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Bipolarization Orderings

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Policy makers, social researchers, and citizens are largely concerned about the presumed decline of the middle class in high-income countries. Such a decline is usually regarded as a threat for social cohesion, welfare, and economic performances (Pressman, 2001, 2006). The concern is heavily fueled by the increase in inequality observed in most developed countries since the 1980s. However, inequality and bipolarization are different concepts and the evidence of ongoing bipolarization processes in these countries is still limited.

Moreover, it is widely acknowledged that any social index can be regarded as the subjective view of a social evaluator on some specific aspects of the observed distribution of well-being attributes. Hence, each index embodies values that are likely to be largely discussed. As a result, two different indices may yield opposite conclusions when applied to the same data, even if they comply with the same set of desirable properties. To circumvent this issue, a usual approach is to use criteria that identify the situations in which distributive indices based on the same axiomatic framework will produce the same ranking of observed distributions; thereby yielding a robust conclusion regarding the ordering of two (or more) distributions.

This paper first reviews the different dominance criteria that have been proposed in the literature (Wang & Tsui, 2000; Duclos & Echevin, 2005; Bossert & Schworn, 2008; Chakravarty & d'Ambrosio, 2010; Foster & Wolfson, 2010; Yalonetzky, 2014) in order to obtain robust bipolarization orderings. Notably, we stress the importance for relative bipolarization indices of the choice between the median and the mean as a normalization variable for distances from the median. We also contrast dominance criteria related to indices based solely on the distribution of distances from the median, and dominance criteria for the wider set of indices where these distances may not be given the same weight depending on whether they refer to the bottom or the top half of the distribution. In order to increase the set of tools for bipolarization orderings and increase the ordering power of dominance tests without having to impose this neglect of the relative position of each observed income with respect to the median, we also propose sequential dominance criteria that allow for increased distances below (or above) the median to be compensated by reduced distances above (or below) the median, but not vice-versa. These sequential procedures are intuitively appealing as they are based on existing dominance tools. The ordering power of the different dominance criteria are then compared using income surveys

from 30 European countries using EUSILC data. Unsurprisingly, our results stress the importance of imposing the increasing bipolarity axiom to raise the ordering power. They also show how disregarding the respective position of income with respect to the median dramatically increases the ordering power.