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The attitudinal gender gap of an economics education

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Abstract

This note measures changes in how college students' beliefs change concerning the ailments of the economy when they take an introductory macroeconomics course. We measure this change by comparing results of pre- and post-surveys based on the popular survey: The Survey of Americans and Economists on the Economy (1996, Caplan 2002). We measure students' beliefs on the problems facing the economy which range from taxes to regulation. Survey results indicate that at the beginning of the course male and female students have nearly identical beliefs concerning the problems in the economy. At the end of the course male and female students' beliefs about the ailments of the economy have shifted and diverged. We discuss the implications of this research in the context of generating interest in economics from female students and how these disparate beliefs may affect policy prescriptions.

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1. Introduction

Thinking like an economist is a pervasive pedagogical ideal in economics textbooks (Zuidhof 2014). Also pervasive, however, is an attitudinal gender gap across economic policies, both in the general public and among economists themselves (May, McGarvey and Whaples 2014). Prominent explanations for this attitudinal gender gap range from empathy differences (Kamas and Preston 2018) to the greater economic vulnerability of women (Box-Steffensmeier, De Boef and Lin 2004) to the rise of Feminism and an overall less critical attitude towards government (Carroll 1988). In the related field of public opinion, Page and Shapiro (1992) argue for parallelism in which, when exposed to the same stimuli, people will respond in a similar way by a similar amount. Kellstedt, Peterson and Ramirez (2010) find evidence for directional parallelism in public policy changes in line with the thermostatic model developed by Wlezien (1995), in people respond to the same policy change in the same direction, though they find that men's responses are greater in magnitude compared to women.

The goal of this study is to capture the set of initial attitudes towards economic policies of male and female students entering first year macroeconomics courses and to measure the change in those attitudes at the end of the course. We find, perhaps surprisingly, that only in one out of the ten economic policy areas surveyed was an initial gender gap found at the beginning of the course; however, by the end of the course seven of the ten economic policies revealed an attitudinal gender gap. While male and female students generally moved in the same direction, there were exceptions, and in only four of these seven response gaps was the male response greater in magnitude. Overall, there was significant movement in nine of the ten policy issues by either male, female or both suggesting that exposure to formal economic education may be a contributing factor to this attitudinal gender gap. These results are important as women are not only less likely to consider economics as a major, but they are also significantly less likely to even enroll in an introductory economics course (Calkins and Welki 2006). These results could also have important implications for recruiting more female students into the economics profession (Siegfried 2018, Bayer and Rouse 2016, Porter and Serra 2020) and the general teaching of economics (Allgood *et al.* 2015, Watts and Schaur 2011).

The impact of formal economic education on attitudes has been sparse after a flurry of studies appeared in *The Journal of Economics Education* the 1970s and 80s. These attitudinal studies mostly arose from George Stigler's (1959) assertion that the formal study of economics makes one more politically conservative. Scott Jr. and Rothman (1975) tested this assertion and found that relative to an introductory psychology course, an introductory economics course did make students more conservative, though the authors admit that it could alternatively be stated that, relative to those students in economics, an introductory psychology course makes students more liberal. Follow-up studies teased out the various nuances of this effect (Luker and Proctor 1981; Jackstadt, Brennan and Thompson 1985). Other studies include the effect of formal economics education on attitudes toward free trade (Thompson 1973), labor unions (Riddle 1978), income inequality (Sosin and McConnell 1979) business and the American economic system (Jackstadt 1981) and fairness of the market (Whaples 1995). Even though formal economics education has demonstrated significant effects on attitudes and that the effects of taking even one introductory economics course have lasting impacts for years after the course is over (Saunders 1980), these attitudinal studies soon fell out of academic interest. Somewhat overlooked in these studies, however, are important gender differences. For example, Dawson (1966) found that while both men and women

became more sympathetic towards labor unions after the course, the attitudinal change for women was far greater with 44% of female students changing views compared to only 19% for male students. Whaples (1995) found similar gender effects on market fairness over an introductory course with both men and women experiencing attitudinal effects in the same direction (towards market fairness) though female students displayed far greater attitudinal effects. More recent work on attitude formation in economics education found that the intentional contemplation of the contents in an introductory economics course was the most significant factor contributing to attitudinal change (Lange and Pitsoulis 2013). The researchers also expressed concern that male students were more than twice as likely to indicate clearly formed attitudes on economic issues, and they petition for further research on the attitudinal effect of economics education. If exposure to formal economics education has significant lasting effects on policy attitudes and these attitudinal effects differ by gender, this combined effect with the fact that the economics discipline suffers from a gender gap itself, with less female economics majors and a general female aversion to taking an introductory economics course, could have a significant impact on national policies and renews the call for the discipline, or perhaps even universities, to ensure that more female students are introduced to formal economics education, even just an introductory course (Unsworth and Fielding 2014; Gerber *et al.* 2017).

2. Research Methods

We use survey data collected in introductory macroeconomics courses over five consecutive semesters. All the courses were taught in person from spring 2017 through spring 2019 at a mid-size public university in the Midwest of the United States of America.

A pre/post course survey design was used to measure how students' attitudes change from the beginning to the end of the course. At the beginning of each course, the professor implemented the survey which covers various economic policy topics: taxes, debt, foreign aid, immigration, education, regulation, saving, etc. The survey questions used in this study are from the Survey of Americans and Economists on the Economy (1996) which was reproduced in Caplan (2002) and modified for this study.[1]

This study focuses on the following ten survey questions to capture student attitudes on important economic policy issues and to measure how student attitudes in these questions changed from the beginning of the class to the end. In all ten questions, the students are asked to gauge how each category has an impact on the economy. The introduction to the categories is copied below.

"Regardless of how well you think the economy is doing, there are always some problems that keep it from being as good as it might be. I am going to read you a list of reasons that some people have given for why the economy is not doing better than it is. For each one, please tell me if you think major reason the economy is not doing better than it is, a, minor reason, or not a reason at all." (Table 1, Caplan 2002)

Students were asked to evaluate the impact of each category on the overall economy using a Likert scale from 0 to 2 with 0 being labeled as 'Not a reason at all', 1 labeled as 'Minor reason' and 2 labeled as 'Major reason'. The following table captures the ten reasons that the students were asked to evaluate.

[1] The only significant change in the survey used was that the Survey of Americans and Economists on the Economy (1996) uses the term "federal deficit" in reason #2 in Table I. The authors felt that using this terminology was problematic since the concept of a deficit may be ambiguous to the layperson.

The authors were aiming to document the changes in student responses as their grasp of macroeconomic concepts improved throughout the semester. Specifically, the authors were interested in how (and if) students' attitudes change over the duration of the course. By comparing student attitudes in the beginning and the end of the course the authors can capture the direction and amount by which student attitudes about economic policy change after taking an introductory macroeconomics course.

Table I: Ten Policy Issues

No.	*Variable*	*Description*
1	TAX	Taxes are too high
2	DEBT	The US national debt is too big
3	FORAID	Foreign aid spending is too high
4	IMMIG	There are too many immigrants
5	TAXBREAK	Too many tax breaks for business
6	EDUC	Education and job training are inadequate
7	WELFARE	Too many people are on welfare
8	HARDWORK	People place too little value on hard work
9	REG	The government regulates business too much
10	SAVE	People are not saving enough

Since all the courses were in-person courses the survey was administered as a paper survey to the course within the first week of the course and within the last week of the course. The paper surveys where then entered into a database by paid student workers.

3. General Results

We start with 367 observations in our data. Since our main goal is to analyze how beliefs change over the duration of the course, we remove data for subjects who did not complete the survey at the beginning of the course or who did not complete the survey at the end of the course. We also remove any records for which data was obviously incorrectly coded.[2] This reduces our sample to 293 observations. In addition to data on the ten policy issues, we collected demographic information from the students including age (*age*), number of college level econ courses completed (*econ*), and race (*white*) along with capturing data on the term the course was taken. The data is summarized in Table II.

The first column of Table II names the demographic category that we measure. The second column then defines the variable and counts the number of observations we have for that variable. Since the data is collected in survey form, students did not have to answer every question on the survey. The third and fourth columns measure the mean and standard deviation of each variable and column 5 defines the range of the variable. We also include indicators for the term in which the course was offered. As noted previously, the data was collected over consecutive fall and spring terms from spring 2017 to spring 2019.

[2] The data was collected at the beginning and end of the course using surveys. The survey data was then transcribed into a database to facilitate analysis. Unfortunately, much of the data from the fall semester of 2018 was discarded due to incorrect coding of the data.

Table II: Demographic Information

Variable	*Description (# observations)*	*Mean*	*Std dev*	*Max/min*
(1)	*(2)*	*(3)*	*(4)*	*(5)*
female	Indicator, 1 if female (#obs=293)	0.35	0.48	1/0
age	Age of subject measured in years (#obs = 290)	20.81	1.75	31/18
white	Indicator, 1 if white (#obs =293)	0.89	0.31	1/0
econ	Number of college level econ courses completed (#obs = 284)	0.91	0.73	3/0
S2017	Indicator, 1 if class occurred in spring of 2017 (#obs =293)	0.26	0.44	1/0
F2017	Indicator, 1 if class occurred in fall of 2017 (#obs =293)	0.23	0.42	1/0
S2018	Indicator, 1 if class occurred in spring of 2018 (#obs =293)	0.28	0.45	1/0
F2018	Indicator, 1 if class occurred in fall of 2018 (#obs =293)	0.03	0.18	1/0
S2019	Indicator, 1 if class occurred in spring of 2019 (#obs =293)	0.20	0.40	1/0

Table III shows the average response for our ten topics of consideration at the beginning of the course (column 3) and compares this to the average response at the end of the course (column 4). We test for differences in the mean using a paired two-sided t-test and report the results in column 5 along with the direction (positive + or negative -) of the change in measured mean beliefs. As expected, there was significant attitudinal change in most of the policy categories with statistically significant change in seven of the ten categories overall.

Table III: Data Comparison – Beginning and End of Course

Variable	*Description*	*Mean beginning of course*	*Mean end of course.*	*Direction, Significant*
(1)	*(2)*	*(3)*	*(4)*	*(5)*
TAX	Taxes are too high	1.02	0.91	-,**
DEBT	The US national debt is too big	1.65	1.28	-,***
FORAID	Foreign aid spending is too high	1.17	0.97	-,***
IMMIG	There are too many immigrants	0.53	0.52	-
TAXBREAK	Too many tax breaks for business	0.86	0.80	-
EDUC	Education and job training are inadequate	0.94	1.14	+,***
WELFARE	Too many people are on welfare	1.56	1.40	-,***
HARDWORK	People place too little value on hard work	1.22	1.14	-
REG	The government regulates business too much	0.88	0.75	-,**
SAVE	People are not saving enough	1.11	1.32	+,***

Statistical significance is evaluated using paired t-test. * represents significant at the 10% level; ** significant at the 5% level, *** significant at the 1% level

There are two facets of the data that are interesting to consider. First, students changed their rankings on their perceived ailments of the economy. For example, the variable *DEBT* considers how much of a problem that the student thinks that the US national debt is for the economy. At the beginning of the class, students' mean response was that this was a considerable problem with the mean response being 1.65, the highest of the categories. The top four categories at the beginning of the course were *DEBT, WELFARE, HARDWORK*, *FORAID*. At the end of the course, the students on average still believe that *DEBT* is a problem for the economy but to a lesser degree on average with a mean score of 1.28 at the end of the course. At the end of the course, the top four categories were *WELFARE, SAVE, DEBT, EDUC*. While not a complete paradigm shift, this reordering still represents a significant shift of perspective on the primary problems in the national economy.

Second, while most of the attitudes on economic policies shifted in the negative direction there are two exceptions. Specifically, the mean response to the variables *EDUC* and *SAVE increased* by the end of the course. This demonstrates that students believe at the end of the course that these facets are bigger problems for the economy relative to the beginning of the course. This movement is in line with typical principles of macroeconomics course content as the role of education is key to human capital formation and economic growth both of which are highlighted in common macroeconomics texts. The same can be said for savings since it builds wealth. This evidence suggests that the students' beliefs are changing to account for the material taught in the course which speaks to the efficacy of teaching macroeconomics to students and helping students think more like economists (Becker 1997, Colandar 2004, Allgood *et al*. 2015).

4. Gender Results

Table IV compares the mean response for a male with the mean response for a female in both the pre- and post-course surveys. The first three columns contain data for the pre-course survey. The third column shows the results tests for differences in average male (column 1) and average female responses using a t-test for significance. An immediate observation shows that, except for the role of government regulations, male and female students do not seem to have disparate attitudes about the ten policy areas of the economy at the beginning of the course. The lone exception to this parity is the role of government regulation. On average females believe this is less of a problem compared to males, although both on average do not believe government regulation to be a large problem for the economy (i.e. average response is less than 1 for both males and females). This gender difference is generally found in other general public surveys (e.g. CAWP 2012). The fact that males and females do not hold widely different attitudes at the beginning of the course is somewhat surprising as previous research on attitudinal gender gaps would seem to apply in this sample.

In columns 4 and 5 of Table IV we measure the mean student response in the end of class survey by male and female. The asterisk in columns 4 and 5 represent a test of differences in the mean across the two surveys holding gender constant. For example, in the first row we see that male attitudes concerning the impact of taxes on the economy decreased from 1.02 to 0.86. This decrease was significant at the 1% level. In the same row, females' attitude had a non-significant increase from 1.00 to 1.02, indicating that females' beliefs about taxes being too high did not change over the duration of the course.

Comparing the results in columns 3 and 6 allow us to see how men and women's attitudes bifurcate from the pre-course survey to the post-course survey. Although at the beginning of the class male and female students do not have disparate attitudes about the economic policy areas of the

economy except for business regulations, we see at the end of the course that male and female students have quite different attitudes revealing significant gender gaps. Whereas in the before class survey only one of the ten categories showed a difference between male and female beliefs, by the end of the course seven of the ten categories show statistically significant gender gaps in attitudes by the end of the course.

Table IV: Gender Differences in Survey Data

		Beginning of Class			End of Class		
Variable	*Description*	Male	Female	Sig.	Male	Female	Sig.
		(1)	(2)	(3)	(4)	(5)	(6)
TAX	Taxes are too high	1.02	1.00		0.86***	1.02	**
DEBT	The US national debt is too big	1.62	1.70		1.20***	1.42***	**
FORAID	Foreign aid spending is too high	1.19	1.13		1.02***	0.87***	*
IMMIG	There are too many immigrants	0.52	0.54		0.49	0.57	
TAXBREAK	Too many tax breaks for business	0.84	0.88		0.72**	0.93	***
EDUC	Education and job training are inadequate	0.96	0.88		1.20***	1.03*	*
WELFARE	Too many people are on welfare	1.56	1.53		1.39***	1.43*	
HARDWORK	People place too little value on hard work	1.18	1.27		1.17	1.09**	
REG	The government regulates business too much	0.94	0.77	**	0.83*	0.61**	***
SAVE	People are not saving enough	1.08	1.14		1.27***	1.45***	**

We test for differences in the mean response within each survey using a t-test. The results in columns (3) and (6) test for differences across gender but within either the beginning of class or end of class survey. In columns (4) and (5) we test for differences within gender but across the beginning or end of class survey using a paired t-test of means. * represents significant at the 10% level; ** significant at the 5% level, *** significant at the 1% level

For five of these seven gender gaps, both men and women moved in the same direction displaying directional parallelism found in the public policy literature discussed in Page and Shapiro (1992) and Kellstedt, Peterson and Ramirex (2010); however, unlike the latter which found that men's responses to policy changes were greater in magnitude compared to women, when exposed to formal economic education, men's responsiveness was only greater in four of these seven response gaps, namely *TAX, DEBT, TAXBREAK*, and *EDUC*. Regarding *TAX* and *TAXBREAK*, a gender gap formed because only male students changed attitudes. In both cases involving the issue of taxation, female students did not change their attitude whereas male students did. Women were more responsive to *FORAID, REG,* and *SAVE* compared to men. Women were also the only ones who had a statistically significant change to *HARDWORK*, though not enough to form a gender gap. Overall, there was significant movement in nine of the ten policy issues by either male, female or both sets of students.

As a consistency check of our gender results and to measure any other captured demographic impact, we consider a two-way ANOVA for each of the ten policy issues. For each of the ten policy issues we include the factors *female*, *age*, *white*, *econ* and indicators for the term that the data was collected. The results are given in Table V below. For brevity we suppress the results for the term indicators and include F statistics and corresponding p-values for each demographic factor.

Table V: Demographic Effects

		Beginning of Class		End of Class				Beginning of Class		End of Class	
Variable	*Factor*	F	p-value	F	p-value	Variable	*Factor*	F	p-value	F	p-value
TAX	*female*	0.64	0.42	3.45	0.06*	EDUC	*female*	0.78	0.38	1.86	0.17
	age	0.89	0.55	0.82	0.61		*age*	3.20	< 0.01***	1.33	0.21
	white	0.20	0.66	0.30	0.59		*white*	2.07	0.15	0.01	0.91
	econ	0.54	0.65	0.40	0.75		*econ*	0.87	0.45	0.39	0.76
DEBT	*female*	0.52	0.47	2.48	0.12	WELFARE	*female*	0.40	0.53	0.02	0.88
	age	1.95	0.04**	1.04	0.41		*age*	1.36	0.20	0.85	0.58
	white	0.84	0.36	1.63	0.2		*white*	1.42	0.23	1.36	0.25
	econ	3.72	0.01 **	4.15	< 0.01***		*econ*	0.99	0.40	0.48	0.70
FORAID	*female*	0.18	0.67	3.73	0.05*	HARDWORK	*female*	0.79	0.38	1.23	0.27
	age	0.99	0.45	1.14	0.33		*age*	0.98	0.46	0.54	0.86
	white	3.33	0.07*	1.50	0.22		*white*	1.65	0.20	0.84	0.36
	econ	0.82	0.48	1.39	0.25		*econ*	1.31	0.27	1.89	0.13
IMMIG	*female*	0.02	0.90	0.51	0.48	REG	*female*	5.40	0.02**	2.94	0.09*
	age	0.75	0.68	0.77	0.65		*age*	0.91	0.52	1.48	0.15
	white	6.92	< 0.01***	0.50	0.48		*white*	0.03	0.87	0.01	0.93
	econ	0.48	0.69	1.12	0.34		*econ*	0.85	0.47	0.57	0.63
TAXBREAK	*female*	1.51	0.22	9.14	< 0.01***	SAVE	*female*	0.00	0.99	1.9	0.17
	age	1.32	0.22	2.37	0.01**		*age*	0.35	0.97	1.65	0.09*
	white	3.56	0.06*	2.87	0.09*		*white*	3.01	0.08*	1.57	0.21
	econ	1.34	0.26	1.5	0.22		*econ*	0.17	0.92	1.39	0.25

* represents significant at the 10% level; ** significant at the 5% level, *** significant at the 1% level

After controlling for other demographic heterogeneity, we find nearly identical results regarding gender in the beginning of the class survey relative to those in Table IV. Except on the policy issue of business regulation (REG) male and female do not seem to hold disparate beliefs. On the other hand, the inclusion of other demographic factors has mitigated some of the measured differences in males and females in the post class survey results. Even so, after controlling for other demographic heterogeneity, our evidence still suggests that males and females hold disparate beliefs about the ailments of the economy in four of our ten policy issues which is substantially more than the differences at the beginning of the course.[3]

5. Conclusion

The results of this paper support previous studies that demonstrate that formal economics education, even a single introductory economics course, has significant effects on attitudes towards important economic national policy issues. This is important since prior research suggests that attitudes translate into voting choices (Unsworth and Fielding 2014; Gerber *et al*. 2017). This

[3]We also find some interesting demographic effects around *age*, our indicator for race (*white*), and the number of econ classes taken (*econ*). We will leave the discussion on this topic for another time.

study, however, reveals that these attitudinal changes that arise from exposure to formal economics education vary be gender forming significant gender gaps on most policy issues by the end of the course. Furthermore, this study suggests that one result of economics education is to introduce bifurcated beliefs between men and women. This has important ramifications for the future of economic education and the economics profession. This research renews the call for the discipline, or perhaps even universities themselves, to ensure that more female students are introduced to formal economics education, even if just an introductory course.

References

Allgood, Sam, William B. Walstad, and John J. Siegfried. (2015)."Research on Teaching Economics to Undergraduates" *Journal of Economic Literature*, 53 (2): 285-325.

Bayer, Amanda, and Cecilia Elena Rouse. (2016). "Diversity in the Economics Profession: A New Attack on an Old Problem" *Journal of Economic Perspectives*, 30 (4): 221-42.

Becker, William E (1997). "Teaching Economics to Undergraduates" *Journal of Economic Literature*, 35(2): pp.1347-1373

Box-Steffensmeier Janet M, Suzanna de Boef and Tse-Min Lin. (2004). "The dynamics of the partisan gender gap" *American Political Science Review*. 98(3):515–28.

Calkins, Lindsay Noble, and Andrew Welki. (2006). "Factors that Influence Choice of Major: Why Some Students Never Consider Economics" *International Journal of Social Economics*, 33(8): 547–64

Caplan, B. (2002). "Systematically Biased Beliefs about Economics: Robust Evidence of Judgmental Anomalies from the Survey of Americans and Economists on the Economy", *The Economic Journal*, vol. 112 (April), pp. 433-458.

Carroll, Susan. (1988). "Women's Autonomy and the Gender Gap: 1980 and 1982" In *The Politics of the Gender Gap: The Social Construction of Political Influence*, ed. Carol M. Mueller. Newbury Park, CA: Sage.

CAWP. (2012). "The Gender Gap: Attitudes on Public Policy Issues" Center for the American Woman and Politics.

Colander, David. (2004). "The Art of Teaching Economics", *International Review of Economics Education*, 3(1):63-76

Dawson, George, G. (1966). "Changing Students' Attitudes" Improving College and University Teaching 1 (1966): 200-3.

Gerber AS, Huber GA, Biggers DR, Hendry DJ. (2017). "Self-Interest, Beliefs, and Policy Opinions: Understanding How Economic Beliefs Affect Immigration Policy Preferences" *Political Research Quarterly*, 70(1):155-171.

Gilligan, Carol (1982). *In a Different Voice*. Cambridge: Harvard University Press.

Jackstadt, Stephen L. (1981). "A Study of the Relationships Between Economic Knowledge and Attitudes of High School Students" Ph.D. dissertation, Indiana University.

Jackstadt, Stephan, L, Jerry Brennan and Scott Thompson (1985). “The effect of introductory economics courses on college students' conservatism” *Journal of Economic Education*, 16, 37-51.

Kamas, L. and A. Preston. (2018). “Can empathy explain gender differences in economic policy views in the United States?” *Feminist Economics* 25(1): 58-89. https://doi.org/10.1080/13545701.2018.1493215

Kellstedt, Paul M., David A. M. Peterson, and Mark D. Ramirez. (2010). ‘‘The Macro Politics of a Gender Gap’’ *Public Opinion Quarterly* 74 (3): 478–98.

Lange, Astrid., and Athanassios Pitsoulis. (2013). “Sources of politico-economic attitudes: students’ introspections” *Social Psychology of Education*, 16, 45-76.

Luker, William A. and Wanda Proctor (1981). "The Effect of an Introductory Course in Microeconomics on the Political Orientation of Students" *Journal of Economic Education*, 12, 54-57.

May, Ann, Mary G McGarvey, and Robert Whaples.(2014). “Are disagreements among male and female economists marginal at best?: A survey of AEA members and their views on economics and economic policy” *Contemporary Economic Policy*, 32(1): 111–132

Page, Benjamin I., and Robert Y. Shapiro. (1992). *The Rational Public.* Chicago: University of Chicago Press.

Porter, Catherine, and Danila Serra. (2020). "Gender Differences in the Choice of Major: The Importance of Female Role Models" *American Economic Journal: Applied Economics*, 12 (3): 226-54

Riddle, Terry. (1978). "Student Opinions on Economic Issues: The Effects of an Introductory Eco- nomics Course" Journal of Economic Education, 9, 111-14.

Saunders, Phillip. (1980). “The Lasting Effects of Introductory Economics Courses” *Journal of Economic Education* 12 (1):1-14.

Scott, James H. and Mitchell P. Rothman, (1975). "The Effect of an Introductory Economics Course on Student Political Attitudes" *Journal of Economics* Education, 6(2): 107-12.

Siegfried, John J. (2018) “Trends in undergraduate economics degrees, 1991–2017” *The Journal of Economic Education*, 49:3, 291-295

Sosin, Kim, and Campbell R. McConnell, (1979). "The Impact of Introductory Economics on Stu- dent Perceptions of Income Distribution" *Journal of Economic Education*, 11, 13-19.

Stigler, George. (1959). “The Politics of Political Economists” *Quarterly Journal of Economics,* 73, 522-532.

Thompson, Fred, A. (1973). "The Interaction of Cognition and Affect: The Issue of Free Trade" *Journal of Economic Education*, 4(2), pp. 111-15.

Unsworth, Kerrie L. and Kelly S. Fielding. (2014). "It's political: How the salience of one's political identity changes climate change beliefs and policy support" *Global Environmental Change*, 27: 131-137.

Watts, Michael & Georg Schaur (2011) "Teaching and Assessment Methods in Undergraduate Economics: A Fourth National Quinquennial Survey" *The Journal of Economic Education*, 42:3, 294-309

Whaples, Robert. (1995). "Changes in Attitudes Among College Economics Students About the Fairness of the Market" *Journal of Economic Education*, 26, 308-313.

Wlezien, Christopher. (1995). "The Public as Thermostat: Dynamics of Preferences for Spending" *American Journal of Political Science,* 39(4):981–1000.

Zuidhof, Peter-Wim. (2014). "Thinking Like an Economist: The Neoliberal Politics of the Economics Textbook" *Review of Social Economy*, 72(2), 157-85. DOI: 10.1080/00346764.2013.872952.