

Teaching Critical Microeconomics

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Abstract: The approach taken in this article is shaped by popular books, heterodox economics textbooks, and journal articles that critique standard textbook economics. The idea is to allow for economic pluralism at the introductory, intermediate, and advanced microeconomics levels. The objective is not to jettison neoclassical economics but to showcase how students can be exposed to critical microeconomics through pluralist perspectives.

Keywords: microeconomics; neoclassical; heterodox; CORE; pluralism

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1. Introduction

The motivation for this article comes from student calls (Earle, Moran, and Ward-Perkins, 2017) and faculty responses (de Muijnck and Tieleman, 2021; Komlos, 2023) to change in economics curriculum in the aftermath of the financial crisis, the BLM protests, the COVID pandemic, the rise of populist leaders in both the global North (Trump in the U.S) and the global South (Modi in India), exacerbating economic inequality, the threat of automation, and the existential threat posed by the climate change crisis. This is relevant for economics, which as it is usually taught focuses on the standard neoclassical paradigm that privileges abstract mathematical models over addressing real-world issues. Additionally, the chalk and talk lecture format (Becker and Watts, 1996) is privileged over critical discussions (Peach, 2023) and contrasting pluralist perspectives. A consequence of this is that while undergraduate students train to solve equations and hone their math problem-solving skills, they find themselves inadequate to discuss pressing contemporary economic issues.

There are several ways through which the economics curriculum can be modified. One approach is to supplant neoclassical economics textbooks with an alternate paradigm based on the instructor's orientation, whether shaped by a heterodox economics branch like post-Keynesianism or Islamic Economics, or by adopting interdisciplinary approaches including economic anthropology or economic sociology. Yet, another approach has been popularized by Bowles and Carlin (2020) through the CORE online text. CORE has been adopted by various universities worldwide given its free online resources and as such offers a default alternative to mainstream economics textbooks. Bowles and Carlin (2023) reiterate that students want to learn about the pressing issues of inequality, climate change, financial crises, and automation. This approach questions the assumptions of rationality, perfect information, perfect competition, equilibrium, and efficiency, and provides an alternative based on cognitive limitations, satisficing, asymmetric information, principal agent problems, monopolistic and oligopolistic markets, history, institutions, fairness, and sustainability (Bowles and Carlin, 2020; 2023). Additionally, the problems with the neoclassical paradigm are well established, as extensively highlighted in Komlos (2021).

However, the approach taken in this article recognizes that while some instructors are comfortable with a radical overhaul of the curriculum, others, who have made a significant investment in the neoclassical paradigm may be reluctant to shift drastically to a new pedagogy. Colander (2015) had raised this issue and given the fact that the neoclassical paradigm remains mainstream indicates that a different approach consisting of sequential steps to changing the curriculum might be more conducive to change than radical overhaul. This paper is therefore aimed at those instructors, who remain wedded to the mainstream neoclassical paradigm but who want to include a critical approach to microeconomics. It is shaped by other heterodox economics textbooks that adopt a critical outlook of standard neoclassical textbooks. The idea is to allow for economic pluralism that does not jettison neoclassical economics but rather engages with it in the interest of developing critical thinking skills. To this end, I have modified the way I teach introductory (ECON 101), intermediate (ECON 281; ECON 384), and advanced (ECON 481) microeconomics courses

based on various heterodox economics books including especially recently published textbooks. The goal is that by the time students complete the course, they would have been exposed to critical microeconomics, where neoclassical economics is understood beyond technicalities and critiqued through pluralist perspectives.

This paper is structured as follows. In Section 2, a review is undertaken that pulls a diverse array of literature on economics pedagogy. This includes themes of teaching neoclassical economics, economic pluralism, shortfalls of the online CORE alternative, and effective economics pedagogy. In Section 3, the approach I have undertaken in introductory, intermediate, and advanced microeconomics courses is delineated. This is based on various popular books, heterodox economics textbooks, and critical journal articles. Concluding remarks are offered in the final section.

2. Review of Economics Pedagogy

Teaching Neoclassical Economics

Hodgson (2021) notes like many others that mainstream economics changed little in the aftermath of the financial crisis. However, several heterodox economists argue that neoclassical economics must be taught despite the observation by Olesen (2021) that neoclassical economics contains values that reflect neoliberal ideology. Initially, Colander (2005) observed that there is too much human capital invested in neoclassical economics and that it is not easy to replace standard economics pedagogy. Later, Lee (2010) mentioned that many heterodox economists agree that neoclassical economic theory should be taught, as only then economics graduates would be “taken seriously as economists”. More recently, de Muijnck and Tieleman (2021) argue that the critique that “most economists are free-market right-wing ideologues” is baseless, and that pluralism rejects relativism (anything goes) but does not reject neoclassical economics (pp. 62, 64). Some popular books offer similar ideas, for instance, Aldred (2009) states that orthodox economics need not be overthrown as radical conclusions can be reached by building themes within existing economics (p. 239). Similarly, Basu (2011) indicates that much of mainstream economics can be critiqued based on its own “instruments of analysis”, which makes the critique more compelling (p. 8).

Pluralism and Real-World Issues

Instead of abandoning neoclassical economics, the economics education literature suggests adopting pluralist perspectives to develop critical thinking skills and to emphasize real world issues over mathematical technicalities. For instance, O'Donnell (2010) notes that teaching pluralist perspectives promotes critical thinking by contrasting perspectives of multiple schools of economics (pp. 262, 274). His approach is less about mathematical models and more about multiple perspectives that foster “creativity and innovation” (pp. 273, 274), as it teaches students to grapple with ambiguity and complexity instead of “fundamentalism” (p. 274) that is based on a mechanical approach of applying the same technique to different problems.

Kwak (2017) critiques that standard economics education is highly mathematical and ignores both critical thinking and real-world applications. Likewise, Kutukcuoglu (2021) notes that standard economics education overuses “quantification and mathematics” but ignores interdisciplinarity and pluralism. Similarly, de Muijnck and Tieleman (2021) caution that students can get embroiled with technical details and that emphasizing technical details is inappropriate at the undergraduate level, (pp. 81, 83). More recently, Michell (2023) reiterated that economics education focuses on “unrealistic mathematical abstraction” but fails to address real world economic issues. Likewise, de Muijnck, Tieleman, and Reardon (2023) emphasize that the best way to teach students is to focus on real world issues and reduce abstract mathematics.

Critique - CORE

CORE privileges inductive over deductive learning by using empirical evidence and data analysis. It emphasizes feasible sets, indifference curves, and Nash equilibrium instead of the standard supply and demand model (Bowles and Carlin, 2020). Whilst such an approach is its strength, it is also a source of its weakness because of information overload with advanced economic concepts. Bowles and Carlin (2020) concede that on the complexity of language, the CORE text is “somewhat more complex” than the standard neoclassical textbook by Mankiw. Likewise, Bowles and Carlin (2023) state that modelling in CORE is “demanding”, as it retains “mathematical models to formalize problems”. It is therefore not surprising that Cassidy (2017) argued that CORE “may be challenging to some students.” More recently, Michell (2023) critiqued that the online CORE text may favour “stronger students and elite institutions” and that students without access to tutoring and mentoring will find it difficult.

While praising the CORE text, Komlos (2019) has suggested “additional insights” to introduce students to “balanced insights” like accounting for opportunistic behaviour by corporations that take advantage of people with lower cognitive abilities and education. Similarly, Michell (2023) states that students interested in real world issues may still find that “something is missing” in the online CORE text. Additionally, Michell argues that CORE still addresses economic problems through individual optimization, a standard economics approach which needs to be rethought. Thus, the CORE approach is mathematical, complex, and retains a neoclassical thrust.

In response to criticisms, Bowles and Carlin (2023) argue that instead of “juxtaposing competing schools of thought”, the CORE approach is that of integrative pluralism. However, de Muijnck and Tieleman (2021) argue that integrative pluralism, which is based on mixing the best ideas from various schools of economics, may provide students the false idea that the patched up economic version presented to them is the truth (p. 66). Additionally, de Muijnck, Tieleman, and Reardon (2023) highlight that the online CORE text is “not as radical as one might hope”. Instead of CORE, de Muijnck, Tieleman, and Reardon (2023) mention that many heterodox economists have adopted popular books and blogs in their teaching. This is a promising strategy so long as it is used to complement economics education, as exclusive focus on heterodox economics is unwarranted.

Effective Pedagogy - Contending Perspectives

Instead of the integrative pluralism of the CORE alternative or exclusive focus on heterodox economics, the approach undertaken in this paper is like the “parallel perspectives” approach by Mearman (2017) where contending perspectives are critically evaluated. While such an approach can encourage critical thinking through class discussions, it is important to recognize that students can find such discussions disjointed compared to a streamlined lecture and this may impede learning (Peach, 2023). Thus, effective pedagogy would require active instructor involvement in contrasting perspectives by augmenting a standard economics textbook with heterodox economics material. This would necessitate suppressing technical details like deriving cost curves and elasticity computations to include material from heterodox textbooks and popular books.

Based on Mearman (2017), the contending perspective approach would broadly include defining economics as social provisioning of needs (versus allocation of scarce resources), advertising as persuasive (versus informative), recognizing interdependent preferences (versus rational individual utility maximization), noting that economies do not tend to equilibrium, distribution is shaped by power, that sustainability and fairness are paramount, and that economics is not value free. Technically, the approach would include Veblen goods and upward sloping demand curves, inverted L shaped curves (versus U shaped cost curves), mark-up pricing (versus marginal pricing), workers not earning their marginal product, uncertainty (versus risk), limitations of game theory, and critiques of general equilibrium analysis.

Similarly, Komlos (2023) provides an alternative to the neoclassical paradigm that rests on rationality, marginal analysis, perfect competition, competitive models for price ceilings and floors, and free trade. He offers an alternative based on individuals with limited cognitive abilities, rules of thumb, the defacto case of monopolies and oligopolies, monopoly and monopsony models for price ceilings and floors, and the welfare enhancing aspects of tariffs. Various other heterodox textbooks like Blaug (1997), Varoufakis (1998), Lavoie (2006), Keen (2011), Fine (2016), Hill and Myatt (2021), Lavoie (2022), and Schneider (2024) highlight similar topics in the context of incorporating contending perspectives in teaching microeconomics. Whilst CORE touches upon such alternate perspectives, it couches them with mathematical technicalities at the introductory level, which inhibits facilitating the comparison of ideas. Moreover, instead of the integrative pluralist approach of CORE, the alternative of simply comparing neoclassical with heterodox ideas distinctly seems more conducive to pluralism in economics pedagogy.

Overall, the literature on economics education seems to converge to the idea of suppressing mathematical technicalities at the undergraduate level in favour of addressing real-world issues and promoting critical thinking through pluralist perspectives. This means recognizing alternative goals beyond efficiency like fairness and sustainability and teaching neoclassical economics along with heterodox perspectives through a contending perspectives approach to recognize the limitations of standard textbook models. Additionally, the literature provides a critical outlook on the online CORE text option and exclusively focusing on heterodox economics. Thus, in the following section, I offer one

approach in economics pedagogy at the introductory, intermediate, and advanced microeconomics levels.

3. Contending Perspectives - Introductory, Intermediate, and Advanced

At the introductory ECON 101 level, I have conventionally followed Mankiw, Kneebone, and McKenzie (2023). In the interest of economic pluralism, I de-emphasize mathematical technicalities and include material from popular books like Basu (2011), Kwak (2018), and Aldred (2009; 2020) and from heterodox textbooks like Komlos (2023).¹ At the ECON 101 level, Komlos (2023) is user friendly, comprehensive, and quite suitable for introductory students. It also has separate chapters on racism, populism, and the pandemic, which is a unique feature of this book, and which can be complemented with material on the economics of automation (Jahangir, 2024a). At the intermediate level covered through two courses - ECON 281 and ECON 384, I have conventionally used Pindyck and Rubinfeld (2018). ECON 281 focuses on consumer theory, producer theory, government policy and market power with monopoly and monopsony, whereas ECON 384 deals with topics of uncertainty, oligopoly, game theory, time value, general equilibrium, asymmetric information, externalities and public goods. Finally, at the advanced ECON 481 level, I have conventionally used Nicholson and Snyder (2025) and complement it with heterodox journal articles that are critical of neoclassical economic theory.

Generally, I draw resource material from various heterodox textbooks like Blaug (1997), Varoufakis (1998), Lavoie (2006), Keen (2011), Fine (2016), Hill and Myatt (2021), Lavoie (2022), and Schneider (2024) to incorporate contending perspectives at various levels of teaching. Broad ideas are emphasized at the lower levels and technical issues are addressed at the higher ones. Based on these texts, it can be recognized that “critical thinking without rigour leads to blind moralism” (Varoufakis, 1998, p. ix) and that dissent must go beyond criticism to provide alternative views (Lavoie, 2022, p. 4). This means introducing students to alternative ideas like interdependent preferences, mark-up pricing, and multiple equilibria, instead of merely tweaking neoclassical models with more realistic assumptions (Lavoie, 2022, p. 74), an approach that is reflected in behavioural economics and information economics. Overall, the objective is to expose students to pressing economic issues, critique of neoclassical economic theory, and showcase a broader literature through popular books, heterodox textbooks, and critical journal articles.

While a detailed exposition of the approach developed in this paper follows below, a sketch of the main features of neoclassical economics and the heterodox counterpart is illustrated through the following table. The idea here is to illustrate that instead of adopting an either/or binary approach, true pluralism entails that students are exposed to both approaches. Moreover, by suppressing the time invested in honing mathematical techniques,

¹ For an elective topics class - ECON 290, I assign about 35 popular books that address real world issues like climate change, economic inequality, and automation for student group book-review presentation projects. Additionally, I have introduced a course – ECON 357: Humanistic Economics, based on Komlos (2023). However, discussion of these options is beyond the scope of this paper.

through a contending perspectives approach, students would be encouraged to think through the strengths and limitations of each perspective. Additionally, the table shows that unlike the neat integrative approach of CORE there is no easy reconciliation between diverse perspectives and nor should an integrated perspective be taught as the correct approach. Thus, instead of replacing the mainstream neoclassical paradigm with the alternate CORE paradigm, the idea here is showcase that there is no perfect alternative and that students must grapple with both ambiguity and complexity, as noted earlier through O'Donnell (2010).

The table also shows that unlike CORE, which is aimed chiefly at introductory students albeit making the exposition complex, this approach retains a simpler non-mathematical approach that focuses on broad ideas at an introductory level and leave technical critiques for intermediate and advanced levels. Moreover, the ideas highlighted in the table are based on various heterodox textbooks instead of just a single source. Whilst not exhaustive, it serves to provide many ideas that can be critically compared and evaluated in the classroom. Finally, a detailed exposition of these contrasting ideas is provided after the table, which would help instructors trained in the neoclassical paradigm and unfamiliar with heterodox perspectives to easily follow up with references on ideas they wish to incorporate in their classrooms.

Table: Teaching Critical Microeconomics

Topic	Neoclassical	Heterodox
<i>Introductory Level</i>		
Trade Offs	Choice between two options; healthcare or education	We don't always have a choice; choice reframed - corporate handouts versus healthcare/education
Opportunity costs	There is no such thing as a free lunch	Free lunch exists with unemployment and idle resources; colonial extraction
Rationality	Marginal analysis; sunk cost fallacy	Individuals with below average cognitive abilities exploited; corporations exploit through advertisements, framing
Incentives	Contrarian logic that policy can backfire	Financial incentives can crowd out intrinsic morality
Free Trade	Access to more, cheaper, and greater variety of goods	Race to the bottom on environment and labour standards; advanced economies developed through industrial policy
Free Markets	Focus on efficiency	social norms and institutions shape markets; market contours are shaped, eg: ban on markets for human organ and babies
Government Intervention	Property rights, market power, externalities	Equity, anti-discrimination, racism, degrowth

Living Standards; Inequality	Based on productivity; ability, talent	Structural discrimination; power differential; assortative mating
Demand and supply	Equilibrium	Bandwagon effect and multiple equilibria; snob effect and no equilibrium; feedback effects; involuntary unemployment; path dependency
taxes	Dead weight loss	equity and sustainability
Marginal analysis	$MPL = w$	Wages based on power differential; MPL incalculable given joint effort in production
MC and AVC cost curves	U shaped	Inverted L shaped
Pricing	Marginal pricing; $MR = MC$	Full cost pricing; mark-ups
Prisoner's dilemma	Cheating is dominant strategy	Makes economics students less cooperative; people are not hyper-rational
Intermediate and Advanced Levels		
Economics	Efficient allocation of scarce resources to satisfy unlimited human wants	Equitable and sustainable provisioning of limited human needs
Equilibrium	Unique and stable	Multiple and/or unstable
Preferences	Complete and transitive; consumer sovereignty	Indecisive; limited cognitive ability; aggregate preferences intransitive; interdependent; consumer is not sovereign
Utility maximization	Equi-marginal principle; consumers optimize utility	Rules of thumb and satisficing to deal with information overload and uncertainty
Income and substitution effects; Demand curve	Focus on substitution effect to show demand is downward sloping	Maslow's hierarchy; focus on income effect; keeping up with the Joneses; demand curve upward sloping due to positional goods
Engel curves	Parallel given homothetic preferences	Consumers are not the same; preferences change with income
Production function	Cobb Douglas; diminishing returns	Fixed proportion production function; limited substitutability between factors; excess capacity; constant returns
MPK	$MPK = r$	Aggregation problem; circular logic – MPK determines r , but r needed to value capital and find MPK
Objective of the firm	Maximize shareholder value	Power over customers, workers, suppliers
Profit maximizing rule	$MR = MC$	trial and error to set quantity; firms cover fixed costs through mark-ups; $MR = MC$ does not maximize profits as ignores impact of other firms
Demand curve faced by firm	horizontal	Downward sloping
Supply curve	Upward sloping	Flat since flat MC; downward sloping due to economies of scale; may not exist; any shape

P = MC rule	Competitive firm maximizes profit, as $P = MR$	Does not maximize profit if $P = MC$, but $MR < MC$; competitive markets are unstable, market moves towards monopoly or oligopoly
Price ceilings and floors	Based on perfect competition model; rent controls and minimum wage cause inefficiency	Based on monopoly and monopsony models; rent controls and minimum wage allow countervailing power
Incidence of tax	Based on elasticity	tax shifted to consumers through full cost pricing
Ricardian model	Assumes perfect competition; constant returns to scale; workers adjust; immobile capital	Large corporations; increasing returns to scale; costly adjustment for workers; outsourcing and offshoring
Uncertainty	Risk; known probability distribution functions	Past not a guide for future; new information not always helpful
Cournot and Bertrand	Competition on quantity and price	Corporations spread rumours, silence journalists, conceal information
Cost benefit analysis	Present value calculations	Preferences of the rich matter more with WTP; corporate lobbying; future wellbeing discounted
General equilibrium	Conditions of parallel Engel curves	SMD conditions do not hold; GE fails
Pareto optimality	Can't make one better off without another worse off	No change by this criteria, eg: abolition of slavery
externalities	carbon taxes	Tipping points; feedback loops; precautionary principle; limits of technological fixes; degrowth
Coase theorem	Market solution	Ignores power, privilege, violence

3.1 Introductory level - ECON 101

I divide the chapters in Mankiw, Kneebone, and McKenzie (2023) for ECON 101 in a way that I broadly cover the four topics of the principles of economics, the supply and demand model, government intervention, and producer theory and market structure. In doing so, I minimize the time on mathematical problems and calculations related to comparative advantage and trade, elasticity, and the cost functions. Instead, I spend more time on evaluating the principles of economics based on Jahangir (2023a). Additionally, I critique consumer theory, producer theory, and government intervention including price ceilings, floors, taxes, and tariffs. Mindful of Sexton (2006), I also supplement lectures with 3–5-minute short video clips to disrupt the monotony of a straight lecture.

The Principles of Economics

On economics principles, where I emphasize the trade-off between corporate hand outs and spending on education and healthcare, I also highlight that we do not always have a free choice between two options, as in the case of an exploitative job versus paying rent. I

add that sometimes opportunity cost is zero so that a free lunch exists, as in the case of underemployed labour and idle capital and historically with slavery under colonialism. On rationality, I emphasize that individuals can ignore the past to start anew, i.e., avoid the sunk cost fallacy. Additionally, I emphasize that corporations can take advantage of individuals, given their limited cognitive capabilities, through advertisements. In this context, we discuss how organizations like Money Mart that give out pay day loans extract exorbitant interest rates from cash strapped working-class labour. I also show the first 5 minutes of a video clip on brick layers in Pakistan, where bonded labour is perpetually enslaved based on a loan taken out by their previous generations.²

On incentives, I emphasize that we need to account for the perverse effects of policy such as the Peltzman Effect where safety measures contribute to risky behaviour, as in the case of increased unprotected sex with access to STI drugs. Additionally, based on Sandel (2012) and Aldred (2020, pp. 168-169), I highlight that financial incentives can crowd out intrinsic motivations, as in the examples of individuals reducing blood donations in the U.K. or parents picking up children late from day care in Israel. On free trade, I complement the benefits of greater variety and cheaper goods with the harms of large corporations exploiting workers and environment in developing countries. I borrow from Jahangir (2024b) that summarizes the works of Ha-Joon Chang, which shows that advanced countries developed through protectionism and only once they had achieved technological advantage that they started promoting free trade. In this context, I show a video clip on the role of the U.S. in the exploitation of the Banana Republics of Central America.³

On free markets, where I contrast the benefit of markets with inefficient bureaucracies, I also indicate that markets are based on trust and that government rules determine the contours of the market, as in the case of the prohibition of child labour or the market for human organs and babies. On government intervention, I emphasize that where governments are required to address market power and externalities, they are also essential to institute safety regulations and combat structural discrimination and economic inequality, as inequality harms democracy, social cohesion, and upward social mobility. Additionally, apart from Pigouvian taxes to address externalities like pollution, a broader approach to addressing climate change requires acknowledging degrowth given ecological constraints and the limits of technical fixes.

Finally, on productivity and living standards, I highlight that labour remuneration is not necessarily based on productivity but on power differential between large corporations and weakened labour unions given the stagnation of wages despite increase in productivity in the post 1980 neoliberal era. In this context, I show a video clip from *The Princess and the Frog*,⁴ which allows to discuss issues in the economics of discrimination and racism including topics like assortative mating, equality of opportunity, and the importance of neighbourhoods (Jahangir, 2023b; forthcoming).

² How Millions Are Trapped In Modern-Day Slavery At Brick Kilns In Pakistan, April 5, 2023, <https://www.youtube.com/watch?v=oAQypGQdzGU>

³ The Banana Massacre, March 24, 2022, <https://www.youtube.com/watch?v=fHKF6svv3xs>

⁴ Clip *The Princess and the Frog* [Diner Scene] <https://www.youtube.com/watch?v=pUk4qEK0z-w>

Demand, Supply, and Equilibrium

I spend a good two to three weeks just going over the principles of economics and this comes at the expense of limiting the time spent on the calculations on determining comparative advantage and elasticities. However, this approach facilitates student questions, as I find them more engaged with topical discussions than with mechanical calculations. As an instructor, I must be ready to lead and steer class discussions as not all student cohorts are amenable to active class participation based on various factors including shyness or the fear of expressing a politically incorrect opinion. Nonetheless, having drawn a nuanced picture of the broad principles in economics, I provide a critical picture of the supply and demand model. While I leave the aggregation of demand issues to the intermediate level, at this stage I simply inform students that demand and supply are respectively based on utility maximization and profit maximization and that both objectives are to be viewed circumspectly, as consumers do not optimize but satisfice and that firms focus on market share and power beyond profit.

Borrowing from Basu (2011, p. 33), I emphasize that we may not achieve equilibrium or have multiple equilibria based on the snob effect and the bandwagon effect. While I relegate the Sonnenschein, Mantel, Debreu (SMD) Theorem that the market may not achieve a unique and stable equilibrium to the intermediate and advanced levels, I draw from Basu's example on the market for jeans. According to Basu, based on the snob effect, if few people wear jeans, then everyone will want to wear them but if more people wear jeans, then no one will want to wear them, which means that equilibrium cannot exist. Similarly, based on the bandwagon effect, if few people wear jeans, then no one will want to wear them but if more people wear jeans, then everyone will want to wear them, which means there are two equilibria, one where no one wears jeans and another where everyone wears jeans.

Alluding to the speculation in the real estate market prior to the financial crisis, I also mention that when the phenomena of buying low and selling high sets in, the market may not equilibrate until it eventually crashes so that market forces may not be stabilizing towards equilibrium. I also emphasize the path dependency of equilibrium by illustrating that involuntary unemployment can lead to a deterioration of skills, loss of self-esteem, and mental health issues, all of which can affect employment permanently at the new equilibrium. Additionally, I remind students that the supply and demand model may be helpful in the competitive market for auctions where agents can more likely be assumed to be rational but not always in the real world with market power and irrational exuberance. Whilst discussing elasticity, I briefly draw from Lavoie (2006, pp. 28-29) to indicate that according to post-Keynesian economics, own price elasticities and cross price elasticities are small for categories of goods that are arranged in a pyramid like Maslow's hierarchy of needs. This is because consumers satisfy basic needs, and it is increase in income that allows them to satisfy higher needs. Thus, substitutability across categories of needs is limited in the absence of income changes. Overall, I highlight the pyramid of needs and relegate the importance of income effect over substitution effect to the intermediate level.

Government Intervention

Having spent about six weeks on the principles, supply and demand and elasticity, I broach the topic of government intervention through ceilings, floors, and taxes, relegating subsidies and tariffs to the intermediate level, as I find that the graphs for these two get complicated for introductory students. On price ceilings, I draw examples from Komlos (2023, p. 14) on Martin Shkreli and Heather Bresch, who rapidly increased the price of pharmaceutical drugs, and show two short video clips.⁵ Additionally, I emphasize soft rent controls that allow a fair return to landlords, limit annual rent increase, and exempt new buildings to prevent impeding new construction (Schneider, 2024, p. 226). On price floors, I also show two video clips on the minimum wage, one from the perspective of restaurant owners and another from that of the working class.⁶ While I leave the graphical analysis of ceilings and floors based on the models of monopoly and monopsony to the intermediate level, I inform students to take the graphical analysis based on perfect competition circumspectly and facilitate them in discussing the merits of ceilings and floors in the presence of corporate power. On taxes, as with other policies, I remind students that the dead weight loss that measures inefficiency should not be the sole criterion of formulating an opinion on government policy, as there are goals beyond efficiency including sustainability and equity.

Producer Theory

The last few weeks of the semester are spent on producer theory and market structure, where I limit calculations and emphasize the criticisms of neoclassical economic theory. I mention that MPL may not be calculable as production is a joint effort and it is difficult to disentangle individual contributions. Moreover, wages do not always reflect productivity, as in the case of under compensated care workers and over compensated CEOs. Additionally, often workers can't choose the hours of work, which problematizes the computation of MPL. I also point out that the production function is usually based on labour and capital and not expressly including raw materials suggests that ecological constraints are an afterthought in economic theory. The concept of MPK is not introduced at this stage and therefore issues of aggregation of capital are relegated to the intermediate level. On cost curves, I remind students that the U-shaped MC and AVC curves are often flat or inverted L shaped in the real-world so that such costs are constant until peak capacity and that firms often produce below full capacity to be prepared for contingencies or to maintain good will with consumers by maintaining capacity for excess demand. On pricing, I inform them that firms follow full cost pricing rather than marginal pricing, as firms must cover fixed costs, which are ignored in marginal analysis.

⁵ CNBC, Turing CEO Martin Shkreli Talks 5,000% Drug Price Hike (Full Interview), September 23, 2015, <https://www.youtube.com/watch?v=L-U1MMa0SHw> ; Today, EpiPen Price Outrage Lands Mylan CEO Heather Bresch In Capitol Hill Hot Seat, September 22, 2016, <https://www.youtube.com/watch?v=uLMHglPQYgE>

⁶ Restaurants Canada, Restaurant Realities, February 8, 2019, https://www.youtube.com/watch?v=NTw8_RISjeY ; CBC News: The National, Minimum Wage: A life full of difficult choices, January 16, 2018, <https://www.youtube.com/watch?v=3MjYg-aak-Y>

Market Structure

On monopoly power, I discuss the issue of interlocking patents and how they impede research. Finally, on game theory, I share the video clip from the famous bar scene in the movie *A Beautiful Mind* to emphasize that competition is exaggerated and cooperation underrated in textbook economics.⁷ Additionally, based on Aldred (2009, p. 233; 2020, p. 38), I share the critique that game theory assumes hyper-rational individuals and that whilst it can be helpful in the context of auctions, it does not have many real-world applications. Moreover, I caution students that games like the Prisoner's Dilemma teach economics students about the futility of cooperation and that experiments have shown that economics students are less cooperative than their non-economics peers. I remind students of Rudyard Kipling's Law of the Jungle and emphasize the words "for the strength of the pack is the wolf, and the strength of the wolf is the pack" to highlight that many real-world issues like climate change and tragedy of the commons are not addressed through competition but cooperation. On the free rider problem, I highlight the critique that people vote in large numbers against the rationalization that a single vote does not make a difference (Aldred, 2020, pp. 85, 89). I add that deciding not to free ride is rational, as people are motivated by the belief that they will do their part towards triggering collective change (Aldred, 2020, pp. 109-110, 116).

Overall, while we have animated discussions on the principles of economics and government intervention, I have found myself sharing critiques of neoclassical economics whilst teaching demand and supply, producer theory and market structure. This means that the instructor must be adept in not just steering discussions but also lecturing in areas where student knowledge base is limited given their high school preparation level.

3.2 Intermediate level - ECON 281 and ECON 384

Students taking intermediate level economics courses do not all come immediately after having taken ECON 101. I have found that several students are rusty with ECON 101 material and therefore much of the criticisms of neoclassical economics and offering alternate perspectives, as highlighted in the previous section, are repeated in ECON 281. The difference, however, is that now I can highlight the technical criticisms as well. Thus, in what follows, I'll focus on the extra material that I share with students beyond the previous section.

3.2.1 ECON 281

I start by tweaking the neoclassical definition that economics is the efficient allocation of scarce resources to satisfy unlimited human wants. I remind students that instead of efficiency we can focus on sustainability and equity, instead of wants we can focus on needs, and instead of allocation we can focus on provisioning. This allows for the definition of economics to be changed to the social provisioning of needs whilst respecting ecological constraints. While post-Keynesians challenge that scarcity assumes full employment of

⁷ *A Beautiful Mind* - Bar Scene John Nash's Equilibrium Game Theory, December 26, 2014, <https://www.youtube.com/watch?v=LJS7lgvk6ZM>

resources but the economy operates with excess capacity, I do not put much stock in this critique, as I emphasize degrowth through ecological economics. I divide ECON 281 into four main topics – consumer theory, producer theory, market structure, and government policy. These topics are preceded by a review of supply and demand and elasticity from ECON 101. However, while drawing the supply and demand model, I show the labour market graph with the zig zag labour supply curve based on Hill and Myatt (2021, p. 72). This graph allows me to emphasize that the market equilibrium is neither unique nor stable.

Consumer Theory

On rationality in consumer theory, I mention that preferences are not always complete and transitive, as consumers can be indecisive, have limited cognitive capabilities, and do not always behave consistently. At an aggregate level, I share that preferences were intransitive during the cold war, as the majority preferred disarmament to cold war, and cold war to hot war, but then hot war to disarmament (Aldred, 2020, p. 80). On indifference curves, I emphasize that preferences are not innate but based on imitation and experience. This means that preferences are interdependent, that just as preferences affect our choices, our choices also affect our preferences, and that consumers sovereignty is false. At an aggregate level, I draw from Basu (2011, pp. 40-41) to showcase that stereotypes like “Latinos are fun loving”, “Buddhists are kind”, or the “French are romantic” are not based on innate differences but arise from the way we choose to act when we observe others doing the same. Overall, I highlight the interdependence of preferences and choices both at individual and collective levels.

I share the critique that the technical assumptions of continuity, convexity, and transitivity are made only for the theory to work (Fine, 2016, p. 26). Thus, I note that post-Keynesian economics rejects the use of indifference curves (Lavoie, 2006, p. 25; 2022, p. 101). Overall, by critiquing rationality and indifference curve analysis, the foundation of the utility function is weakened, and I reiterate that instead of utility maximization and the resultant equi-marginal principle, consumers satisfice by making decisions based on heuristics, habits, and rules of thumb, which helps them deal with information overload and uncertainty.

While discussing income and substitution effects, I draw from Lavoie (2022, pp. 100-101) to reiterate the importance of income effects over substitution effects, as consumption is based on the social reference group to which consumers belong, and their spending habits are dictated less by price and more by keeping up with the Joneses. Whilst discussing the relative strength of income effect over substitution effect, I indicate that the demand curve can become upward sloping, as is also the case with positional goods or when price is viewed as a signal of quality. This puts into jeopardy the scissors graph of demand and supply, and therefore the concept of equilibrium.

The incorporation of heterodox perspectives in class allows to enliven the topic of Engel curves, which are usually found to be a dry theoretical topic. In this context, I borrow from Keen (2011, pp. 182, 403, 410) to briefly state that the uniqueness and stability of general equilibrium hinges on linear and parallel Engel curves, which means identical

consumers with homothetic preferences, i.e., whose consumption pattern does not change with income. These are strong assumptions to make because consumption patterns change with income, as poor individuals focus on basic needs and the rich on discretionary goods. While general equilibrium is broached in ECON 384, the horizontal summation for the market demand curve is addressed in ECON 281. It is here I emphasize that according to the SMD theorem the market demand curve can take any shape. Based on Keen (2011, pp. 52-53), I indicate that as soon as we depart from a single individual economy to a two-person economy, one individual gets richer when the price of their good increases, which increases their demand. Thus, an upward sloping demand curve is generated, as prices affect the income distribution. Overall, the law of demand curve does not hold at an aggregate market level.

Producer Theory

I start producer theory with the three segments of the production function, which I explain through the concepts of specialization of labour, diminishing returns, and coordination issues respectively. I emphasize that the production function ignores issues of power of employers over workers. Moreover, firms employ labour and capital as complements, so that the fixed proportion production function is more realistic than the Cobb Douglas production function. On isoquants, I emphasize that they are shaped not only by the power of firms over labour but also the impact of the output of competitors (Varoufakis, 1998, p. 226). Thus, Lavoie (2006, p. 25) notes that post-Keynesian economics rejects the use of convex shaped isoquants.

I reiterate that firms operate with excess capacity, i.e., at 70% - 85% of capacity to meet expected changes in demand, thwart rivals from entering the market, and avoid delivery delays to retain customer goodwill (Lavoie, 2006, pp. 36, 41, 43; 2022, p. 160-161). Thus, as firms use complement factors and operate with excess capacity, firms realize constant returns instead of diminishing returns (Hill and Myatt, 2021, p. 124). Another reason that firms do not experience diminishing returns is that in contrast to the neoclassical assumption of full employment, real-world firms have unemployed resources (Keen, 2011, p. 113), as evident through involuntary unemployment. Similarly, coordination issues come into question, as coordination can be achieved through decentralization and delegation of decisions (Lavoie, 2022, pp. 146-147). Overall, with the absence of diminishing returns in the short run and decreasing returns to scale in the long run, the shapes of U-shaped cost curves come into question (Hill and Myatt, 2021, pp. 106, 123, 129). Thus, in ECON 281, I delve into the details behind the flat or inverted L-shaped MC and AVC curves mentioned in ECON 101.

While the problems with MPL are discussed in ECON 101, I focus on the problem of circular reasoning with the MPK. The issue is that while neoclassical economics assumes homogenous inputs, capital in the real world is varied. Thus, valuing capital and therefore the MPK requires the return on capital in the first place, which means that MPK cannot explain the return on capital (Fine, 2016, p. 124). Overall, just as MPL does not explain the wage, the MPK does not explain the return on capital. Thus, wages and the return on capital

are not based on merit or markets but on the relative power of the capitalists over workers (Keen, 2011, pp. 147, 157).

Perfect Competition

On profit maximization, I balance the neoclassical idea on maximizing shareholder value with the post-Keynesian argument that the ultimate objective of the firm is power over suppliers, customers, and the government (Lavoie, 2022, p. 133). Additionally, I highlight that instead of competing on price that results in price wars, firms compete based on advertising, R&D, and product differentiation (Lavoie, 2022, p. 132). Moreover, firms follow prices that are set by industry leaders and thus prices neither equilibrate markets nor equate demand and supply (Lavoie, 2006, p. 35). Since firms set prices, this brings into question the property of firms as price takers. Whilst discussing this property, I draw out the inconsistency of assuming firms are price takers but implicitly assuming they are price makers during disequilibrium, as firms change prices in the path towards equilibrium (Hill and Myatt, 2021, pp. 69-70).

I mention that the perfect competition model does not have much competition, as the firm does not do much except to maximize profits at a unique level of output (Blaug, 1997, p. 155). However, even profit maximization by equating $MR = MC$ is problematic, as this formula does not consider both time and the impact of other firms in the industry (Keen, 2011, pp. 122-123). When the output of other firms is considered, i.e., when the firm maximizes profits with respect to industry output instead of firm output, then the resulting output is less than that yielded by the conventional $MR = MC$ formula (Keen, 2011, p. 96). Overall, the $MR = MC$ formula does not maximize profits and firms instead use trial and error to set quantity (Keen, 2011, pp. 96, 98).

I indicate that the formula $MR = MC$, which translates to $P = MC$ under perfect competition, does not cover fixed costs (Fine, 2016, p. 73). I also highlight that firms want to cover fixed costs whilst pricing and therefore set mark-ups, which are based on the power differential between firms and workers, so that mark-ups and wages are inversely related (Lavoie, 2022, p. 182). This confirms that wages and return to capital are not based on MPL and MPK respectively.

I also highlight the issue of assuming horizontal demand curves faced by individual firms, which signifies that firms are price takers. The problem is that if a firm increases its output, the price will fall unless other firms reduce their output. This means that assuming a horizontal demand curve (price taking) requires a further assumption that other firms react strategically (Keen, 2011, p. 89). Thus, neoclassical economics results with the inconsistency of assuming price taking and strategic reaction simultaneously. Overall, the point is that the demand curve faced by firms is not horizontal but downward sloping. Additionally, I illustrate that we cannot aggregate individual horizontal demand curves to obtain a downward sloping market demand curve (Keen, 2011, p. 89). I leave the math of showing that the slope of the demand curve faced by the firm is equal to the slope of the market demand curve (Keen, 2011, pp. 76-77, 403) to ECON 481.

Another issue I highlight is that of the inconsistency between the assumption of at least one fixed input in the short run and the assumption of the independence of demand and supply (Keen, 2011, p. 104). The inconsistency arises because assuming a fixed input yields diminishing returns, so that increasing output by drawing inputs from other industries affects factor incomes and the income distribution, and consequently a different demand curve is generated for every point along the supply curve (Keen, 2011, pp. 110-111). Overall, while a fixed input (diminishing returns) results in upward sloping MC and supply curves, this comes at the expense of the independence between demand and supply. Thus, if demand and supply are to be independent, the supply curve of a firm cannot be upward sloping.

Based on flat MC curves, supply curves would be horizontal (Keen, 2011, pp. 114). For large corporations, supply curves could even be downward sloping because of the absence of diminishing returns and due to economies of scale (Schneider, 2024, p. 270). Additionally, supply curves may not exist given that firms can choose both price and quantity so that there is no unique relation between price and quantity (Hill and Myatt, 2021, p. 59). Overall, the demand curve and supply curve can take any shape, which brings into question the whole framework of demand and supply analysis and associated equilibrium.

Finally, I draw out another problem in comparison with monopoly. The perfectly competitive model equates demand and supply to obtain the market quantity based on the $P = MC$ formula. This level of quantity is greater than that of an equivalent monopoly, whose MC is the aggregate of the MC of competitive firms, and who determines its output based on the $MR = MC$ formula (Keen, 2011, pp. 78, 91). However, the perfectly competitive industry suffers a loss when $P = MC$, as $MR < MC$ (Keen, 2011, p. 90), a result which arises because MR is ignored in the analysis. Thus, given that the perfectly competitive industry suffers a loss compared to the monopoly that enjoys economies of scale, competitive firms will be driven out of the market, and the market will move towards a monopoly or oligopoly, and thus perfectly competitive markets are fundamentally unstable (Keen, 2011, p. 93).

Government Intervention

I broach the topic of government intervention through price ceilings and floors, taxes and subsidies, and tariffs. On rent controls, I draw from Tranjan and Vargathoth (2024) and on minimum wages from Jahangir (2020). I emphasize that the standard results of shortage and surplus assume perfectly competitive markets and show through a graphical analysis of monopoly and monopsony market models that rent control and minimum wage eliminate instead of causing dead weight loss. I highlight the issue of power in rental markets, as large companies buy off rental properties, and power in grocery markets, as large corporations contribute to food price inflation whilst paying low wages to essential workers. Firms have the power to set low wages because of the time and resources required by workers to find jobs, the costs of commuting, and the costs of moving to a different location (Hill and Myatt, 2021, p. 64). Thus, rent controls and minimum wages allow some level of countervailing power to residential tenants and minimum wage workers.

On taxes, I emphasize that the incidence of tax does not apply in monopolistic and oligopolistic markets, as there is no supply curve (Hill and Myatt, 2021, p. 66). Moreover, indirect taxes are fully shifted to customers, as taxes are costs and firms use full cost pricing

(Lavoie, 2022, p. 165). On subsidies, I borrow from Jahangir (2024b) to showcase that according to the popular works of Ha-Joon Chang, countries in East Asia have successfully used subsidies to promote industries. On tariffs, I borrow from Jahangir (2023c) to illustrate the argument by Komlos (2023) that the standard graphical analysis of tariffs ignores the area under the supply curve, which reflects gain due to saved jobs. I reiterate that society is not better off due to free trade when consumers gain a little bit each, but the working poor incur large losses (Hill and Myatt, 2021, 263).

Additionally, I highlight the assumptions of the Ricardian model, i.e., perfect competition, constant returns to scale, immobile factors of production between countries, and perfect factor mobility across sectors within the country (Hill and Myatt, 2021, 267). I contrast these assumptions with the real-world conditions of trade by large corporations, increasing returns to scale, mobility of capital through outsourcing and offshoring, and costly adjustment of workers in advanced economies, who lose out due to free trade.

Overall, in ECON 281, I emphasize the technical critiques of neoclassical consumer and producer theory by highlighting unstable and multiple equilibria, the limits of convex shaped indifference curves and isoquants that are respectively shaped by interdependent preferences and corporate power, the aggregation problem for the market demand, the problems in determining MPL and MPK, the rejection of diminishing returns and diseconomies of scale, the problem of the profit maximizing $MR = MC$ formula, the fundamental instability of perfectly competitive markets, and the problem of using the demand and supply model when the two curves can take any shape. Additionally, I delve into a critical look at government policies to showcase that price ceilings and floors, taxes, subsidies, and tariffs, all provide countervailing power to that of large corporations.

3.2.2 ECON 384

ECON 384 deals with topics of uncertainty, oligopoly, time value, game theory, general equilibrium, asymmetric information, externalities and public goods.

Uncertainty

On uncertainty, I emphasize that neoclassical economics reduces uncertainty to risk by using sensitivity analysis for outcome values and subjective probabilities (Lavoie, 2022, pp. 76, 84). Additionally, it uses normal distributions instead of recognizing that the real-world is characterized by distributions with fat tails (Lavoie, 2022, p. 80). This is problematic, as risk analysis through mean and standard deviation provides false hope that uncertainty has been tamed. I highlight instead that we need to recognize that the whole is not simply a sum of its parts, that new information is not always helpful, as the past is not always a reliable guide for the future (Keen, 2011, p. 162).

Oligopoly and Game Theory

On oligopoly, I emphasize that by assuming the output of other firms is fixed, the Cournot model assumes away retaliation by rival firms (Fine, 2016, p. 71). Moreover, the

model assumes that firms are identical whereas real-world firms in an oligopoly market differentiate themselves (Fine, 2016, p. 73). The Bertrand model is also problematic, as it shows the result that firms equate $P = MC$ in equilibrium and does not have much to offer on disequilibrium. Additionally, both the Cournot and Bertrand models that focus on quantity and price respectively do not even come close to the tactics used by firms like spreading rumours about their competitors, concealing information from consumers, and eliminating journalists who threaten to expose them (Basu, 2011, p. 28). On game theory, I reiterate the critique from ECON 101.

Cost Benefit Analysis

On the topic of time value, I highlight the critique of cost benefit analysis given its use in diverse issues like climate change and crime. The myriad problems with cost benefit analysis include that the well-being of future generations is discounted, the analysis is not democratic, as it is based on the assumptions of economists not the public, and the preferences of rich people matter more, as their willingness to pay is higher (Aldred, 2009, pp. 166, 167, 172, 210). As an example, the optimal level of pollution based on cost benefit analysis does not reflect collective choice of the people given the susceptibility of the government to corporate lobbying (Hill and Myatt, 2021, p. 172). However, when public views are incorporated then there is the problem of racists who undermine the value of human life of minority groups (Varoufakis, 1998, p. 75). Finally, a fundamental flaw of cost benefit analysis is that it reduces issues of littering and crime to comparing expected benefits and costs instead of social norms (Basu, 2011, p. 34) and values like responsibility, duty, reciprocity, or obligation.

General Equilibrium

I start the topic of general equilibrium by emphasizing that there is no guarantee that price adjustments will help markets achieve equilibrium (Hill and Myatt, 2021, p. 70). I borrow the example from Hill and Myatt (2021, p. 80) to illustrate that when cars are in excess demand and gas in excess supply, the increase in the price of cars lowers the demand for gas, which exacerbates the excess supply of gas, which lowers the price of gas and increases the demand for cars, thereby exacerbating the excess demand for cars. Similarly, general equilibrium is undermined with the existence of inferior goods because increasing prices will exacerbate excess demand for inferior goods (Fine, 2016, p. 63). Overall, price adjustment leads in circles instead of leading towards equilibrium.

While discussing Edgeworth box analysis, I highlight the issue with Pareto improvement that some can only be made better off without making others worse off. This is problematic because such improvement does not exist, as economic policy makes some better off and others worse off (Hill and Myatt, 2021, p. 240). Moreover, if everyone affected by change must approve of it then no change will ever take place (Varoufakis, 1998, p. 288). I illustrate with the example of abolition of slavery that made slaves better off and slave owners worse-off, that emancipation would not satisfy the Pareto improvement criterion. There is another problem with Pareto improvement if it is associated with the compensation principle, so that the losers of a change are compensated by the winners. The issue is that

slave owners and billionaires cannot be compensated by slaves and the poor respectively (Varoufakis, 1998, p. 242).

Asymmetric Information

On asymmetric information, I emphasize that markets do not efficiently provide healthcare, as pharmaceutical companies and doctors have incentive to keep treating people indefinitely (Schneider, 2024, pp. 527-528). In this context, I draw in the idea of the Baumol disease according to which technological improvement increases the cost of services like healthcare and education, as the same number of doctors and professors are required to maintain service quality, so that productivity does not increase but compensation of service providers goes up (Schneider, 2024, pp. 476-477). I find it important to highlight the Baumol disease to argue against cuts to public services, which are rationalized under neoliberalism through the framing of exorbitant public spending.

Externalities and Public Goods

On externalities, I emphasize that textbooks do not mention tipping points and feedback loops on climate change (Jahangir, 2022). I showcase the critique that mechanical models about marginal changes are not useful for analyzing complex natural and social systems, as long-term damages of ocean acidification, species extinction, and displacement of people cannot be appropriately quantified (Hill and Myatt, 2021, p. 309). Additionally, I highlight the precautionary principle that measures must be taken against activity that threatens human life or environment even if the cause and effect are not fully established scientifically (Schneider, 2024, p. 493). I reiterate the limits of technological fixes and highlight degrowth to address ecological constraints and design a less materialistic society through initiatives like reducing work hours, reducing mass production of meat, advertising and fashion, and focusing instead on care and community building (Schneider, 2024, pp. 508-509).

On the Coase Theorem, I incorporate the critique that many people do not wish to needlessly bargain, as illustrated through the argument for allowing airline passengers to negotiate deals with those sitting in the front or back of their seat (Aldred, 2020, pp. 63, 64). Moreover, I highlight that market solutions are not always effective, as auctions on public utilities are susceptible to colluding bidders and property rights fail when polluting corporations divide and rule (Varoufakis, 1998, p. 240). Finally, I highlight that the Coase Theorem ignores the issues of power, privilege, and violence, as historically, property rights were acquired through colonialism and slavery (Fine, 2016, pp. 104-105).

Overall, in ECON 384, I emphasize the problem of reducing uncertainty to risk, the limits of oligopoly models, the problems with cost-benefit analysis, the instability of general equilibrium, the uselessness of the pareto improvement criterion, the Baumol disease to argue against neoliberal cuts to public services, the limits of technological fixes, the import of degrowth, the limits of market solutions, and the absence of power and privilege in textbook economics.

3.3 Advanced level - ECON 481

Much of the technical critique on consumer theory, producer theory, and general equilibrium is already covered in ECON 281 and ECON 384. While I showcase popular books at the lower levels to encourage students to read outside the curriculum, at the advanced level, I specifically highlight Blaug (1997), Keen (2011), Fine (2016), and Lavoie (2022) as reference heterodox textbooks. Moreover, while I focus on the standard calculus and linear algebra content in class, I assign heterodox journal articles as presentation projects to critique neoclassical economic theory. The twenty articles that cover the critiques are as follows.

Lavoie (1994) and Lavoie (2004) delineate consumer theory in post-Keynesian economics that has conventionally emphasized macroeconomic issues. Briefly, these papers emphasize the income effect over the substitution effect, the role of cooperation over the price mechanism, and reject price as the main determinant of consumption. Moreover, individuals are depicted to follow rules of thumb, social conventions, and habits given information overload, limited computational capability, time constraint, and uncertainty.

Lee and Keen (2004) and Keen and Standish (2010) provide technical critiques of neoclassical microeconomic theory and firm theory respectively. The former delineates that without proper preferences there may not be a strictly quasi-concave utility function, marginal utility, the substitution effect or the income effect dependent on marginal utility, demand curve, the law of demand, the price elasticity, income elasticity, cross price elasticity, and consumer surplus. Similarly, a strictly quasi-concave production function and convex isoquants may not exist, and when inputs are used in fixed proportions, the marginal products and the marginal rate of substitution do not exist. Additionally, there may not be diminishing returns, decreasing returns to scale, cost minimization, input demand functions, total cost function, or upward marginal cost curves. Moreover, given the aggregation problem, the market demand curve and the marginal revenue do not exist, and thus profit maximization based on equating $MR = MC$ does not exist. Overall, the entire theoretical edifice of neoclassical economics crashes down.

Hall and Hitch (1939), Machlup (1967), Gramm (1988), Miller (2000), and Dean (2010) provide a critical and historical look at firm theory, cost curves, and profit maximization. Based on early business interviews, Hall and Hitch (1939) argue that businesses use the full cost principle instead of the $MR = MC$ principle. Machlup (1967) provides a defense of neoclassical theory by arguing that marginal analysis is not refuted by showing that the exact $MR = MC$ calculations are impossible and that equating the theoretical construct of a firm with a real firm is a fallacy. Gramm (1988) indicates that the maximization principle was considered dead by the 1960s but was resuscitated by the 1980s and applied to all spheres of human life leading to economic imperialism. Miller (2000) states that short run cost curves are horizontal until peak capacity and have an inverted L shape. Finally, Dean (2010) mentions that early neoclassical economic theory arose in the context of wealth and power concentration, rise of the corporation, and conflict between workers and capitalists. Moreover, the theory of the firm was not based on how firms behaved in the real world but was developed to construct an internally consistent theory.

The papers by George (2016; 2018, 2022a, 2022b) are simple math-based papers that advanced undergraduate students can work through compared to mainstream journal articles that are often beyond the technical grasp of most students. George (2016) argues that Marshallian demand analysis involves effects on all markets and therefore partial equilibrium analysis is equivalent to general equilibrium analysis. George (2018) argues that the principles of utility and profit maximization do not hold under recession. George (2022a) argues that fixed costs influence pricing decisions, the supply curve could be downward sloping, and markets do not clear. Finally, George (2022b) argues that the real economy cannot be equilibrated by adjusting prices, as general equilibrium depends on an equilibrium price vector, which does not exist. Similarly, Ackerman (2002) highlights that a unique and stable general equilibrium does not exist because of the aggregation problem, unpredictable preferences, or increasing returns to scale.

Rizvi (1994) and Syll (2018) critique game theory by arguing that it expects too much abstract reasoning from people but does not offer better advice than the layman. Moseley (2012a; b) critiques marginal productivity theory, arguing that the production function is invalid as capital cannot be aggregated, MPK is invalid because raw materials must increase with output, and capital demand curve is invalid because MPK is invalid. Additionally, he argues that the theory provides ideological support for capitalism by justifying the profits of capitalists and rejecting the exploitation of workers. Similarly, Syll (2014) highlights that a just distribution cannot be based on marginal productivity, as it is impossible to isolate the marginal contribution of each factor of production. Finally, Pressman (2020) allows students to see the development in the influential views of Piketty on economic inequality. Whereas, in *Capital in the 21st Century*, he explained inequality through $r > g$, in *Capital and Ideology*, he emphasizes economic power and participatory socialism.

Overall, through these twenty articles, I allow students to work through the literature critical of neoclassical economic theory. They get to present, peer review other student presentations, work through math-based papers, and learn about post-Keynesian consumer theory, the technical critique of neoclassical microeconomic theory, the history of producer theory, the limits of game theory, the issues with marginal productivity theory, and the shift of views on economic inequality.

4. Concluding Remarks

This paper was motivated by the need to introduce pluralist perspectives in standard introductory, intermediate, and advanced microeconomics courses. The overarching idea is not to jettison neoclassical economics but to situate it with critical perspectives based on popular books, heterodox economics textbooks, and critical journal articles. While the CORE online text is an excellent resource adopted by various instructors across the globe, it is not without its criticisms and may not be suitable for instructors who cannot radically change their pedagogy because of personal or institutional reasons. The approach taken in this article showcases how instructors can modify their microeconomics courses step wise from the first year all the way to the final year of undergraduate economics education. I have used the showcased approach to engage students in discussions on real-world issues at the

introductory level, lecture on technical critical content at the intermediate level, and allow students to take the lead through presentations at the advanced level.

Instructors are not bound to follow this approach to the letter, as it offers one blueprint to bring pluralism to the classroom. For instance, they can develop a whole course simply based on popular books instead of using textbooks at the introductory level. I have received excellent feedback from students who appreciate real-world content and critical perspectives over abstract mathematics. Though, sometimes there is the odd student with very strong opinions who feels slighted by an imaginary “left-wing” bias. In such cases, I inform them that they are being exposed to both neoclassical and heterodox perspectives and that they are free to choose either. Finally, the approach in this article is not the final word, as it is open to change through the publication of new popular books, textbooks, and articles. Overall, this paper shows one path to teaching critical microeconomics.

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