Incorporating Sustainability into Principles of Macroeconomics: A Case Study
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Abstract
Using grant funded resources, this case study explicitly engaged students in a Principles of Macroeconomics course with respect to the impact of sustainability-based values on economic indicators and standard of living parameters, while coincidentally opening discussion to the implicit nature of consumption-based values in the economic assessment of growth. Student assimilation and reaction to the curriculum was documented over the period of the course. Students provided responses to weekly questionnaires, which tracked their changing perceptions, values, and behaviors. Weekly class discussions and individual student assessment of the awareness fostered by reviewing the two divergent value structures also contributed to qualitative results, which strongly indicated behavior modification coincident with the increasing contextual awareness of the impact of sustainability relative to the less holistic expenditure-led framework currently in use. The replicable case study advances the inclusion of sustainability values as a tool to foster understanding of the economic environment and through comparative evaluation, promote the evolution of individual values and behavior to potentially yield far-reaching changes in economic outcomes.

Principles of Macroeconomics: Sustainability Integration Case Study
As part of a semester-long Principles of Macroeconomics course and following student introduction to basic macroeconomic concepts and related market mechanisms (movement along, shift of supply and demand; general understanding of consumption led growth, and the behaviors or values embodied within the framework of growth as it is currently defined and evaluated through GDP), students were introduced to the aggregate expenditure function and the explicit need for consumption in the evaluation of economic growth.

Following the introduction of the foundation of macroeconomic variables and concepts, students were asked to fill out a questionnaire, where the questionnaire focused on the student’s understanding of the relationship between behaviors and economic outcomes through the lens of the values that were of significance to the student. Students were provided with the opportunity to comment on the rationale for the values expressed in their actions. The questionnaire did not directly address sustainability, though students were asked if they had taken a course in sustainability or that incorporated sustainability. Additionally questions were asked to assess the conspicuous consumption and social basis for consumption and expenditure behavior.

Students were then introduced to the concept of consumerism and were made aware of the endogeneity between marketing, advertising, consumption, credit access, and GDP growth through detailed discussion of the aggregate expenditure function, as well as monetary and fiscal policy mechanisms. Using standard aggregate demand and supply models, students were introduced to the impact of excess demand on natural resource utilization, exploitation, and development; and were provided with an understanding of non-articulated and under-enumerated costs and asked to assess the benefits and costs of trade from both a profitability and environmental-social welfare perspective. Further, students were introduced to the role and purpose of the central bank and the government in the target goal of monetary and fiscal policy to maintain full employment as defined as the employment level consistent with the maximum aggregate expenditure level found at the optimal economy-wide production capacity (full production capacity) at a given point in time. The process of instruction and assessment of sustainability factors related to the dependence of consumption on credit, trade and exploitable, quantifiable cost differentials; natural resource use and cost of degradation and replenishment; marketing and consumer demand; and the tragedy of the commons as related to the exploitation of common resources. All of the mentioned topics were addressed and evaluated as a class and on an individual student basis.

Methodology
Weekly readings related to a macroeconomic topic and its sustainability correlate were assigned from a variety of sources, including popular press articles and a grant sponsored non-academic text selected specifically due to its retail target audience and its tangible examples.

Each week, four students were selected to be discussion group leaders, with a responsibility to facilitate weekly in-class sustainability focused discussion related to a macroeconomic topic and corresponding readings. The group leaders were required to develop at minimum two questions specific to the macroeconomic and sustainability-based reading assignment for the week and the questions were distributed to all students one class period prior to scheduled class discussions. Students were expected to address all questions prior to class and to formally submit answers for two questions via an electronic journal. The questions, discussion, and journal entries were meant to provide students with an assessment of the role that implicit values have in individual decision-making and to increase awareness of how implicit social values impact individual consumption behavior and thereby eventually culminate in economic outcomes.

The integration of sustainability overlapped the standard course curriculum. Weekly sustainability topics followed and countered implicit values within the subject matter of the course, giving students an ability to understand the present macroeconomic phenomenon and then evaluate the same through a sustainability lens. The focus of macroeconomic and corresponding sustainability discussion was consumer-based consumption as an integral and targeted component of aggregate expenditures and corresponding GDP growth.

The students’ weekly journals, discussion participation, and initial questionnaire submission provided a qualitative capture of the students’ individual evolving and static economic values and behaviors.

Selected student comments:
“As a consumer I do not think about what repercussions my buying decisions have on the environment and the future generations to come. Before, I never would have thought that what I purchase today could affect my grandchildren. More importantly however I have learned how to reverse this negative impact of understanding basic economic concepts such as supply and demand.”

“My perception and values have definitely been affected. I was aware of the circumstances that our planet was undergoing but not to this extent. I think that we have used wrong methods when it comes to financial situations and etc… So many people nowadays think that it is too late to make a change and preserve our planet when it really is not and it is a shame because future generations are really going to suffer because of our decisions.”

“I understand what is means to be a rational agent, but now I understand that sustainable decision making is necessary to be a truly rational agent.”

Closing comments
The curriculum exercise shared in this paper provides a significant step forward with respect to the explicit introduction of sustainability into the Principles of Macroeconomics. Next steps could include, at minimum a replication of the curriculum components as described, to the development of an introductory economics text targeted at the explicit creation of a sustainable economic agent.

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Embedded values lead to behaviors that can produce sustainable economic outcomes.