over-indebtedness problem and hence increasing the standard of individual well-being.

Besides from the usefulness from the current study, this study does have a limitation. We specifically chose over-indebted borrowers as our respondents since the primary goal of the study is to validate the OID measures in perspective of the borrowers' research context. Potential researchers could use this result and validate to the other respondents. With it, the usefulness and validation of the instruments can be confirmed and benefits to the body of consumers behavior study context.

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