

on the economy, they would observe that productivity undergoes shocks as financial conditions change. When financial conditions are tight and the risk premium in the borrowing rate increases, they will also observe that total factor productivity falls. This is in spite of the fact that our model has none of the standard distortions or frictions to product or labor markets, or indeed any intertemporal choice. The only “friction” in our model is that production takes time.

This feature of our model where the TFP depends on financial conditions is in a similar spirit to the finding in Buera and Moll (2011), who show that the aggregate TPF of an economy with heterogeneous firms that are differentially affected by collateral constraints will also exhibit sensitivity to financial conditions. Our mechanism is very different from that of Buera and Moll (2011), and the lesson from our paper is that vertical specialization of production may give rise to productivity effects that are not captured by a representative firm production function.

2.2 Sales and Value Added

The most distinctive feature of our “Austrian” model of production chains is the distinction between total sales and output as value-added. This distinction is meaningless when production is undertaken by atomistic firms, but is highly informative and relevant when production takes place in chains. The empirical significance of this distinction will become clear when we discuss the time accounting of offshoring and trade.

Consider the sales of each firm in the chain. From the zero profit condition, each firm’s sale is the cost of production, including the cost of working