

Heterogeneous Productivity Shocks, Elasticity of Substitution and Aggregate Fluctuations

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We use a Dixit-Stiglitz setting to show that aggregate productivity fluctuations can be generated through changes in the dispersion of firms' productivity. When the elasticity of substitution among goods is larger than one, an increase in the dispersion raises aggregate productivity because firms at the top of the distribution produce most of output. When the elasticity is smaller than one, an increase in the dispersion reduces aggregate productivity because firms at the bottom of the distribution use most of inputs. We use individual firm data from Spanish manufacturing sectors to test the relationship between the dispersion of firms' productivity and aggregate productivity. The estimated coefficients are consistent with the predictions of the model: we find that an increase in the coefficient of variation of firms productivity of 1% increases aggregate productivity by 0.59% in sectors with an elasticity of substitution larger than one while the same increase in the coefficient of variation reduces aggregate productivity by 0.07% in sectors with an elasticity of substitution smaller than one.