Power Laws in Trade, Employment and Wages

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Abstract

Power law phenomena have been previously found in wages and firm size. This paper examines the relation between firm employment size and wages and shows how the distribution of firm size affects the distribution of wages. To do so, we adapt the framework presented in Chaney (2018) to consider how a power law in firm size can also lead to a power law in wages. Using French firm-level data, We find that Proposition 1 of Chaney (2018) holds not only for trade distance, but also for wages as well. Specifically, we find that firm employment size follows a power law, such that the probability density function is inversely related to firm employment size. In addition, average squared wage is observed to increase with firm employment size. Upon verifying that certain parameter restrictions hold, we then show that wages also follow a power law, such that the density of employees at a given wage level decreases with wage. Given the empirical findings, we then extend the trade model in Chaney (2018) to incorporate employment and wages. In particular, we allow firms to decide how many workers to hire as a function of sales. Wages are set competitively. Due to increasing returns to scale, wages increase with the employment size of firms. This extension of the model then allows us to further consider the implications of trade patterns on employment and wages.

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