



## Research Working Papers

# Production and Inventory Dynamics under Ambiguity Aversion

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Incorporating ambiguity aversion into models of production and inventory dynamics can help explain firms' investment behavior.

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We propose a production-cost smoothing model with Knightian uncertainty due to ambiguity aversion to study the joint behavior of production, inventories, and sales. Our model can explain four facts that previous studies find difficult to account for simultaneously: (i) the high volatility of production relative to sales, (ii) the low ratio of inventory-investment volatility to sales volatility, (iii) the positive correlation between sales and inventories, and (iv) the negative correlation between the inventory-to-sales ratio and sales. We find that the stock-out avoidance motive (Kahn 1987) emerges endogenously in our model, reconciling the long debate in the inventory literature over the production- cost smoothing and the stock-out avoidance models.

JEL Classifications: D83, E21, F41, G15

## Article Citations

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