Economics 9001: Topics in Economics: Health Economics
Class Number: 64891
Syllabus for Spring 2024

Time:	Wednesday and Friday, 10:30-11:45am
Location:	E205 Locust Street Building, or via Zoom link
Professor:	Michael F. Pesko
Office:	E205 Locust Street Building
E-mail:	peskom@missouri.edu
Office Hour:	After Class on Wednesdays, or by e-mail request
Zoom Link:	https://umsystem.zoom.us/j/7813449244?pwd=NE5NRGkzS1pQRHl6SEE4bEQ4K1NrQT09

This course syllabus provides a general plan for the course; deviations may be necessary.

Objectives: The field of health economics can be broadly described as consisting of two parts: 1) the "demand side," or factors influencing individuals' demand for health and medical care, and 2) the "supply side," or factors influencing health care providers' supply of medical services. This course focuses primarily on the demand side of the field, divided into the following segments: 1) a brief introduction that emphasizes the importance of studying demand-side questions, 2) the economics of cigarettes and alternative tobacco products, 3) the economics of e-cigarettes, 4) the economics of substance use disorders, 5) the economics of obesity, 6) socioeconomic status and health, and 7) health insurance and health.

Instruction Mode: Hybrid, with between 30-80% of classes conducted over Zoom. Virtual classes will be held using the Zoom link provided at the top section of the syllabus. Students should expect that courses will be held in-person unless otherwise notified.

Prerequisite: None

Course Goal: Students will learn how to be a consumer and producer of demand-side health economics research.

Student Learning Outcomes:

- Evaluate health economics research to determine strengths and weaknesses in the empirical strategy.
- Develop proficiency in presenting and discussing health economics research.
- Identify the key conclusions in the health economics literature.
    - The relationship between demand-side shocks, such as from policy changes, and health behaviors.
    - The relationship between socioeconomic status (as measured by education, income, and unemployment rate) and health outcomes.
    - The relationship between health insurance status and health outcomes.
- Use data and empirical research strategies to produce research around important

questions in health economics research.

Other Policies:
For university-wide classroom policies including on disabilities, non-discrimination, academic integrity, etc., please see here: https://provost.missouri.edu/faculty-affairs/syllabus-information/.

About Me:
I am an applied health economist that uses economics reasoning and identification strategies to estimate the causal effects of health policy changes using observational data. Please see my faculty page for my CV and a summary of my e-cigarette research, which is one area where I have done substantial work.

I regularly co-author with graduate students on projects related to my research interests / funded research. Select papers that I have co-authored with graduate students are listed below.

1. "The Effect of Vertical Identification Card Laws on Teenage Tobacco and Alcohol Use." Erica Mtenga and Michael F. Pesko. SSRN #4347483. R&R with Health Economics.
2. "The effects of contemporaneous air pollution on COVID-19 morbidity and mortality." **Wes Austin**, Stefano Carattini, **John Gomez Mahecha**, and Michael F. Pesko. Journal of Environmental Economics and Management. 119: 102815. 2023.
3. "The Impact of Legal Abortion on Maternal Mortality." **Sherajum Monira Farin**, Lauren Hoehn-Velasco, and Michael F. Pesko. American Economic Journal: Economic Policy. Accepted, in press. 2023.
4. "The effect of e-cigarette taxes on prepregnancy and prenatal smoking." Rahi Abouk, Scott Adams, **Bo Feng**, Johanna Catherine Maclean, and Michael F. Pesko. Journal of Policy Analysis and Management. 42(4): 908-940. 2023.
5. "Intended and Unintended Effects of E-cigarette Taxes on Youth Tobacco Use." Rahi Abouk, Charles Courtemanche, Dhaval Dave, Bo Feng, Abigail S. Friedman, Joanna Catherine Maclean, Michael F. Pesko, Joseph J. Sabia, and **Samuel Safford**.* Journal of Health Economics. 87: 102720. 2023.
6. "The Effect of E-Cigarette Indoor Vaping Restrictions on Infant Mortality." **Michael Cooper** and Michael F. Pesko. Southern Economic Journal. Available online, in press. 2022.
7. "The Effects of E-Cigarette Minimum Legal Sale Age Laws on Youth Substance Use." Dhaval Dave, **Bo Feng**, and Michael F. Pesko. Health Economics. 28(3), 419-436. 2019
8. "Revisiting the Effects of Tobacco Retailer Compliance Inspections on Youth Tobacco Use." **Bo Feng** and Michael F. Pesko. American Journal of Health Economics. 5(4): 509-532. 2019.
9. "The Effect of E-cigarette Indoor Vaping Restrictions on Adult Prenatal Smoking and Birth Outcomes." **Michael T. Cooper** and Michael F. Pesko. Journal of Health Economics. 56: 178-190. 2017.

Course Format:
Grades will be out of 100 points. I will use the standard +/- scale where 93-100 is an A, 90-92 is an A-, 87-89 is a B+, etc. You will be evaluated on the basis of the following criteria:

- Research Article Presentations (20%): The **purpose** of this assignment is to help develop skills in evaluating and presenting health economics research and to carefully examine some of the seminal studies in the field. Each student will present slides on assigned research articles throughout the semester. Each presentation should be approximately 25 minutes in length, but will be interrupted with questions/discussion. I will keep track of how many presentations students have done so that everybody does an equal number of presentations by the end of the semester; with that said, students do have some flexibility to do more presentations in areas they are especially interested in. Each presentation should cover the following:
    - The journal and ranking where the paper was published (https://ideas.repec.org/top/top.journals.all.html).
    - How many times has the paper been cited according to Google Scholar?
    - Who are the authors, where did they work when they wrote the paper and are they still working now? What is their position then and now?
    - The research question (What is it? Why should we care?).
    - The paper's contribution to the literature (How does the study expand our knowledge of the topic?)
    - A detailed description of the data. Discuss why the data are collected, who collects it, the type of data (e.g., repeated cross-sectional, panel data), sample sizes, types of information contained in the data, and whether the data are publicly available (and if so, what geocodes are provided) or proprietary data. This description of the data set is especially important to make students aware of data that may be available for them to pursue their own research projects.
        - If possible, show us using a web browser how to go to the location where the data lives and how one would go about downloading it.
    - An equation containing the main model estimated in the paper, including a careful description of the meaning of the various subscripts and explanation of the vectors of variables and why they are included in this particular regression model.
    - The paper's main finding and any additional research questions that could follow from the results.
    - Provide additional details on any models that were particularly important for establishing the validity of the identification strategy. For difference-in-differences models, this is often an event study graph. Please provide a careful description for how this provides evidence supporting the validity of the identification strategy.
    - You may also discuss one or two other analyses you found particularly important, but please be selective and do not show all results from a paper.

- Please send the slides to me via e-mail with the following naming convention for the file: YourLateName_AuthorLastName_PaperTitle.

- Replication Exercise (20%): The **purpose** of this assignment is to learn how to use data and empirical research skills. Each student will attempt to replicate Table 1 (panel 1), Table **1**1 (**I** like **I**ce, columns 1-4, panels 1-2), and Table J1 (panel 1) from the following paper:

  Simon, Kosali, Aparna Soni, and John Cawley. "The impact of health insurance on preventive care and health behaviors: evidence from the first two years of the ACA Medicaid expansions." *Journal of Policy Analysis and Management* 36, no. 2 (2017): 390-417.

  The replication exercise **is due the first class in March**. Students are allowed (and encouraged) to discuss with each other to help each other with the programming, but students should otherwise do their own coding independently.

  This replication exercise requires you to download public-use BRFSS data from 2010-2015 (https://www.cdc.gov/brfss/annual_data/annual_data.htm). You will need to follow the methods carefully to subset the correct population of low-income, non-elderly adults. You will also need to merge in time-varying, state-level unemployment data from the Bureau of Labor Statistics and find information on FPL for different household sizes.

  Students should submit 1) one Stata .do file that cleans the data and produces the replication tables, and 2) a .log file for your full .do file (e.g. at the start of your program include the command 'log using "directory"').

  In addition, students should submit a brief written report (approximately 2-3 pages) that discusses how the replication was completed and any challenges that came up. The replicated tables should be included in the paper and do not count towards the page limit. All three files should be sent to me in one .zip folder.

  Unfortunately, many papers do not provide all of the details that are needed to fully replicate it. Here is an interesting research paper about this: The influence of hidden researcher decisions in applied microeconomics - Huntington-Klein - - Economic Inquiry - Wiley Online Library. This paper unfortunately is one of those that cannot be fully replicated by following the instructions, but I try to provide clarity on a few common issues that commonly come up. One serious one: Table **1**1 has an error in the title, delete "Childless Adults."

In replicating, please follow these guidelines:

- First, download Excel files for FPL and unemployment rate. Use the -import- command to get the data into Stata, and at that point use code to retain just the needed data. Use the -reshape- command to get the data into a state / year / month level data file for unemployment or a state / year / household level file

for FPL. NOTE: FPL is different in Alaska and Hawaii, but for our purposes, if you want, you can just assume it's the same as for the other 48 states.
    - In general, try to keep all of your programming in Stata to make replication easier. Any changes made in Excel before importing the data should be minor and easily traceable in the event replication is needed going all the way back to the source data.
    - For FPL, you can also use a Stata routine that Reginald Hebert created (a former student of mine). Search: https://ideas.repec.org/c/boc/bocode/s459244.html.
- Now onto the BRFSS. Append all data files first, then clean using 'if' statements for the different years.
    - Check the codebook carefully as values like 77, 88, and 99 often mean missing and/or 0. Be sure to code these correctly.
    - The replication exercise requires some decisions about defining household size, income, etc. Using midpoints of the ranges is one approach, other reasonable approaches may exist as well. The authors don't provide enough information to fully replicate, but try to get as close as possible to their results. One issue is missing household size for some years in the cell phone sample. For this, one approach is to use married = 2 and all other marriage statuses = 1 for adult household size.
- Merge the unemployment and FPL level data onto the BRFSS data using the -merge m:1- command.
    - This says that BRFSS data has multiple observations for each single observation in the merge data.
    - The authors keep just individuals below 100% of the FPL. Do the same, and add an -assert- command to stop your program if for any reason FPL greater than 100% FPL is accidently entering into your analysis. -assert- is a powerful defensive programming command, especially for when you're juggling multiple projects and/or there are time delays between your work on a project.
- Footnote 4 details a procedure to adjust the sample weights in all years. To get the sum of all weights for a given year, use -bysort year: egen X = sum(Y)- command.
    - To learn more about -egen-, run -help egen- and read some of the documentation for useful commands.
    - Footnote 4 also mentions some quarters are dropped because of data quality issues.
- Create a Medicaid expansion status variable that equals 0 for non-adopters and adopters in the time periods before the policy change, and equals 1 in the time periods after the policy change for the adopters. Use the adoption dates the authors provide. The authors' use of a time-varying variable is not otherwise clear from the formula, as the authors are not using a time-invariant interaction like they report in the formula (per my discussion with the authors).
- For your regression model:

- Apply the weights by using [pw=*weight_var*]
- Use -mean- command for all descriptives since this allows survey weights.
- Use 'i.' for all categorical variables and 'c.' for all continuous variables. If you fail to put 'i.' in front of a categorical variable, it will treat it continuously (e.g. one coefficient instead of a separate coefficient for each category).
- Include fixed effects (e.g. i.state i.year_quarter)
- Cluster standard errors (e.g. cluster(state) option)
- Use -eststore- to save all of the results, and then *estout* command in Stata (or the related *esttab* command) to produce the tables.
    - An option exists to get the N below each table, please use this for all tables.
- Use –testparm- to generate the *p*-value in Table J1.

Note: Replicating work is an important part of our field and is strongly encouraged. However, we suggest that you discuss with me or other health economics faculty members before reaching out to any researchers about replicating their work to make sure that your request comes across in a professional way.

- Extension (10%):
    - **Due April 10**.
    - Produce a new table, with the first row being the Table 1, "All Adults" results from the original paper, and row 2 being your replicated "All Adults" results from the replication exercise.
    - Perform Goodman Bacon decompositions and show these results in Table 2.
        - Recent research has indicated that DD models estimated using a two-way fixed effects (TWFE) design that rely on staggered treatment timing can lead to bias (Goodman-Bacon, 2021, Journal of Econometrics). This bias arises because TWFE estimation uses early adopting units as controls for later adopting units. With time-varying treatment effects, the altered outcome trend for earlier adopters makes them an inappropriate control for later adopters because the difference-in-differences parallel trends assumption will be violated. A Goodman-Bacon decomposition is a diagnostic aid for determining which types of units are used as controls in a TWFE model (early adopters, late adopters, or never adopters) and how much weight each type contributes to the difference-in-differences estimate. If the weights indicate that a large share of the policy effect is estimated using inappropriate controls (i.e., early adopters), this suggests that the potential for bias could be large.
        - Download the Goodman-Bacon decomposition package by typing -ssc install bacondecomp-. Learn about the package by typing -help bacondecomp-
        - Collapse the individual-level data to the level of the two-way fixed effects (year-by-quarter and state). You can collapse each of the variables used in

the regression model with code along these lines: bysort state year quarter: egen X = mean(X). Be sure to first create indicators from any categorical variables.
    - Keep just year, state, quarter, and the summed variables, drop all others. Following, use -duplicates drop- so that you have just one observation for each state-year-quarter.
    - Now, estimate the Goodman-Bacon decomposition twice. Once using only state and year-quarter FE. Second, using state and year-quarter FE + individual- and state-level controls. For simplicity, do not use survey weights.
- Use Callaway-Sant'anna estimator (Journal of Econometrics, 2021) to correct this bias in the TWFE model. Print this result in Table 1, row 4.
    - Download the Callaway-Sant'anna package by typing -ssc install csdid-. Learn about the package by typing -help csdid-
    - Estimate a C&S model using only state and year-by-quarter fixed effects.
        - Only base-period values are used for the estimation if variables are time-varying, hence we use just fixed effects as controls in this case.
        - Again for simplicity, do not use survey weights.
- To provide a more direct comparison of the C&S results without individual- and state-level controls, estimate a TWFE model without the individual- and state-level controls and report this in row 5.
- In addition to the tables, please provide a half page write-up on what you have learned from this exercise.

- Research Project (40%): Each student will prepare a research paper consisting of an abstract, brief literature review that outlines your specific contribution to the literature, description of the data (including reference to a table of descriptive statistics, pertinent information on how your sample was constructed, mention of prices being inflation-adjusted), description of the methods (including an equation and mention of the level at which standard errors are clustered), and results (including a specific interpretation of the coefficient on your main result, and discussion of whether this effect is large or small by comparing to the outcome mean). Tables should be clearly formatted using -esttab- or –estout-. In addition to the paper, please also submit your .do file and a single .log file of your cleaning and regression program (with all regression results displayed).
    - The paper is due by 11:59 PM on May 12.
    - The paper should not exceed 10 pages in length, double-spaced. The reference page, figures, and tables do not count towards this page limit and should be included at the end of the document (in that order).
    - Here is an interesting Tweet with four slides on things to try to accomplish in different sections of your paper: https://twitter.com/AndrewMIbrahim/status/1425979096148889601.
    - Additionally, the students will do two presentations. The first will be a 10-minute presentation that proposes a research project. The slideshow will be very brief and should contain a proposed research question, one slide summary of main studies in the area, proposed data, and proposed methods. Students should ensure that

they have access to the data they propose to use, or at least that they can get access to it in time to use it for their paper. The second presentation (during the last classes) will be a 15-20 minute presentation that provides an overview of the full research project. While neither presentation will be graded directly, the feedback you receive in these presentations will be instrumental for receiving a good grade on your final research project, so the more you prepare for the presentation the better your grade is expected to be on the final paper.

- You are allowed to submit the same paper for my course as you do for another course provided there is a unique and substantial contribution for each course. If you go this route, it is imperative that you note this in your class presentations and in the final paper (through a note on the paper's title page). In the final paper, please also identify the unique components of the paper for each course. You will be graded on the specific component unique to the current course.
- Here are a few suggestions:
    - Carefully look at the N's in your reported results. For a given outcome, these should not change regardless of the control variables that you include. If the N's are changing, this is likely due to missings in your control variables, which should either be removed in advance (listwise deleted) from all regressions, or the missingness should be modeled with imputation or creating a missing category.
    - Figure and table numbers should reflect the order in which they appear in the written part of your paper.
    - Busy academics, including oftentimes editors, reviewers, and search committee members, will oftentimes only read a paper's introduction and the main tables / figures to decide whether to proceed with the paper or not (or whether to interview you or not!).
        - For this reason, it is important to provide a one paragraph explanation of your main take-away message at the end of your introduction.
        - Additionally, provide detailed table and figure footnotes mentioning data, years of the analysis, a brief description of controls (including fixed effects), estimation strategy, and standard error adjustment). The tables / figures will ideally be stand-alone interpretable so that somebody could read only these and have a very good sense of what you are estimating. Additionally, for table / figure titles, I recommend having a single main title, and then making small changes to that for all subsequent titles, such as by adding something to the end of it for sensitivity checks, changing the outcome, etc. That way readers can more easily compare across tables / figures to see exactly what has changed.
    - One strategy to satisfy your paper requirement is to replicate and extend the analysis of an existing paper. Replication is an important part of the process of validating scientific findings, and it is an especially useful exercise for new researchers. If you follow this approach, you pick a paper on an important topic and attempt to reproduce the results obtained by the authors, either using their data or another comparable data set. I strongly

recommend picking a top economics general interest journal or top health economics journal, as papers appearing there are usually important papers that have made a unique contribution. Examples include Journal of Health Economics; American Journal of Health Economics; Health Economics; Journal of Public Economics; Journal of Human Resources; AEJ: Economic Policy; AEJ: Applied Economics; Review of Economics & Statistics; American Economic Review; and Quarterly Journal of Economics. However, frequently important papers appear outside those outlets. So pick a topic that you personally think is interesting and important. You first present the author's original main results side-by-side with your own results, preferably showing that you successfully replicated their work (here is an example of a paper that does this well). Note that is not uncommon to find that you cannot replicate perfectly results from a published paper. If that is the case, you should be sure to explore why that is the case (e.g., you only have access to slightly different data than what they used; or they used a vague sample selection criterion that you could not replicate perfectly). Second, you then examine how sensitive their results are to important specification, estimation, and measurement issues, and/or to adding additional data.

- Class participation (10%): Please attend class in person, unless ill. Please ask questions / offer insights in class to advance the conversation. Finally, please attend the mandatory seminars (details following).
    - Please also sign-up for NBER working paper alerts for their Program on the Economics of Health here: https://www.nber.org/papers?page=1&perPage=50&sortBy=public_date. We may discuss new working papers in class.

Tentative Course Timeline:

Class #	Date	Tentative Topic
1	1/17/2024	IA. Introduction / Human Capital Model of Health
2	1/19/2024	IA. Introduction / Human Capital Model of Health
3	1/24/2024	IA. Introduction / Human Capital Model of Health
4	1/26/2024	IIA. Economics of Cigarettes and Alternative Tobacco Products
5	1/31/2024	IIA. Economics of Cigarettes and Alternative Tobacco Products
6	2/2/2024	IIA. Economics of Cigarettes and Alternative Tobacco Products
7	2/7/2024	IIB. Economics of E-cigarettes
8	2/9/2024	IIB. Economics of E-cigarettes
9	2/14/2024	IIB. Economics of E-cigarettes
10	2/16/2024	IIC. Economics of Substance Use Disorders
11	2/21/2024	IIC. Economics of Substance Use Disorders
12	2/23/2024	IID. Economics of Obesity
13	2/28/2024	IID. Economics of Obesity
14	3/1/2024	IIIA. Income, Non-Insurance Benefit Programs
15	3/6/2024	IIIA. Income, Non-Insurance Benefit Programs

16	3/8/2024	IIIB. Education
17	3/13/2024	IIIC. Employment
18	3/15/2024	Presentations on Research Proposals
19	3/20/2024	Presentations on Research Proposals
20	3/22/2024	Presentations on Research Proposals
	3/27/2024	**No Class - Spring Break**
	3/29/2024	**No Class - Spring Break**
21	4/3/2024	IVA. Health Insurance and Health - Randomized Experiments
22	4/5/2024	IVA. Health Insurance and Health - Randomized Experiments
23	4/10/2024	IVB. Health Insurance and Health - Non-ACA Natural Experiments
24	4/12/2024	IVB. Health Insurance and Health - Non-ACA Natural Experiments
25	4/17/2024	IVC. Health Insurance and Health - Affordable Care Act
26	4/19/2024	IVC. Health Insurance and Health - Affordable Care Act
27	4/24/2024	Presentations on Final Research Projects
28	4/26/2024	Presentations on Final Research Projects
29	5/1/2024	Presentations on Final Research Projects
Final Slot	5/9/2024 (3-5 PM)	Presentations on Final Research Projects (if needed)

Seminars:

- **Department of Economics health seminars (mandatory)**
  - David Slusky; Wednesday, January 21; 3:30-5:00.
- **Tobacco Online Policy Seminar (www.tobaccopolicy.org) (mandatory):**
  - TOPS meets every other Friday at 2:00 PM. Please attend mandatory seminars by Brendan Cirillo on Jan. 19 and Samuel Sturm on March 29.

  - For each mandatory TOPS seminar, please either 1) ask the presenter a thoughtful question in the Q&A panel, or 2) e-mail me a one-paragraph description describing the identification strategy and how the presenter defends its validity.

- **Other free online economics seminar series (optional):**
  - https://www.aeaweb.org/resources/online-seminars

This course focuses primarily on the demand side of the field, divided into the following segments: 1) a brief introduction that emphasizes the importance of studying demand-side questions, 2) the economics of cigarettes and alternative tobacco products, 3) the economics of e-cigarettes, 4) the economics of substance use disorders, 5) the economics of obesity, 6) socioeconomic status and health, and 7) health insurance and health. The purpose of these sections is to give you a taste of the many areas of demand-side health economics research that exist, and to go somewhat in-depth with these sections, than to provide an overview of all demand-side health economics research. Further, the lines between different types of health economics research, and health economics research and other types of economics research (labor, crime, environment, etc.) is increasingly blurry.

Reading List:

IA. Introduction: Why Study Demand for Health and Health Care?

Overview Readings

Becker, Gary S. "Health as human capital: synthesis and extensions." *Oxford Economic Papers* 59, no. 3 (2007): 379-410.

Chernew, Michael E., and Joseph P. Newhouse. "Health care spending growth." In *Handbook of health economics*, vol. 2, pp. 1-43. Elsevier, 2011.

Grossman, Michael. "Chapter 7 The human capital model." *Handbook of health economics* 1, no. Part A (2000): 347-408.

Journal Articles

Leibowitz, Arleen A. "The demand for health and health concerns after 30 years." *Journal of Health Economics* 23, no. 4 (2004): 663-671.

Murphy, Kevin M., and Robert H. Topel. "The value of health and longevity." *Journal of political Economy* 114, no. 5 (2006): 871-904.

Cutler, David M., and Mark McClellan. "Is technological change in medicine worth it?." *Health affairs* 20, no. 5 (2001): 11-29.

Oster, Emily, Ira Shoulson, and E. Dorsey. "Limited life expectancy, human capital and health investments." *American Economic Review* 103, no. 5 (2013): 1977-2002.

Yi, Junjian, James J. Heckman, Junsen Zhang, and Gabriella Conti. "Early health shocks, intra-household resource allocation and child outcomes." *The Economic Journal* 125, no. 588 (2015): F347-F371.

IIA. Economics of Cigarettes and Alternative Tobacco Products

Overview Readings

Cawley, John, and Christopher J. Ruhm. "The economics of risky health behaviors." In *Handbook of health economics*, vol. 2, pp. 95-199. Elsevier, 2011.

DeCicca, Philip, Donald Kenkel, and Michael F. Lovenheim. "The economics of tobacco regulation: a comprehensive review." *Journal of Economic Literature* 60, no. 3 (2022): 883-970.

Journal Articles

Abouk, Rahi, Prabal De, and Michael Pesko. "Estimating the effects of Tobacco-21 on youth tobacco use and sales." *Available at SSRN 4019077* (2021).

Abrevaya, Jason, and Laura Puzzello. "Taxes, cigarette consumption, and smoking intensity: comment." *American Economic Review* 102, no. 4 (2012): 1751-63.

Adda, Jerome, and Francesca Cornaglia. "Taxes, cigarette consumption, and smoking intensity." *American Economic Review* 96, no. 4 (2006): 1013-1028.

Adda, Jérôme, and Francesca Cornaglia. "Taxes, cigarette consumption, and smoking intensity: Reply." *American Economic Review* 103, no. 7 (2013): 3102-14.

Carpenter, Christopher S., and Hai V. Nguyen. "Intended and unintended effects of banning menthol cigarettes." *The Journal of Law and Economics* 64, no. 3 (2021): 629-650

Cotti, Chad, Erik Nesson, and Nathan Tefft. "The effects of tobacco control policies on tobacco products, tar, and nicotine purchases among adults: Evidence from household panel data." *American Economic Journal: Economic Policy* 8, no. 4 (2016): 103-23.

Darden, Michael. "Smoking, expectations, and health: a dynamic stochastic model of lifetime smoking behavior." *Journal of Political Economy* 125, no. 5 (2017): 1465-1522.

Friedson, Andrew, Moyan Li, Katherine Meckel, Daniel I. Rees, and Daniel W. Sacks. "Cigarette taxes, smoking, and health in the long run." *Journal of Public Economics* 222 (2023): 104877.

Hoehn-Velasco, Lauren, Michael Pesko, and Serena Phillips. "The Long-Term Impact of In-Utero Cigarette Taxes on Adult Prenatal Smoking." *American Journal of Health Economics* (2022).

Meier, Armando N., Reto Odermatt, and Alois Stutzer. "Tobacco sales prohibition and teen smoking." *Journal of Economic Behavior & Organization* 188 (2021): 998-1014.

Simon, David. "Does early life exposure to cigarette smoke permanently harm childhood welfare? Evidence from cigarette tax hikes." *American Economic Journal: Applied Economics* 8, no. 4 (2016): 128-59.

Wissmann, Daniel. "Finally a Smoking Gun? Compensating Differentials and the Introduction of Smoking Bans." *American Economic Journal: Applied Economics* 14, no. 1 (2022): 75-106.

IIB. Economics of E-cigarettes

Abouk, Rahi, Charles Courtemanche, Dhaval Dave, Bo Feng, Abigail S. Friedman, Johanna Catherine Maclean, Michael F. Pesko, Joseph J. Sabia, and Samuel Safford. "Intended and unintended effects of e-cigarette taxes on youth tobacco use." *Journal of Health Economics* (2022): 102720.

Allcott, Hunt, and Charlie Rafkin. "Optimal regulation of e-cigarettes: Theory and evidence." *American Economic Journal: Economic Policy* 14, no. 4 (2022): 1-50.

Cotti, Chad, Charles Courtemanche, Joanna Catherine Maclean, Erik Nesson, Michael F. Pesko, and Nathan W. Tefft. "The effects of e-cigarette taxes on e-cigarette prices and tobacco product sales: evidence from retail panel data." *Journal of Health Economics* 86 (2022): 102676.

Cooper, Michael T., and Michael F. Pesko. "The effect of e-cigarette indoor vaping restrictions on adult prenatal smoking and birth outcomes." *Journal of Health Economics* 56 (2017): 178-190.

Dave, Dhaval, Bo Feng, and Michael F. Pesko. "The effects of e-cigarette minimum legal sale age laws on youth substance use." *Health economics* 28, no. 3 (2019): 419-436.

Dave, Dhaval, Daniel Dench, Michael Grossman, Donald S. Kenkel, and Henry Saffer. "Does e-cigarette advertising encourage adult smokers to quit?." *Journal of Health Economics* 68 (2019): 102227.

DeSimone, Jeff, Daniel Grossman, and Nicolas Ziebarth. "Regression discontinuity evidence on the effectiveness of the minimum legal e-cigarette purchasing age." *American Journal of Health Economics* 9, no. 3 (2023): 461-485.

Pesko, Michael F., and Janet M. Currie. "E-cigarette minimum legal sale age laws and traditional cigarette use among rural pregnant teenagers." *Journal of health economics* 66 (2019): 71-90.

Pesko, Michael F. "Effects of E-Cigarette Minimum Legal Sales Ages on Youth Tobacco Use in the United States." *Journal of Risk and Uncertainty* (2023).

Tuchman, Anna E. "Advertising and demand for addictive goods: The effects of e-cigarette advertising." *Marketing science* 38, no. 6 (2019): 994-1022.

IIC: Economics of Substance Use Disorders

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Professional Resources

- Jennifer Doleac website
- Economics Conferences (Compiled by Anne M. Burton and Barton Willage) - Google Sheets

Coding Tips:

- Gentzkow and Shapiro (2014) – Code and Data for the Social Sciences: A Practitioner's Guide
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