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Economic knowledge, political views, and Covid-19 related behaviors

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Abstract

Economic knowledge is key for an informed society, with previous studies finding a relationship between such knowledge and policy preferences. Most studies find a positive relationship between economic knowledge and more conservative viewpoints with one recent exception, whereby increased economic knowledge was associated with stronger opinions on both sides. Here, we explore the relationship between economic knowledge and reactions to COVID-19 precautions. We perform ordered logistic regression analysis on data collected from 246 college students and find that individuals identifying as Republican were strongly associated with practicing social distancing relative to Independents, although this effect decreases significantly with increase in TEL (Test of Economic Literacy) scores. For Democrats, however, higher scores on the Test of Economic Literacy are associated with more positive responses to CDC recommendations. Our results indicate that a statistically significant relationship exists between economic knowledge and views of COVID-19, but this relationship is a function of political preferences.

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1. Introduction

By March 2020, reported cases of COVID-19 occurred in every state, but there were disagreements as to how we should handle the impending health and economic crises. The debates that ensued drove further divides between political parties, fueled skepticism of science, and highlighted a battle between the significance of human life and economic growth (Pew Research Center 2020). Fiscal policies were enacted to prevent a more severe economic downturn, and the handling of the pandemic was perhaps the deciding factor in the 2020 presidential election.

Since then, general knowledge of COVID-19 and its methods of transmission continued to evolve. Perceptions of which precautionary methods were appropriate and which methods were perhaps unnecessary are often determined by party affiliation. To better understand support for COVID-19 related safety measures, we opted to extend the normal analysis which controls for political party affiliation to include another variable, economic knowledge, previously determined to be a significant indicator in policy preferences (Allgood et. al. 2012; Evans 2015; Walstad 1997). More explicitly, to what extent does an understanding of basic economic principles, measured by performance on the Test of Economic Literacy (TEL), affect college students' reported adherence to CDC (Centers for Disease Control) recommended precautions?

2. Prior Literature

Economic literacy refers to an individual's ability to properly apply economics-based decision-making frameworks to situations in the real world (Becker 2007; Heafner et al. 2019; Miller and VanFossen 2008; Salemi 2005). It is one of those poorly defined but frequently used phrases intended to depict an individual's understanding of basic economic concepts as well as the discipline's view of human behavior, the efficacy of markets, and the larger macroeconomic system. Economists have long hailed economic literacy as a means to avoid poor economic and social policies, but principles coursework in economics is highly unlikely to make an individual economically literate (Hansen et al. 2002; Highsmith 2017; Salemi 2005; Stigler, 1970; Walstad and Rebeck 2001). College seniors have relatively little economic knowledge upon graduation and score only slightly higher on economic assessments than high school students and the general public (Walstad and Larson 1992) even with some formal economics coursework (Gleason and Van Scyoc 1995). The problem is that assessing economic literacy is difficult, and like other studies before us, we opt to use the Test of Economic Literacy, which measures a basic knowledge of the field rather than a deeper level of understanding that many in the discipline wish to improve.

The level of economic knowledge an individual possesses appears correlated with support for select economic policies. For example, Evans (2015) concludes that even after controlling for the normal set of demographic variables (gender, race, education, and income) and political party identification, higher rates of economic knowledge were associated with support for lower federal taxes, less support of government intervention in the macroeconomy, and less support of limits to CEO compensation. In previous research following the economic downturn in 1990, Walstad (1997) drew similar conclusions. Higher economic knowledge was associated with greater support of the Federal Reserve policies and positions and less support for ideas such as increasing taxes to reduce the deficit, increasing government spending, restricting trade, and placing price ceilings on the price of oil and gas. Hammock et al. (2016) surveyed college

students' opinions on 13 social, political and economic issues concluding that studying economics increased students' beliefs in favor of personal freedom and decreased support for government intervention in markets. These findings were reinforced across four more surveys conducted throughout the 1990's (Walstad and Rebeck 2002).

Much of the literature indicates that economic knowledge is associated with more conservative policy preferences, even when controlling for political party identifications. Savadori et al. (2020) challenges that concept, suggesting that economic knowledge may instead explain the variation in views within a political party or ideology. In an unpublished paper on immigration in Europe, Savadori et al. (2020) determines that higher economic knowledge is associated with a greater likelihood of positions at the opposite ends of the issue, while those with lower scores tend to hold more moderate views or positions of uncertainty.

Earlier studies examined the relationship between economic knowledge and support for various economic policies, but in today's political climate, is it possible that economic knowledge affects a more diverse set of views including our responses to COVID-19?

We know other factors affect adherence to CDC guidelines, even when those guidelines are regularly changing. Nikolov et al. (2020), for example, suggest that demographic characteristics exert the largest influence on social distancing and mask-wearing behaviors. With regards to COVID-19, females appear more risk averse, showing greater cooperation with mask-wearing measures and social distancing requirements (Chuang and Liu 2020; Podkul et al. 2020). Women were more supportive of stay-at-home orders, while males tended to worry more about the delay in reopening the private sector (Podluk et al. 2020). Age is also associated with stronger adherence to CDC recommendations, with older individuals more likely to report wearing masks consistently, unsurprising given the clear relationship between age and symptom severity (Nikolov et al. 2020).

Race and ethnicity (likely community or peer effects) similarly play a role in following standard precautions. African Americans, for example, report a greater number of non-essential outings per week than Caucasians, but Caucasians report leaving the house more days than African Americans (Nikolov et al. 2020). Once out, Caucasians are also less likely to wear masks and socially distance than other racial groups. Block et al. (2020) report that African Americans in general fail to adhere to the COVID-19 public health recommendations, although Weiss and Paasche-Orlow (2020) suggest the difference may be more a function of education than race. In Lennon et al. (2020), most respondents were white, and 81% of those respondents were college educated. Only 27% of respondents were college educated in the Block et al. (2020) study of African Americans. A recent report from the Pew Research Center (2020) confirms that higher levels of education are associated with higher rates of compliance with public health recommendations among people of all racial/ethnic groups. In addition, their data show that overall, African American adults are more likely to wear masks than White respondents (Igielnik 2020; Weiss and Paasche-Orlow 2020).

Demographics are not the only determinants of adherence to COVID-19 precautions. Health literacy (Supriyati et al. 2021) and trust (or conversely mistrust) of media (Weiss and Paasche 2020) as it relates to information about COVID-19 are also significant determinants of the precautions individuals take. There also appears to be an association between social media use and employing COVID-19 safe behaviors (Wong, F. H. C et al. 2020)

For many, information about COVID-19 and its methods of transmission is confusing, and recommendations are often updated as researchers are learning more. Politicians fail to help

when politicizing the issue, and people who normally mistrust the health care system may be even less likely to adhere to recommendations when those recommendations seem unclear or inconsistent (Weiss and Paasche 2020). A history of discriminatory practices in the industry combined with a lack of culturally targeted messaging results in an even greater distrust, particularly in the African American community (Muvuka et al. 2020).

A multitude of factors affect adherence to COVID-19 safety precautions, including political party identification. To the extent that economic knowledge represents something distinct from political preference and even general education levels, one might question why economic knowledge would affect adherence to public health guidelines. The relationship is ambiguous at best. We could argue that economic knowledge is often associated with an appreciation of markets and the drive for efficiency. In this case, higher economic knowledge might be associated with more negative views of COVID-19 precautions that reduce economic activity or individual choice. On the other hand, we could argue that a higher understanding of economics might provide greater insight to the long-term economic threats posed by the virus, and thus following guidelines is a means of mitigating the negative economic and social effects. Although the direction of the relationship is not necessarily clear, it is one worth exploring using survey data from a diverse group of undergraduate students.

3. Data

3.1. Survey instruments

Our survey is made up of five parts, although only four of the sections are used in this analysis. The first section, dubbed the Pandemic section, had 14 items to capture students' attitudes and behaviors as they pertain to the coronavirus pandemic and our government's response. Specifically, questions for this pandemic section were modified from Czeisler et al. (2020). Items were also obtained from the Harris Poll (2020), which tracks the sentiment, behaviors and motivations of American adults. Items collected from Gallup Coronavirus Pandemic Poll (2020), Pew Research Center Global Attitudes Survey (Summer 2020) and the Washington Post/Kaiser/Harvard Role of Government Survey (2010) also shaped this section of the survey. Questions assessed respondents' views of the federal and state level responses to COVID-19, perceptions regarding the necessity of various CDC guidelines, and respondents' personal adherence to CDC guidelines such as the wearing of masks and avoiding crowds.

The second section used included six items relating to how students consume news and their opinions relating to the trustworthiness of various news outlets/platforms. The next section was the 4th edition of the 45-question standardized Test of Economic Literacy (TEL) with questions intended to measure students' economic knowledge. The last section was the Demographic questionnaire, which had 18 items to capture students' background information.

The questionnaire was in English only and administered online to a convenience sample that included students from the Principles of Management Subject Pool (who chose to take part for class credit), students in select economics courses completing the survey for bonus points, and students on the School of Business Administration email distribution list. Incentives varied by student, but all participants were eligible for one of three $50 gift cards, determined by a random drawing.

For purposes of this study, we were most interested in respondents' COVID-19 related behaviors corresponding to CDC guidelines at the time of the survey (January 19 – February 28, 2021). Specifically, the behaviors we examined for this analysis were practicing social distancing

in public around non-family members and the frequency of being in a public area other than school, the grocery store, or a pharmacy, as shown in Table I.

Table I. COVID-19 Related Behavior Questions

Question on Survey	Answer Choices (Coded Value in Parentheses)
In the past 3 months, have you stayed at least six feet away from people in public that are not members of your household?	(2) Always keeping my distance. (1) Sometimes keeping my distance. (0) Not worried about maintaining social distancing.
During the last two weeks, how often were you in a public area other than school, the grocery store, or pharmacy?	(2) Never. (1) Occasionally (once or twice per week). (0) Daily/Frequently.

3.2. Test of Economic Literacy (TEL)

The TEL is a nationally normed and standardized test for measuring the achievement of high school students in basic economic knowledge, developed by the Council of Economic Education (CEE) in 2012. Content topics on the test include scarcity, economic systems, specialization and comparative advantage, supply and demand, unemployment and inflation, money and banking, and fiscal and monetary policy. The items are based on 20 core content standards by the CEE (2014). Six of the 45 items are attributed to the knowledge level, 14 to the comprehension level, and 25 to the application level (Walstad et al. 2013). All 45-questions from the fourth edition of the TEL were used to assess economic knowledge in this study.

The mean TEL score for a sample of over 7,000 students in the US is between 19 and 34 points out of a possible 45 (i.e., between 42% and 76%). Differences in means were attributed to previous experience in an economics course or placement in advanced, honors or AP (Advanced Placement) sections when administered at the high school level (Walstad 2001). Although initially developed for high school students, the TEL has been used widely in assessing college students' understanding of central economic concepts (Albritton 2006; Happ et al. 2018) and as a proxy for economic literacy as an independent variable in previous research studies (Gleason and Van Scyoc 1995; Wood and Doyle 2002). Walstad and Larsen (1992), for example, noted significant deficiencies in college students' knowledge and awareness of basic economics (51% for college seniors), although the scores were higher than those from both the general public and high school seniors.

3.3. Summary Statistics

Tables II and III display the profile of the student population used for this study. Participants are from diverse socioeconomic and demographic backgrounds based on reported age, race, ethnicity, relationship status, gender, family income, and employment status. The average reported age of participants was 25 years old, and 48% identify as female. Participants were allowed to select multiple race and ethnic groups (or none at all), with 35% selecting White, 29% Hispanic, 26% Black, and 13% Asian. From this sample, 42% indicated democratic affiliation, 33% independent and 24% republican. Average reported household income in our sample is approximately $70,000, based on averaging the midpoints of each interval selected by

respondents. The demographics of our sample presented in Table II closely resemble those of our county (in which 35% of the population identifies as white, 29.8% as Black/African American, 22% as Hispanic, and 12.5% as Asian, and where the median income is $71,000). Compared to our county as a whole, our sample is younger than the median age, and while we did not ask about country of birth, 26% of our county is foreign born, and 35% speak a language other than English at home. Almost 90% of those 18+ hold high school diplomas, and 37% earned a bachelor's degree or higher diploma (U.S. Census Bureau 2020). While our sample may not resemble the U.S. population, it likely reflects our own community and many other diverse urban areas in the United States. In addition, approximately 15% of the respondents reported STEM majors including Information Technology and Nursing / Healthcare Administration.

Table IV shows frequency distribution of COVID-19 behaviors for our sample. Forty-four percent of our respondents stated that they always practice social distancing, while only five percent said they never practice social distancing. Regarding frequency in public for non-essentials, 28% said they never go out except to school, grocery, and pharmacy outings.

At the time of this survey (Jan/Feb 2021), 90% of students knew someone who had tested positive and 35% knew someone who died from COVID-19. Forty percent of students said that they would take the vaccine when one becomes available, while 22% said they would not. Vaccinations were not FDA (Food and Drug Administration) approved at the time data was collected.

Table II. Student Sample Demographics
(n=246)

Demographics	Percent
White	35.37
Hispanic	29.27
Black	25.61
Asian	13.41
Female	48.37
Republican	23.57
Independent	33.33
Democrat	42.28
Employed	62.20
STEM Majors	19.69

Table III. Profile of Student Sample Characteristics
(n=246)

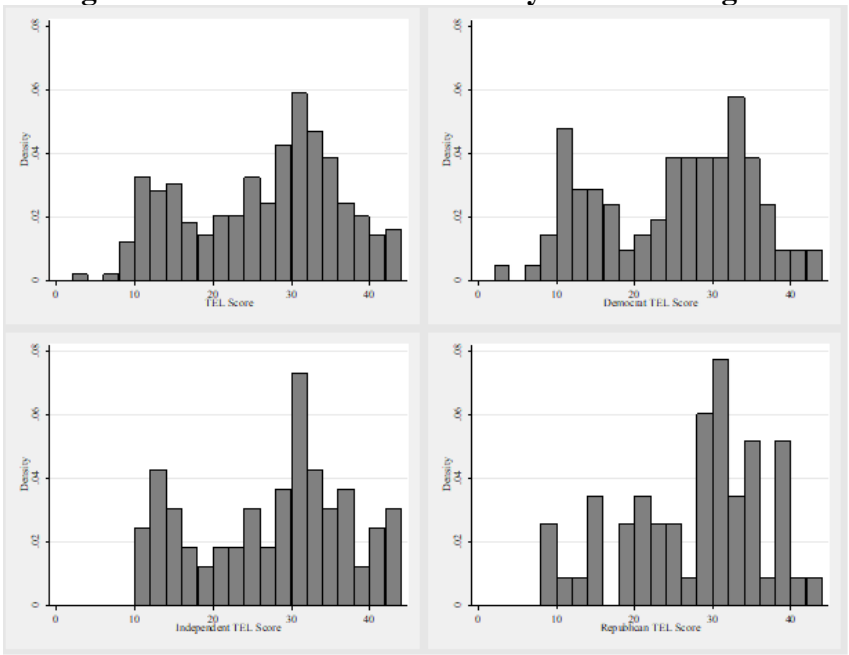
Variable	Mean	SD	Min	Max
Test of Economic Literacy	25.91	9.61	0	43
Age	24.54	6.51	18	63
Household Income	$69,691	$3,252	$1,000	$120,000

Table IV. COVID-19 Related Behavior Responses (n=246)

Practiced Social Distancing		
Response	**Freq.**	**Percent**
Never	14	5.69
Sometimes	123	50.00
Always	109	44.31
Frequency in Public		
Response	**Freq.**	**Percent**
Never	70	28.57
Occasionally	128	52.24
Frequently	47	19.18

The mean score on the TEL was about 26, though students tended to cluster around a score of 30 with a smaller cluster centered around a score of 15 (see Figure 1). There are no significant differences in TEL scores by the number of economics courses taken, although economics is a high school graduation requirement for many states including ours. There was also no significant difference between average scores for STEM and non-STEM students (mostly Business majors with required economics coursework). The average TEL score falls in the middle of previously determined means (19-34), and while we cannot rule out the possibility that some individuals may have cheated, there is no evidence that cheating was rampant. A distribution of TEL scores is located in Figure 1. Specifically, Figure 1a presents data from our full sample, while Figures 1b-1d show the distributions for students identifying as Democrat, Independent, and Republican respectively.

Figure 1. Test of Economic Literacy Scores Histograms



4. Method

To determine associations between individual characteristics, political beliefs, economic knowledge and COVID-19 precautionary behaviors, we estimated two ordered logit models. In the first model, students were asked about their social distancing behaviors with answer choices of Always (2), Sometimes (1), or Not a Concern (0). The second question centered around the frequency with which students visited public places (other than school, pharmacies, or grocery stores) in the last couple of weeks with answer choices of Never (2), Occasionally (1), or Frequently (0). Although not all depicted on our results table, our independent variables included a vector of participant demographic characteristics including gender (reference category = male), race/ethnicity (reference category = Caucasian), age, income, employment status (1=employed), and major in school (1=STEM major). The more interesting variables are those representing respondents' political and economic characteristics including indicators for Republican, Democrat (reference category = Independent), TEL score, and interactions between the two.

5. Results

Based on the results in Table V, the political and economic variables of interest had no statistically significant effect on reported frequency of outings but significant effects on reported social distancing. Compared to Independents, ceteris paribus, respondents identifying as Republican were less likely to report never social distancing and more likely to report always social distancing when the TEL scores were below average. As Republicans' TEL scores increased beyond 20, they are more likely to report lower levels of social distancing than Independents, all else constant. More specifically, the probability that a Republican reports never practicing social distancing increases by 0.034 for each TEL question answered correctly, while the probability of reporting always practicing social distancing falls by 0.02 for each correct answer, compared to Independents.

Individuals identifying as Democrats, however, are more likely to report always social distancing and less likely to report never social distancing compared to Independents, ceteris paribus. Although the interaction between Democrat and TEL is not significant, the magnitude and sign suggest that perhaps the TEL score is a less significant determinant in reported social distancing for individuals identifying as Democrat compared to similar Independents.

Finally, participants identifying as Independents reported less social distancing than their peers, although increases in their TEL scores had a significant positive effect on the probability of engaging in more social distancing, ceteris paribus. In summary, we find that higher scores decrease reported social distancing for Republicans, increase reported social distancing for independents, and likely have a weaker effect for Democrats holding all else constant.

Table V. Ordered Logit Marginal Effects on Behaviors

	Practiced Social Distancing			Frequency in Public for Non-Essential Activities		
Variables	Never	Sometimes	Always	Never	Occasionally	Frequently
Income	0.00025	0.0013	-0.0015	0.00055	-0.00016	-0.00039
	(0.44)	(0.44)	(-0.44)	(0.21)	(-0.21)	(-0.21)
Income Squared	6.4e-07	3.2e-06	-3.8e-06	4.9e-06	-1.5e-06	-3.5e-06
	(0.17)	(0.17)	(-0.17)	(0.31)	(-0.30)	(-0.31)
Employed	0.0082	0.042	-0.050	0.20***	-0.032	-0.17***
	(0.72)	(0.72)	(-0.72)	(4.40)	(-1.16)	(-3.60)
STEM Major	-0.025**	-0.16**	0.19**	-0.11**	0.0097	0.10*
	(-2.24)	(-1.97)	(2.05)	(-2.20)	(0.53)	(1.75)
Republican	-0.086***	-0.57***	0.65***	0.099	-0.039	-0.060
	(-2.87)	(-5.18)	(5.07)	(0.43)	(-0.36)	(-0.50)
Democrat	-0.069*	-0.34**	0.41**	-0.20	0.042	0.15
	(-1.76)	(-2.23)	(2.19)	(-1.39)	(1.42)	(1.23)
TEL Score	-0.0021**	-0.011**	0.013**	-0.0049	0.0014	0.0034
	(-2.00)	(-2.02)	(2.07)	(-1.03)	(0.97)	(1.01)
Democrat*TEL	0.0020	0.0100	-0.012	0.0050	-0.0015	-0.0035
	(1.51)	(1.51)	(-1.54)	(0.83)	(-0.80)	(-0.82)
Republican*TEL	0.0055***	0.028***	-0.033***	-0.0012	0.00035	0.00082
	(2.75)	(3.08)	(-3.21)	(-0.16)	(0.16)	(0.16)
Demographic Controls	y	y	y	y	y	y
Observations	246	246	246	246	246	246

Significance levels *** = 0.01, ** = 0.05, and *=0.10. Z-statistic reported in parentheses.

6. Discussion and Conclusions

6.1. Discussion

The idea that economic knowledge is related to preferences for specific economic policies is not surprising, but the notion that economic knowledge is somehow associated with behaviors related to public health is a bit unexpected. In general, higher economic knowledge is associated with more conservative stances on taxes, government spending, and the free market (Evans, 2015), but one might also hypothesize that economic knowledge is correlated with higher levels of education, and hence a greater propensity to abide by public health guidelines.

Our results, however, demonstrate that the relationship between economic knowledge and support for CDC guidelines as they pertain to COVID-19 is a function of political party identification. For individuals identifying as Republican, higher economic knowledge was associated with lower rates of reported adherence to social distancing guidelines and less support for the CDC recommendations overall. For those identifying as Democrats, however, higher economic knowledge was associated with greater support of CDC guidelines and more adherence, compared to Democrats with lower economic knowledge. This presents an interesting question about why greater economic knowledge is associated with stronger views on both sides of the issue. Although undoubtedly a public health issue, there were certainly economic

consequences from the pandemic and economic responses to the pandemic that spurred passionate arguments from both sides of the aisle that continue today.

Policy makers and public health officials may benefit from our finding that economic knowledge affects willingness to abide by safety precautions differently for different groups of people. For individuals identifying as Democrats, improving their basic understanding of economics may create more desirable behaviors from the CDC's perspective. Perhaps a better understanding of unemployment or the negative consequences of a ballooning national debt would encourage these individuals to take health emergencies more seriously and take more precautions to reduce the spread of an infectious disease. For individuals identifying as Republican or Independent, while economic knowledge is of course important, appealing to this set of knowledge is likely less productive from the perspective of the CDC. Precautions were often viewed as attacks on individualism and freedom (including free markets), and these individuals often argued that the closing of the economy and restrictions on activities created unintended consequences that were costlier than the pandemic itself. For these individuals, economic arguments must be focused on the long-term costs and benefits, or perhaps even from a humanitarian rather than an economic perspective altogether.

6.2. Limitations

The findings from this study may suffer from a few limitations. First, the Test of Economic Literacy was not administered under classroom conditions but instead was given to students online, unsupervised, and untimed. Though students were encouraged not to google answers, cheating was possible, leading to an upward bias in TEL scores. Another possibility is that students rushed through randomly choosing answers without reading questions, thus biasing scores in a downward direction. With our average still falling well within the expected ranges, it is unclear the extent to which either action affected our data. Ideally, future iterations of data collection would occur in a more controlled environment.

6.3 Future Research

The issues discussed here are complex and often subjective. With vaccines available but also highly contested and CDC guidelines that continue to change, our country still is divided as we battle new public health and economic challenges. In the future, we hope to further explore the relationship between support levels for specific public health measures and economic knowledge, while recognizing the significance of identifying mediating and moderating effects of variables such as political party identification on economic knowledge. Additional areas of interest specifically include information literacy and risk aversion as they pertain to COVID-related behaviors. While there is existing research examining the relationship between economic literacy (knowledge) and views of economic policies, we look forward to expanding that line of research to consider the ways in which economic knowledge affects views in other policy arenas.

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