

## A Mediation Study of Human Dark Personality and the Prediction of Students' Monetary Attitudes

C. Boonroungrut<sup>a\*</sup>, Sasitorn Dechporm<sup>b</sup>, Toe Toe Oo<sup>c</sup>, Kim One<sup>d</sup>

<sup>a</sup> Multi, Inter or Transdisciplinary program, University of South Arica, Pretoria, South Arica

<sup>b</sup> Faculty of Politic Sciences, Bangkok Thonburi University, Bangkok, Thailand

<sup>c</sup> Department of Educational Psychology, Sagaing University of Education, Sagaing, Myanmar

<sup>d</sup> School of Foreign language, China University of Geosciences, Wuhan, PR. China

\*Corresponding author: [b.chinun@gmail.com](mailto:b.chinun@gmail.com)

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**Abstract:** Dark Triad can potentially predict monetary attitudes; however, the literacy in students' monetary attitudes is still limited. **Objective:** To study the roles of mediating variables among students' monetary attitudes that were influenced possibly by saving, spending and indifference attitudes according to Sereetrakul (2014) with the human Dark Triad personality: Machiavellianism, Narcissism, and Psychopathy. **Methods:** Cross-sectional was methodologically designed with randomly selected 310 Thai university students. Saving Behavior Scale and Short Dark Triad Thai Version (SD3-TH) were provided through the online platform in their computer classrooms. The T-test indicated the significant differences in mean scores. The indirect effect of simple mediation and multiple mediation models were examined. The Sobel test and Bootstrapping 95% confident interval were verified under Hayes' PROCESS method judgement. **Results:** Loan students showed significantly higher in all 3 monetary attitudes and higher in Machiavellianism and Narcissism than self-support students. Female showed higher significantly in Psychopathy than male. Presence of mediator appeared on Machiavellianism that could predict both positive saving and spending attitude outcomes. **Conclusions:** This study highlighted the presence of mediators that potentially explained a new definition which the higher saving higher monetary indifference attitudes as the satisfied point between saving and spending attitudes in Machiavellianism and Narcissism personality groups.

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### INTRODUCTION

In the brief words of Cronqvist and Siegel (2010), economists should learn and understand individuals' financial behaviors because those are the essential keys for policymakers. Currently, we know that monetary attitudes as a part of budgeting and saving behaviors share relationships with many financial activities and attitudes such as saving, spending, future purchase, investment, goal achieving and self-improving. Interestingly, several studies indicated different findings among children and students in their budgeting and saving behaviors that habited simply as a function of parental requirements. Moreover, children recognized the value of saving as one of valuable actions or rewards, but not for an economic purpose (Furnham, 1999); however, several economists argued that children's saving behaviors

be the same as another social group. Importantly, saving and spending could indicate happiness and long-term well-being in the elderly that children are going to be in the future (Chinun Boonroungrut & Worakul, 2009; Goldstein, Johnson, & Sharpe, 2008; Sonuga-Barke & Webley, 1993; Webley & Sonuga-Barke, 2017).

Generally, the understanding of monetary behaviors in saving is allocating some resources into different accounts such as the bank accounts that refer to both saving and discounting. In the literacy-related saving, there were two remedies (Frederick, Novemsky, Wang, Dhar, & Nowlis, 2009; Hershfield et al., 2011; Ho, Lim, & Camerer, 2006). Firstly, the future monetary planning could be promoted by the desirable behaviors. Pre-commitment behavior limited the present

undesirable behaviors towards spending. In the implication, some retirement plans of some companies have applied this ground concept, and lead employees to save for their future purchase (Choi, Laibson, Madrian, & Metrick, 2005). Secondly, enjoyment of the future spending leads people to imagine to their future of uses of their money including investment although almost people declared difficulties in the present limitation in spending. One factor was pointed to concerning the positive of monetary attitude related to saving and spending (Weber et al., 2007). For its complexities, it is an apple and orange issue although economists already knew that saving and spending attitudes shared the relationship to each other. Some motives in spending played the more immediate role than the motive to save. Saving always got a decision to postpone, and postponement always repeated (Watson, 2003).

When controlling or limiting spending including discount expenditure could not indicate higher saving absolutely, this confused gap drives economists, psychologists, and behaviorists to study the underlying ground that influenced individual behaviors such as emotions, attitudes and personality. Although there was not enough ground of knowledge to confirm the relationship between saving and spending including indifference attitude, thus the present hypothesis was raised to explore interrelation that they might share mediation effects each other with a new side of personality namely "The Dark Triad" (Oluf & Furnham, 2015).

## LITERATURE REVIEW

### Brief Understanding of Students' Monetary Attitudes

The past researches draw the understanding that saving ability could be involved from the children's pre-school stage. These financially related abilities share a significant association with a family background in both saving and spending behaviors (Akinyede, Owolabi, & Akinola, 2017). A twin matched study revealed that saving behavior was influenced by genetic predispositions and social transmission (Cronqvist & Siegel, 2010). Moreover, the saving behavior showed the same direction in results that in children habited merely as requirements from their parents. Although young students regard saving as rewards, they tend to understand the more practical reality of saving

advantage such as future investment when they grow up. In the late 1990s, some studies found that students recognized productiveness and defensiveness from saving money in the bank (Sonuga-Barke & Webley, 1993). A spending investigation found that ones who did not get allowance always spent much more with a card than saving any unspent money. On the other hand, cash and card were used the same amount in ones who got an allowance. So, receiving an allowance, which should be controlled for students by their parents, might facilitate the development of the monetary competence (Argyle & Furnham, 2013).

Additionally, saving attitudes could define quality actions such as budget managing or money management that share a relationship with the future money spent which could not be re-spent in the future if people use that amount of money in the present. The importance of saving between the present and future consumption was an adaptive response to the income constraint problem (Furnham, 1999). Monetary choice alternative also indicated how students make difference value of saving on their choices for the future spending (Mishra, Mishra, Rixom, & Chatterjee, 2013; Webley & Sonuga-Barke, 2017). Based on the past researches, not only gender differences but also loan students declared differences from self-supported students in various financial behavior including monetary attitudes (Akinyede et al., 2017; Kidwell & Turrisi, 2004; Sereetrakul, Wongveeravuti, & Likitapiwat, 2013). Students who have ever studied some subject related management seemed to show ability in managing money and less risk to be indebted (Almenberg, Lusardi, Säve-Söderbergh, & Vestman, 2016; Zhang & Kemp, 2009).

### Dark Triad Personality and Monetary Misbehaviors

The dark personality is a group of subclinical traits that refers to (1) strategic Machiavellianism, (2) overconfident Narcissism and (3) reckless Psychopathy. Worldwide researchers have studied the dark triad since the beginning of this century. After almost 2 decades of studying, that triad associated with stilling, cheating, and fraud. Some trait such as Narcissism showed misbehavior with work behavior, especially when in power (O'Boyle, Forsyth, Banks, Story, & White, 2015). Moreover, in modern society, the dark triad share relationship

with a growing illegitimate financial behavior problem called White Collar Crime (Jones, 2014). However, some scholars argued on the content overlapping among those 3 traits especially in Machiavellianism and Psychopathy including the first study of the dark triad in Thai university students (Chinun Boonroungrut & Huang, 2018), each trait predicts and presents different outcomes because of their different distinct features (Chinun Boonroungrut & Toe-Oo, 2017; Furnham, Richards, & Paulhus, 2013).

Generally, all dark triad traits show potentially monetary misbehaviors, Machiavellianism shows ground of showed ability in planning better than another two traits from strategic selfishness in long-term gains that minimize risk to be in debt. People with high Machiavellianism trait tended to help oneself to someone else's money, and they valued money higher than Narcissism and Psychopathy. Machiavellianism tends to take benefit from others when there is maximal gain with minimal risk. High Narcissism was explained by high callous manipulation, egotism, grandiosity, and entitlement (Paulhus & Williams, 2002). People with high Narcissism are overconfident and unrealistic optimism that drives them to be risky and repeats risky to be indebted because of feeling entitled to things they want. They often relentlessly approached financial gain with regardless of others. High narcissism made risky investments linked to their underlying impulsivity to achieve the financial success faster (Foster, Misra, & Reidy, 2009). Moreover, Narcissism associated with spending on gambling. High Psychopathy persons as same as narcissism are reckless impulsivity and showing spending preference in gambling, but show defects in the game learning. Psychopathy associates with consequently risky on working team. Engaging in the literature discovery, some spending studies addresses the cues that higher Psychopathic status associates with being risky to someone's money spending, but finally, Narcissistic individuals always lose more money than others. (Babiak, Neumann, & Hare, 2010; Jones, 2013, 2014).

In summary and hypothesis under the dark triad literacy, the roles of mediators under the two remedies in saving, spending and indifference attitudes as the mentioned above were defined. Besides, students intended to save regularity money when the more money received or the less money

spent on their previous expenditure, and Machiavellianism trended to show ability in planning and managing. According to the preliminary results, thus the hypothesizes were made on these ways:

(H1) the impact of Machiavellianism on saving was influenced by spending attitude.

(H1a) the impact of Machiavellianism on spending was influenced by saving attitude.

Contrastingly, Narcissistic and Psychopathic tendencies associated with poorer financial performance.

(H2) the impact of Narcissism on spending was influenced by saving attitude, and

(H3) the impact of Psychopathy on spending was influenced by saving attitude.

Although no clear consensus between spending and saving attitudes in their differences stereotype, the multiple mediation roles as a parallel mediation model was examined with those 3 dark traits to address their possibility. The H4 based on difference was divided as the following:

the impact of Machiavellianism (H4a)/ Narcissism (H4b)/ Psychopathy (H4c) on indifference was influenced by saving together with spending attitude.

## METHOD

### Participants

310 Thai undergraduate students were randomly selected from 3 public and 1 private universities during the 2<sup>nd</sup> semester of 2017 (Early 2018). They were required to submit the answer through the online platform in their computer classrooms. Uncompleted answers were removed. Among them, their ages between 17 to 38 years ( $M = 19.60$ ,  $SD = 3.39$ ). They were 58% female, 32% loan students, 56.4% from language and Art and 13.2% from management, business, and Economics.

### Measures and Procedures

Two measures were applied as the following: (1) Three dark traits of personality were measured by the 15-item *Short Dark Triad Thai version (SD3-TH)* scale that was reconstructed from the original 27 items. This scale consists of all 3 traits: Machiavellianism, Narcissism, and Psychopathy. This Thai translated version (SD3-TH) was first studied in mid-2017 and revised some items between Machiavellianism and Psychopathy subscales; however, it still covered 3 components

of the dark triad same as the original version with CFA goodness of fit indices. Thai version indicated Cronbach's Alpha at .874, .736 and .807 respectively (Chinun Boonroungrut & Huang, 2018). and (2) *Student Saving Behavior Questionnaire* was developed in Thai student context. The self-reported 17- item questionnaire was scored from 1 (strongly agree) to 5 (strongly disagree). It consists of 3 components: 6 items in Saving attitude – positive attitude towards saving, 3 items in Indifference attitude – lack of attention paid to money or richness and 8 items in spending attitude – tendency to spend. To confirm each factor component, Principal-axial Factor Analysis with Varimax was applied. Kaiser-Mayer-Olkin (KMO) and Bartlett's test of sphericity indicated significant values showed 0.87 (KMO) and  $\chi^2(15) = 1118.84$  with one  $\lambda$  eigenvalue  $> 1 = 4.16$  in saving, 0.63 (KMO) and  $\chi^2(3) = 187.83$  with one  $\lambda$  eigenvalue  $> 1 = 1.91$  in indifference and 0.77 (KMO) and  $\chi^2(28) = 941.23$  with one  $\lambda$  eigenvalue  $> 1 = 3.82$  in spending. The Cronbach's' Alpha of the original measure was acceptable at .696, .733 and .643 respectively (Sereetrakul, 2014; Sereetrakul et al., 2013).

After checking the bias of method effect, the analysis was divided into 2 parts and presented by description statistic together with structure mediation analysis performing in SPSS and PROCESS macro (A. F. Hayes, 2017). PROCESS simple mediation model (no. 4) and a parallel mediation model were hypothesized (A. F. Hayes, 2012; S. Hayes & Stidder, 2016). To formally test for mediation influence, the Sobel test was verified mediation, but the product of the mediation path coefficient did not necessarily require a normal distribution leading to an increased probability of a

type-one error. Bootstrapping was an option for an advanced technique to verify a single and tied mediation effect. Bootstrapping 95% confident interval was performed additionally to confirm the mediation effect, which is a non-parametric method to test mediation (A. F. Hayes, 2009; Stone & Sobel, 1990; Su, Zhou, Cao, Wang, & Xing, 2018).

## RESULTS

Preliminary, the dataset was not influenced by the form of bias in the primary common method variance checking which a single common latent factor was run for each measure independently (Podsakoff, MacKenzie, & Podsakoff, 2012; Srichom & Lawthong, 2015). Noticeably, the differences between self-support and loan students in all measures presented in Table 1 were significant. Additionally, an analysis of variance revealed the significance of spending and majors,  $F(5, 301) = 3.51, p < 0.05$ . Tukey HSD indicated that spending attitude was significantly lower in management and business students ( $M = 2.94, SD = .58$ ) than Language and Art ( $M = 3.38, SD = .82$ ),  $p < 0.05$ ; however, saving showed higher significantly  $F(5, 301) = 5.738, p < 0.001$  in language and Art ( $M = 4.097, SD = .792$ ) than management and business students ( $M = 3.386, SD = .790$ ),  $p < 0.05$ . Genders, ages and majors showed the insignificant level in this present study. For the dark triad, male ( $M = 2.68, SD = 1.01$ ) showed lower significantly in psychopathy than female ( $M = 2.95, SD = 2.68$ ) with condition;  $t(305) = 2.29, p < 0.05$ . Distinctly, Machiavellianism and saving showed stronger correlation than Narcissism and Psychopathy shown in Table 2. Suspiciously, that triad also indicated significantly the high correlation in spending that led us to explore the possible role of mediation in the next step.

Table 1: Saving Behavior and Dark Triad Differences Between Self-Supported and Loaned Students

	Self-Supported		Loaned		<i>t</i>	<i>Sig</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Saving Behavior						
Saving	3.55	.89	4.03	.75	-4.942	.000**
Indifference	3.57	.87	3.94	.87	-3.505	.001**
Spending	2.91	.70	3.27	.86	-3.616	.000**
Short Dark Triad (SD3-TH)						
Machiavellianism	3.19	.72	3.58	.82	-4.008	.000**
Narcissism	2.92	.83	3.21	.84	-2.791	.006**
Psychopathy	2.89	.88	2.63	1.19	2.093	.037*

Note: \* $p < .05$ , \*\* $p < .01$

Table 2: Correlations and Mean in Saving Behavior and Short Dark Triad (SD3-TH)

Variables	Saving	Indifference	Spending	Mach	Nar	Psy	M	SD
Saving	$\alpha = .910$						3.71	.87
Indifference	.830**	$\alpha = .719$					3.68	.89
Spending	.211**	.212**	$\alpha = .844$				3.03	.77
Mach	.556**	.490**	.553**	$\alpha = .815$			3.32	.84
Narcissism	.300**	.343**	.552**	.578**	$\alpha = .883$		3.02	.84
Psychopathy	.184**	.196**	.545**	.425**	.626**	$\alpha = .902$	2.80	1.00

Note: \*\*  $p < .01$ , Mach; Machiavellianism, Nar; Narcissism, Psy; Psychopathy

In the proposed mediational analysis, no multicollinearity was found. All tables and figures depicted the finding of the mediation analysis. Note from Table 3, the effect of Machiavellianism on spending, the direct effect of spending on saving and the total effect of Machiavellianism on spending, all indicated significantly. Although the effect of Machiavellianism on spending was also significant but decreased silently when controlling for spending attitude. It showed the presence of mediation. Additionally, the Sobel estimation and Bootstrapping confidence interval confirmed significantly in the indirect effect paths. Based on these results, it was concluded that spending attitude was the partial mediator in their relation. Besides, exploration of another relationship among those variables using the same judgment to find any path existed out of our hypothesis as a single-mediator model was done. Sobel testing did not perform significantly, and Bootstrapping confidence interval entirely included 0. No any mediating sign for the rest of them was indicated. In summary, H1 and H1a were accepted as partial mediation models, but H2 and H3 were rejected because it did not reach statistical significance formally.

The PROCESS allowed to test for multiple mediators in one model that controlling for students' attitude of saving and spending (Figure 1). There were the significances of Machiavellianism on both saving and spending as mediator paths; however, the direct effect of these

hypothesized mediators on Indifference was only significant for saving. Spending path did not reach statistical significance although this path was not required to be significant to test for mediation using Preacher and Hayes' s method (Martinez, Lau, Chorpita, Weisz, & Health, 2017; Kristopher J. Preacher & Hayes, 2008). The total effect of Machiavellianism on Indifference was significant, but it was no longer significant when controlling saving and spending, presenting the presence of mediation. Additionally, Bootstrapping confidence interval revealed a significant indirect effect for saving (Bootstrapping *M* indirect effect  $B = .51$ , 95% CI [.425, .628]). In Narcissism, the effects on both saving and spending were significant. Although the direct effect of spending was not significant on Indifference, same as in the Machiavellian model, the total effect of Narcissism on Indifference was decreased when controlling the multiple mediators, presenting the presence of mediation. Bootstrapping confidence interval revealed a significant indirect effect for only saving (Bootstrapping *M* indirect effect  $B = .25$ , 95% CI [.158, .355]). The specific indirect effect contrast definitions (saving minus spending) indicated Bootstrapping *M* indirect effect  $B = .26$ , 95% CI [.156, .383]). In the same judgment, mediation could not be statistically investigated in Psychopathy. Thus, H4c was rejected; however, H4a and H4b were accepted. Remarkably, H1, H1a, H4a and H4b qualification to justify finally as the mediating variables was in discussion.

Table 3: Regression Results of Main Effect and Mediation Effect in Saving Attitude

Path / effect	<i>b</i>	<i>SE</i>	<i>t</i>
<i>Direct and total effects</i>			
Model a Mach ⇒ Spending	.551	.046	11.580**
Model b Spending ⇒ Saving	-.156	.075	-2.069*
Model c Mach ⇒ Saving	.713	.061	11.692**
Model c' Mach ⇒ Saving	.627	.054	11.557**
Bootstrapping results for direct effects	Estimate	LLCI	ULCI
Mach ⇒ Saving	95%CI	[.593,	.833]
Bootstrapping results for indirect effects	Estimate	LLCI	ULCI
Mach ⇒ Spending ⇒ Saving	95%CI	[-.181,	-.007]
Sobel testing results for indirect effects	Estimate	<i>SE</i>	<i>Z</i>
Mach ⇒ Spending ⇒ Saving	-.0863	.042	-2.011*

Note: \*  $p < .05$ , \*\*  $p < .01$ , Mach; Machiavellianism

Table 4: Regression Results of Main Effect and Mediation Effect in Spending Attitude

Path / effect		<i>b</i>	<i>SE</i>	<i>t</i>
<i>Direct and total effects</i>				
Model <i>a</i> Mach	⇒ Saving	.627	.054	11.557**
Model <i>b</i> Saving	⇒ Spending	-.123	.058	-2.090*
Model <i>c</i> Mach	⇒ Spending	.628	.073	8.556**
Model <i>c'</i> Mach	⇒ Spending	.551	.057	9.550**
Bootstrapping results for direct effects				
Mach	⇒ Spending	Estimate	LLCI	ULCI
		95% CI	[.483,	.772]
Bootstrapping results for indirect effects				
Mach	⇒ Saving ⇒ Spending	Estimate	LLCI	ULCI
		95% CI	[-.141,	-.005]
Sobel testing results for indirect effects				
Mach	⇒ Saving ⇒ Spending	Estimate	<i>SE</i>	<i>Z</i>
		-.077	.037	-2.049*

Note: \**p* < .05, \*\**p* < .01, Mach: Machiavellianism

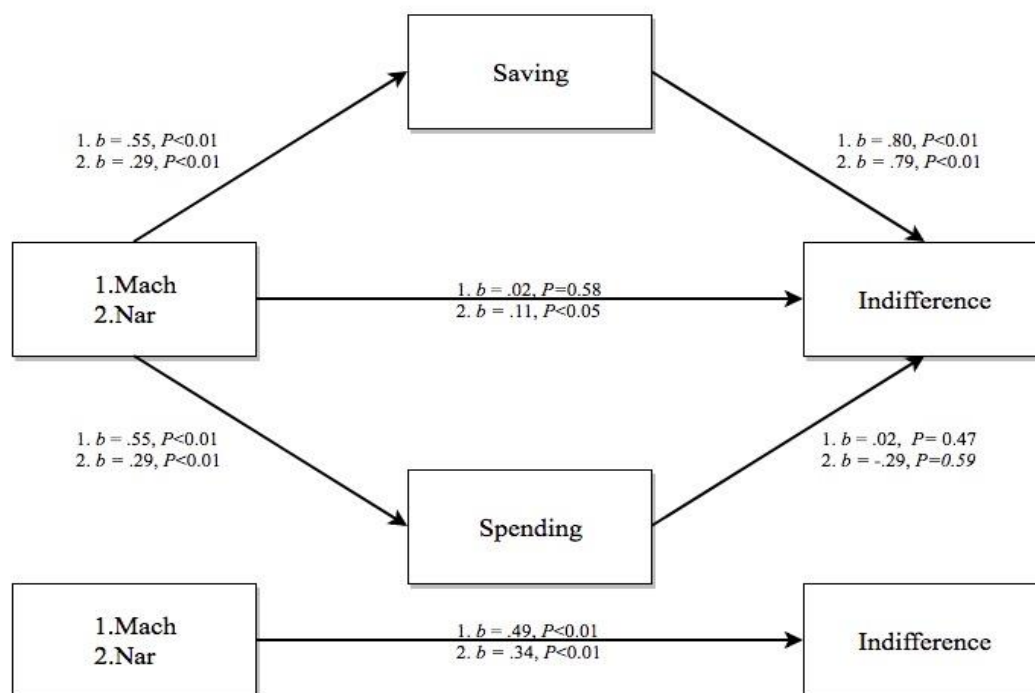


Figure 1: Two Multiple Mediation Models in Predicting Indifference Attitude

Note. 1.Mac = Machiavellianism, 2.Nar = Narcissism

### Discussion

Based on the ground concept of Sereetrakul (2014), saving showed less correlation with Narcissism and Psychopathy than Machiavellianism which showed better ability in planning and managing; however, Machiavellianism showed high correlation not only saving but also spending surprisingly. In this point, spending attitude component in Sereetrakul's questionnaire could be considerably checked in its factor properties before applying because the second component showed eigenvalue was close to 1 based on the present dataset. Moreover, it was unclear why the indifference attitude showed the strongest values in Machiavellianism then Narcissism and Psychopathy respectively. Those two interesting findings emerged in an exploration of the causal sequence in the role of mediator between saving and spending variables. Some

necessary possible explanation might include manipulation and impulsivity in their underlying linkages between Machiavellianism and indifference attitude (Furnham et al., 2013; Paulhus & Williams, 2002), but it could not address clearly how their relationship happened on that way. Although this present finding in mediation through saving was emerged and, discussed, it requires for the further confirmation. Remarkably, all dark triad traits indicated the highest medium range correlation equally in spending attitude, higher than indifference and saving especially in Narcissism and Psychopathy same as in the study of Lee et al. (2013) which proved persons with high in the dark triad were also likely to be characterized by spending.

Although our hypotheses in the mediation study were tested and analyzed, we explored all another possibility of the mediation among those variables. No other potential mediator was found. Psychopathy did not show statistical significance of any mediator presence in the present study. Several accepted mediation paths were recognized as partial mediation; however, it was not surprising because psychological behaviors are more complicated with a variety of causes. It should not be expected to explain entirely by the single mediator in the relationship between independent and dependent variables. In the statistical testing, when  $c'$  coefficient shows significantly significant with the evidence of significant mediation paths, the partial mediation was judged (Ardakani, Savabieh, Jafariyan, & Maqoudi; James, Mulaik, & Brett, 2006; MacKinnon, Fairchild, & Fritz, 2007).

Considerably, a significant indirect effect cannot exactly prove the precise causal mediation mechanism even in the experimental setting (Danner, Hagemann, & Fiedler, 2015). According to MacKinnon et al. (2007), an inconsistent mediation could occur when at least one mediated effect indicated an opposite sign than other mediated or the direct effects. Inconsistent mediator effect seems to be higher in multiple mediator models where the critical in evaluating manipulation led to opposing mediated effects. It is one of the researchers' challenging to in interpretation and implementation properly. In the present study, there was much less evidence to inform the specific causal relation between saving and spending; however, the present results supported the words of some scholars throughout the past decade such as Pareto (1971) who argued that saving is partially determined by the income one receives from it, and Keynes (1936) though that one of three motives involves saving for a large expenditure was a transaction motive that could be an underlying cue for future purchase from the current saving. On the one hand, the findings in our present research were mixed between spending and saving in Machiavellianism (H1 and H1a). Although we know that Machiavellianism was internally positive correlated with economic opportunism including saving behavior and financial confidence by locus of control and opportunism (Sakalaki, Richardson, & Thépaut, 2007), the pathways which explained why and how Machiavellianism led to positive spending outcome (H1a) was unclear, and it could be possibly accounted as an inconsistency reported to the literature. Practically, our findings (Figure 1) emerged research highlighting to explain indifference persons or apathy who do not care rich or poor that potentially increase when they have more saving than spending in Machiavellianism

and Narcissism. If this statement is true, those people should have more saving straightforwardly. Even though Machiavellianism turns to be sounder than Narcissism in our Dark Triad literacy, and it is not worth to explore their mechanisms in the further research. Curiously, the present findings of Indifference attitude shared some similarities with the explanation of Chang (2017) in consumers' Equilibrium (indifference curve) that explores the last unit of satisfaction leading indifference attitude in consumers' behavior: the satisfaction point between saving and spending, not a monetary lackadaisical attitude.

#### **Limitation, Future Direction and Conclusion**

Some limitations were acknowledged as the following. First, this study was methodologically cross-sectional design that no cause and effect can be claimed although we ruled out some possible models that could be supported by the saving behaviors. Second, this research was the extension of our previous validation study in money management intention. No information on saving and spending was corrected to measure the popper of the models analyzed. It opens doors for the further exploring. In addition, the participants were randomly selected from the urban area university. Generalizing to the specific group not only rely on the statistically significant, but also the effect size that shared significant advancement in psychological science. Some recommended the more stable proportion mediation with the sample size over 500 although the value was varied and no consensus. The critical values for direct and indirect effect could be calculated to avoid inconsistent models reported: see more in Kristopher J Preacher and Kelley (2011) and Freedman (2001).

In conclusion, the present findings demonstrated that university students with loaned status showed higher statistically significant in all dimensions of saving behavior. Moreover, they were higher in Machiavellianism and Narcissism but lower in Psychopathy. Presence of mediator appeared on Machiavellianism that could predict both saving and spending outcomes each other although the relationship pathway between Machiavellianism and spending attitude were unclear in the dark triad literacy. Moreover, we sought here to explore some potential multiple mediation pathways to explain why and how persons with higher Machiavellianism or Narcissism level lead to higher Indifference through higher saving attitudes.

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