Consumer financial knowledge and credit card use

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1. Backgroud

1.1 Research Question

In recent years, consumer credit has played an increasingly important role in promoting consumption growth. But bad credit card behavior, such as default on loan repayment, will bring hidden dangers to the development of credit consumption. Some studies have shown that good and rich financial knowledge can help consumers improve their identification ability and risk responsibility awareness, so it may help to reduce the possibility of bad credit card behavior.

This article intends to provide reasonable and effective suggestions for the development of consumer credit by exploring the relationship between consumer financial knowledge and credit card use.

1.2 Literature review and significance

Previous Research on financial knowledge: Financial knowledge is usually associated with a series of financial behaviors, such as saving, wealth accumulation, and asset selection.

Previous Research on credit card: Age and gender, Income, Family circumstances and education level can affect the use of credit cards.

The impact of financial knowledge on the use of credit card: Study found that financial knowledge is positively related to the effective use of credit cards.

1.3 significance

- Measured the use of credit cards from multiple aspects, which provides a more comprehensive measurement method.
- Select operable indicators to measure financial knowledge and consumers credit card behavior.
- Found that financial knowledge is positively related to credit cards use.

2. Hypotheses

H1: The more financial knowledge consumers have, the more likely they are to have a credit card.

H2: The more financial knowledge consumers have, the more credit cards they may have.

H3: The more financial knowledge consumers have, the more reasonable their credit card behaviors will be.

3. Methodology

3.1 Data

The data used in this study comes from The National Financial Capability Study.

The NFCS is designed to measure perceptions, attitudes, experiences, and behaviors on a wide variety of themes.

3.2 Estimation Method

Ordered logistic regression

3.3 Variable specification

Variable	Attribute
finknw	How many financial questions can be answered correctly? 0-no correct answer,6-6 correct answers
havecard	“Do you have a credit card?”0=no,1=yes
numcrd	“How many credit cards do you have?”1=1,2=2-3,3=4-9,4=9-12,5=13-20,6=more than 20
dscdb	A sum of two good credit card behaviors, 0-have no good credit card behavior, 2-have all the good behaviors
udscdb	A sum of five bad credit card behaviors, 0-have no bad credit card behavior, 5-have all the bad behaviors
age	The age of the respondents; all of the sampling respondents are older than 25 years
ethn	0=white,1=Non-white
marriage	0 = not married,1 = married,
child	“How many children do you have who are financially dependent on you [or your spouse/partner]?” 0-no child,4-more than 4children
income	“What is your [household's] approximate annual income”1-less than $,8- more than $150000
worksts	0=no work，1=have work

3.3 Variable specification

Variable	Attribute
riskatt	“When thinking of your financial investments, how willing are you to take risks?”1-not at all willing,10-very willing
finedu	“Was financial education offered by a school or college you attended, or a workplace where you were employed?”1=yes,0=no
pefcap	“How strongly do you agree or disagree with the following statements? - I am good at dealing with day-to-day financial matters, such as checking accounts, credit and debit cards, and tracking expenses”1-strongly disagree,7-strongly agree
pemath	“How strongly do you agree or disagree with the following statements? - I am pretty good at math” 1-strongly disagree,7-strongly agree
havhome	“Do you [or your spouse/partner] currently own your home?”1=yes,0=no
crerating	“How would you rate your current credit record?”1-very bad,5-very good

3.4 Statistical Description

Variable	Obs	Mean	Std. Dev.	Min	Max
finknw	108,310	3.134	1.565	0	6
havecard	108,310	0.767	0.423	0	1
numcrd	108,310	1.730	1.245	0	6
dscdb	108,310	0.647	0.713	0	2
udscdb	108,310	0.932	1.296	0	5
ethn	108,310	0.262	0.440	0	1
marriage	108,310	0.551	0.497	0	1
child	108,310	0.708	1.080	0	4
income	108,310	4.348	2.072	1	8
worksts	108,310	0.555	0.497	0	1
riskatt	108,310	4.654	2.745	0	10
finedu	108,310	0.156	0.363	0	1
pefcap	108,310	5.665	1.657	0	7
pemath	108,310	5.569	1.722	0	7
havhome	108,310	0.615	0.487	0	1
crerating	108,310	1.875	2.139	0	5

4. Empirical Results

4.1 financial knowledge and credit card having

	(1) havecard	(2) havecard	(3) havecard	(4) havecard	(5) numcrd	(6) numcrd	(7) numcrd	(8) numcrd
main								
finknw			0.021***	0.174***			0.065***	0.125***
			(0.001)	(0.006)			(0.002)	(0.004)
ethn	-0.004	-0.054***	0.001	-0.014	-0.020**	-0.039***	-0.004	-0.008
	(0.003)	(0.021)	(0.003)	(0.021)	(0.008)	(0.014)	(0.008)	(0.014)
marriage	0.007***	0.071***	0.008***	0.076***	-0.015*	-0.020	-0.013*	-0.017
	(0.003)	(0.020)	(0.003)	(0.020)	(0.008)	(0.014)	(0.008)	(0.014)
child	-0.013***	-0.106***	-0.012***	-0.096***	-0.011***	-0.025***	-0.007**	-0.017***
	(0.001)	(0.009)	(0.001)	(0.009)	(0.003)	(0.006)	(0.003)	(0.006)
income	0.041***	0.316***	0.038***	0.295***	0.155***	0.266***	0.145***	0.248***
	(0.001)	(0.006)	(0.001)	(0.006)	(0.002)	(0.004)	(0.002)	(0.004)
worksts	0.068***	0.380***	0.067***	0.363***	0.168***	0.301***	0.162***	0.292***
	(0.003)	(0.019)	(0.003)	(0.019)	(0.007)	(0.013)	(0.007)	(0.013)
riskatt	0.009***	0.076***	0.008***	0.067***	0.029***	0.046***	0.025***	0.039***
	(0.000)	(0.003)	(0.000)	(0.003)	(0.001)	(0.002)	(0.001)	(0.002)
finedu	0.027***	0.276***	0.019***	0.200***	0.106***	0.173***	0.082***	0.128***
	(0.003)	(0.027)	(0.003)	(0.027)	(0.009)	(0.016)	(0.009)	(0.016)
pefcap	0.022***	0.128***	0.021***	0.122***	0.047***	0.091***	0.045***	0.087***
	(0.001)	(0.006)	(0.001)	(0.006)	(0.002)	(0.004)	(0.002)	(0.004)
pemath	-0.001	-0.001	-0.005***	-0.033***	0.004	0.009**	-0.009***	-0.015***
	(0.001)	(0.005)	(0.001)	(0.006)	(0.002)	(0.004)	(0.002)	(0.004)
havhome	0.115***	0.717***	0.113***	0.702***	0.329***	0.549***	0.323***	0.541***
	(0.003)	(0.020)	(0.003)	(0.020)	(0.008)	(0.014)	(0.008)	(0.014)
crerating	0.079***	0.601***	0.077***	0.591***	0.171***	0.318***	0.164***	0.305***
	(0.001)	(0.009)	(0.001)	(0.009)	(0.003)	(0.006)	(0.003)	(0.006)

4.1 financial knowledge and credit card having

Result 1: Consumers who have more financial knowledge are more likely to have a credit card.

Result 2: Consumers with more financial knowledge significantly tend to hold more credit card.

4.2 financial knowledge and credit card behavior

	(1) dscdb	(2) dscdb	(3) dscdb	(4) dscdb	(5) udscdb	(6) udscdb	(7) udscdb	(8) udscdb
main								
finknw			0.037***	0.123***			-0.027***	-0.030***
			(0.001)	(0.005)			(0.003)	(0.004)
ethn	-0.003	-0.001	0.007	0.030*	0.126***	0.168***	0.119***	0.161***
	(0.005)	(0.016)	(0.005)	(0.016)	(0.010)	(0.015)	(0.010)	(0.015)
marriage	0.001	-0.001	0.002	0.001	-0.001	0.013	-0.001	0.013
	(0.005)	(0.015)	(0.005)	(0.015)	(0.009)	(0.014)	(0.009)	(0.014)
child	-0.035***	-0.113***	-0.033***	-0.105***	0.094***	0.126***	0.092***	0.124***
	(0.002)	(0.007)	(0.002)	(0.007)	(0.004)	(0.006)	(0.004)	(0.006)
income	0.055***	0.174***	0.049***	0.156***	-0.006**	0.003	-0.002	0.007*
	(0.001)	(0.004)	(0.001)	(0.004)	(0.002)	(0.004)	(0.002)	(0.004)
worksts	0.020***	0.102***	0.016***	0.092***	0.257***	0.444***	0.259***	0.447***
	(0.004)	(0.015)	(0.004)	(0.015)	(0.009)	(0.014)	(0.009)	(0.014)
riskatt	0.036***	0.113***	0.034***	0.107***	0.015***	0.012***	0.017***	0.013***
	(0.001)	(0.003)	(0.001)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
finedu	0.109***	0.331***	0.095***	0.287***	0.106***	0.148***	0.116***	0.159***
	(0.006)	(0.018)	(0.006)	(0.018)	(0.011)	(0.017)	(0.011)	(0.017)
.....								
Constant	0.044**		0.012		0.730***		0.753***	
	(0.018)		(0.018)		(0.036)		(0.036)	
Observations	108310	108310	108310	108310	108310	108310	108310	108310
State fixed	yes	yes	yes	yes	yes	yes	yes	yes
Adjusted R^2	0.219		0.224		0.061		0.062	
Pseudo R^2		0.132		0.136		0.021		0.021

4.2 financial knowledge and credit card behavior

Result 3: Consumers who have more financial knowledge are more likely to have a good credit card behavior.

4.3 Endogeneity Check

In order to eliminate the impacts of endogeneity on the estimation results, we employed an instrument variable and conducted a 2SLS estimation. The instrument variable is whether people decide to save for retirement.

This study first performed a regression on consumer financial knowledge on whether to save for retirement. According to the result of first stage regression, the coefficients of whether to save for retirement are positively significant, and F (10, 108299) = 1830.23, which is far beyond the critical values. This implies that the impact of weak instrumental variables can be negligible.

4.3 Endogeneity Check

	(1) havecard	(2) numcrd	(3) dscdb	(4) udscdb
main				
Linear prediction	0.723***	0.582***	0.401***	-0.073***
	(0.017)	(0.011)	(0.012)	(0.012)
finedu	0.253***	0.134***	0.348***	0.145***
	(0.027)	(0.016)	(0.017)	(0.017)
income	0.315***	0.266***	0.148***	0.040***
	(0.005)	(0.003)	(0.004)	(0.004)
worksts	0.249***	0.124***	-0.015	0.556***
	(0.018)	(0.012)	(0.013)	(0.013)
riskatt	0.070***	0.036***	0.118***	0.018***
	(0.003)	(0.002)	(0.002)	(0.002)
pefcap	0.129***	0.096***	0.162***	-0.047***
	(0.006)	(0.004)	(0.005)	(0.004)
pemath	-0.003	0.007*	0.002	0.018***
	(0.005)	(0.004)	(0.005)	(0.004)
crerating	0.626***	0.341***	0.481***	-0.083***
	(0.009)	(0.006)	(0.008)	(0.006)
Constant	-3.337***			
	(0.086)			
Observations	108310	108310	108310	108310
Pseudo R^2	0.255	0.100	0.124	0.014

4.4 Robustness Check

To examine the robustness of the estimates, this study firstly replaced the estimation approach of logit and ordered logistic regression by probit and ordered probit regression .

Second, this study deleted the samples where the annual income is less than $15,000 or more than $15,0000, which will decrease the impacts from outliers of income.

4.4 Robustness Check

	(1) havecard	(2) numcrd	(3) dscdb	(4) udscdb	(5) havecard	(6) numcrd	(7) dscdb	(8) udscdb
main								
finknw	0.102***	0.068***	0.077***	-0.020***	0.184***	0.129***	0.126***	-0.022***
	(0.004)	(0.002)	(0.003)	(0.003)	(0.007)	(0.005)	(0.005)	(0.005)
ethn	-0.006	0.001	0.025***	0.107***	0.008	-0.001	0.052***	0.167***
	(0.012)	(0.008)	(0.009)	(0.009)	(0.024)	(0.016)	(0.018)	(0.016)
marriage	0.044***	-0.018**	0.002	0.002	0.069***	-0.039***	-0.007	0.013
	(0.012)	(0.008)	(0.009)	(0.008)	(0.022)	(0.015)	(0.016)	(0.015)
child	-0.053***	-0.005	-0.059***	0.076***	-0.094***	-0.019***	-0.102***	0.123***
	(0.005)	(0.003)	(0.004)	(0.004)	(0.010)	(0.007)	(0.007)	(0.007)
income	0.166***	0.143***	0.091***	0.002	0.304***	0.246***	0.152***	-0.007
	(0.003)	(0.002)	(0.002)	(0.002)	(0.007)	(0.005)	(0.005)	(0.005)
worksts	0.210***	0.171***	0.054***	0.259***	0.386***	0.276***	0.079***	0.407***
	(0.011)	(0.008)	(0.009)	(0.008)	(0.021)	(0.014)	(0.016)	(0.015)
riskatt	0.039***	0.025***	0.065***	0.013***	0.071***	0.041***	0.114***	0.016***
	(0.002)	(0.001)	(0.001)	(0.001)	(0.004)	(0.002)	(0.003)	(0.003)
.....								
Constant	-1.050***				-2.092***			
	(0.044)				(0.089)			
Observations	108310	108310	108310	108310	88330	88330	88330	88330
Pseudo R^2	0.271	0.104	0.132	0.023	0.231	0.080	0.116	0.022

4.5 Heterogeneity Check

To examine the heterogeneity of the estimates, we divide the sample into two groups according to different standards. One is the time and place of receiving financial education, the other one is income.

4.5 Heterogeneity Check

Standard: time and place of receiving financial education

	(1) havecard	(2) numcrd	(3) dscdb	(4) udscdb	(5) havecard	(6) numcrd	(7) dscdb	(8) udscdb
main								
finknw	0.107***	0.063***	0.036***	-0.181***	0.182***	0.063***	-0.014	-0.241***
	(0.021)	(0.012)	(0.013)	(0.013)	(0.037)	(0.018)	(0.019)	(0.019)
ethn	-0.005	0.014	0.134***	0.286***	-0.212*	-0.103*	-0.002	0.311***
	(0.067)	(0.041)	(0.044)	(0.042)	(0.114)	(0.057)	(0.060)	(0.058)
marriage	0.168**	-0.003	-0.036	-0.022	-0.073	-0.106*	-0.032	-0.152***
	(0.070)	(0.041)	(0.043)	(0.043)	(0.114)	(0.056)	(0.059)	(0.058)
child	-0.038	0.056***	-0.026	0.156***	0.017	0.090***	-0.054**	0.195***
	(0.030)	(0.018)	(0.019)	(0.018)	(0.049)	(0.025)	(0.026)	(0.025)
income	0.293***	0.231***	0.140***	-0.020*	0.346***	0.233***	0.143***	-0.074***
	(0.018)	(0.011)	(0.012)	(0.011)	(0.032)	(0.016)	(0.017)	(0.017)
worksts	0.414***	0.285***	0.155***	0.401***	0.209*	0.083	0.013	0.347***
	(0.062)	(0.039)	(0.042)	(0.042)	(0.113)	(0.058)	(0.061)	(0.062)
riskatt	0.095***	0.061***	0.146***	0.070***	0.114***	0.069***	0.153***	0.090***
	(0.011)	(0.007)	(0.007)	(0.007)	(0.019)	(0.010)	(0.010)	(0.010)
.....								
Constant	-3.127***				-2.309***			
	(0.261)				(0.475)			
Observations	12633	12633	12633	12633	6562	6562	6562	6562
Pseudo R^2	0.325	0.116	0.138	0.047	0.276	0.065	0.108	0.080

4.5 Heterogeneity Check

Standard: income level

	(1) havecard	(2) numcrd	(3) dscdb	(4) udscdb	(5) havecard	(6) numcrd	(7) dscdb	(8) udscdb
main								
finknw	0.155***	0.134***	0.144***	0.049***	0.212***	0.119***	0.120***	-0.097***
	(0.007)	(0.006)	(0.007)	(0.006)	(0.012)	(0.006)	(0.006)	(0.006)
ethn	0.012	-0.007	0.026	0.181***	-0.048	0.007	0.064***	0.146***
	(0.024)	(0.020)	(0.023)	(0.021)	(0.039)	(0.021)	(0.022)	(0.022)
marriage	-0.042*	-0.092***	0.009	-0.051**	0.252***	0.034*	0.006	0.094***
	(0.024)	(0.019)	(0.022)	(0.020)	(0.039)	(0.020)	(0.021)	(0.021)
child	-0.121***	-0.067***	-0.132***	0.056***	-0.055***	0.021**	-0.083***	0.175***
	(0.011)	(0.009)	(0.011)	(0.009)	(0.015)	(0.008)	(0.009)	(0.008)
income	0.331***	0.304***	0.161***	0.186***	0.224***	0.184***	0.153***	-0.188***
	(0.010)	(0.008)	(0.009)	(0.009)	(0.018)	(0.008)	(0.008)	(0.009)
worksts	0.299***	0.278***	0.161***	0.342***	0.419***	0.219***	0.004	0.446***
	(0.022)	(0.018)	(0.021)	(0.019)	(0.036)	(0.019)	(0.021)	(0.021)
riskatt	0.054***	0.038***	0.094***	0.020***	0.098***	0.045***	0.125***	0.020***
	(0.004)	(0.003)	(0.004)	(0.003)	(0.006)	(0.003)	(0.004)	(0.003)
.....								
Constant	-1.505***				-2.688***			
	(0.093)				(0.172)			
Observations	53856	53856	53856	53856	54454	54454	54454	54454
Pseudo R^2	0.186	0.090	0.115	0.020	0.195	0.043	0.089	0.048

5. Conclusion

Result 1: Consumers who have more financial knowledge are more likely to have a credit card.

Result 2: Consumers with more financial knowledge significantly tend to hold more credit card.

Result 3: Consumers who have more financial knowledge are more likely to have a good credit card behavior.

Thanks!