# Disparities in consumption patterns and carbon footprints driven by increasing female-headed households in Europe

Topic: Gender Issues in Input-Output Analysis: New Challenges and New Perspectives - I
Author: Elena Calvo Calvo
Co-Authors: Cristina Sarasa, Rosa DUARTE

A good understanding of household carbon emissions is key for the design of climate mitigation strategies. Traditionally, households were characterized by a breadwinning man and a woman whose role was mainly associated with household chores and did not contribute directly to the family income. In other words, until the last quarter of the twentieth century, almost all household income was earned by the man and the cases in which the woman also contributed, were mainly because there was the economic need to do so, for example, in families with little income or because of the unemployment of the man. Several changes along history, however, have brought us today, to a moment in history characterized by women being more educated than men and in which they play a major role in the economy. To fully understand the novelty of this approach, we should first understand the novelty of women being the main earners of their families.

Thus, we are now more likely to find families in which women earn more than their husbands, a trend that has been increasing over the last few decades. Although this evolution has been increasingly studied, its main implications are significantly understudied. In order for us to better understand the impacts of this change in womenÂ´s roles, this paper attempts, firstly, to gather the history of what has brought us this far, so that women are more educated and significantly more integrated in the labor markets than before. Second, to analyze the repercussions of such changes in terms of consumption patterns and pollution footprints. How do household consumption patterns change as the gender of their main earner changes, and how does their environmental footprint change, are some of the questions we attempt to answer.

In this paper, we aim to analyze the impact that the increasing number of female headed households has over the consumption patterns in Europe and, thus, over their carbon footprints. Moreover, we also consider the income, the age and the educational attainment of the main earner of the household to quantify not only the footprints of an increasing number of female-headed households in Europe, but also that associated with an ageing population as well as with populations with higher levels of education. Understanding what have led us to this point matters as much as how this impacts the economic performance of countries today and how it will in the future, for instance, through this impacts on environmental outcomes.

For this purpose, the Household Budget Survey (HSB) for the year 2015 have been used to link the Household Member Data to the Household Data in order to collect the individual characteristics of the main earner of each household. Then, the consumption coefficients by commodity for each type of household have been calculated to apply them to the consumption vector of the multiregional and multisectoral input output tables (MRIO) available in EXIOBASE. This allows us to calculate the direct and the indirect (embodied) carbon emissions driven by each type of EU household by quintile, gender, age and education of the main earner. Thus, we can quantify the carbon footprint of each group of households using the environmental account available in EXIOBASE. To our knowledge, is the first time that such extensive analysis of the footprint of households by the gender, the age and the educational attainment of the main earner has been done so far for Europe.

In short, this analysis shows us the impacts that not only the increasing number of female-headed households have over the economic performance and the environmental footprints of the European Countries, but also the impacts of an ageing population that attain higher and higher levels of

education as the time goes. Next, the relation that may exist between such footprints and householdsâ€™ characteristics, such as the gender of their main earner, will be studied using econometric models, for the current research to serve as a stronger basis for policy recommendation, as well as a guideline for the consecution of the Sustainable Development Goals (SDGs) proposed by the United Nations (UN).