



Investment spikes: New facts and a general equilibrium exploration[☆]

François Gourio^{a,*}, Anil K Kashyap^{b,c,d}

^a*Department of Economics, Boston University, 264 Bay State Road, Boston, MA 02215, USA*

^b*Graduate School of Business, University of Chicago, USA*

^c*Federal Reserve Bank of Chicago, USA*

^d*National Bureau of Economic Research, USA*

Received 22 September 2006; received in revised form 4 June 2007; accepted 6 June 2007

Available online 19 June 2007

Abstract

Using plant-level data from Chile and the U.S., we show that investment spikes are highly pro-cyclical, so much so that changes in the number of establishments undergoing investment spikes (the “extensive margin”) account for the bulk of variation in aggregate investment. The number of establishments undergoing investment spikes also has independent predictive power for aggregate investment, even controlling for past investment and sales. We re-calibrate the Thomas [2002. Is lumpy investment relevant for the business cycle. *Journal of Political Economy*, CX 508–534] model (that includes fixed costs of investing) so that it assigns a prominent role to extensive adjustment. The recalibrated model has different properties than the standard RBC model for some shocks.

© 2007 Elsevier B.V. All rights reserved.

JEL classification: E22; E32

Keywords: Adjustment costs; Investment tax credit; Fixed costs; Extensive margin

[☆]Kashyap thanks the Center for Research in Securities Prices, Initiative on Global Markets and the Stigler Center all at the University of Chicago Graduate School of Business for research support. We thank Shawn D. Klimek from the U.S. Census and Olga Fuentes and Simon Gilchrist from Boston University for very kind help in providing data. We thank participants in numerous conferences and seminars for helpful suggestions; Ricardo Caballero, Janice Eberly and Robert E. Lucas Jr. for helpful conversations; Jeffrey Campbell, Russell Cooper, Nobu Kiyotaki, and Edward Prescott for discussing our paper; and Robert King for many constructive comments. We also thank Doriana Ruffino, Sandra Shao, and Jin Xu for excellent research assistance. The data, a technical appendix, and Matlab programs to run the model are posted on the following web page: <http://people.bu.edu/fgourio/extintpaper.html>. All errors here are our own.

*Corresponding author. Tel.: +1 617 353 4534.

E-mail address: fgourio@bu.edu (F. Gourio).

1. Introduction

Economists are sharply divided over the aggregate significance of the heterogeneity of plant-level investment. On the one hand, there is unanimous agreement that individual plants sometimes forgo investing at all and at other times have dramatic surges in investment.¹ Caballero (1999), in his survey for the Handbook of Macroeconomics, argues that accounting for this “lumpiness” is critical: “it turns out the changes in the degree of coordination of lumpy actions play an important role in shaping the dynamic behavior of aggregate investment”. On the other hand, Thomas (2002) presents a model where this is not true: “in contrast to previous partial equilibrium analyses, [the] model results reveal that the aggregate effects of lumpy investment are negligible. In general equilibrium, households’ preference for relatively smooth consumption profiles offsets changes in aggregate investment demand implied by the introduction of lumpy plant-level investment”. This “irrelevance result” inspired Prescott (2003) to argue “partial equilibrium reasoning to an inherently general equilibrium question cannot be trusted”.

This paper makes three contributions to this debate. First, it introduces several new facts about surges in investment (that we call spikes). In particular, we show that for both U.S. and Chilean plants, most of the variation in the total investment rate is due to variation in investment of firms undergoing spikes. Moreover, this approximation derives its explanatory power from changes in the number of firms making large investments (the “extensive margin”), and not changes in the average size of the spikes (the “intensive margin”). The prevalence of spikes in one year also predicts aggregate investment (even controlling for the past level of investment or sales): years with relatively more spikes are followed by years with relatively less investment.

These empirical results suggest that it is important to construct a model that not only generates spikes on average, but also *variation* in spikes over the business cycle. To do this we start with the Thomas (2002) model, which is a tractable dynamic stochastic general equilibrium (DSGE) model that naturally yields lumpy investment. The heterogeneity in this model derives from variation in the fixed costs that firms must pay in order to invest. We find that the exact model, as originally calibrated, has trouble fitting the facts about cyclical patterns in lumpiness. But by changing the calibration we can match better these facts.

While we make several changes, the critical one is to alter the distribution of fixed costs that firms face. In order for the extensive margin to matter, this distribution must have the property that many firms face roughly the same sized fixed cost in deciding whether to invest. When the distribution has this type of “compression”, it becomes possible for a shock to move many firms across the threshold from not investing to investing. Conversely, if the distribution exhibits little compression, then firms become much less likely to synchronize their decisions and the extensive margin matters less. Importantly, even if part of the distribution is compressed there can still be substantial heterogeneity in the overall distribution and hence in the level of fixed costs that firms pay to adjust. Therefore, this conclusion is not necessarily overturned by allowing more heterogeneity in the idiosyncratic shocks that firms face.

¹See among others Becker et al. (2006), Caballero et al. (1995), Cooper et al. (1999), Cooper and Haltiwanger (2006), Doms and Dunne (1998).

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات