

# Strategic procurement, openness and market structure <sup>☆</sup>

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## Abstract

We examine strategic procurement behaviour by governments and its effect on market structure in sectors, such as defence and pharmaceuticals, where the government is the dominant consumer. In a world economy with trade between producer countries, and between producers and non-producers, we use a modified Dixit–Stiglitz utility function with an independent taste for variety. There is free entry and exit by firms, but by anticipating their participation constraint governments can indirectly choose the number of domestic firms and their size through its choice of procurement price. Unlike the standard model with no independent taste for variety and no external sector of non-producer countries, there are incentives for subsidies, openness impacts on industrial structure and procurement coordination between producer countries affects firm numbers.

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## 1. Introduction

Government procurement constitutes an important share of a typical country's GDP (up to 20% in some cases). In some industries, domestic government procurement is also the most important source of sales and this is clearly the case in the defence and pharmaceutical industries (see e.g., Achilladelis and Antonakis, 2001 and Kyle, 2007). As the World Trade Organization expands the restrictions over traditional protectionist trade policies, procurement practices could

be used as a less obvious trade policy tool to promote strategic domestic industries. We refer to this as *strategic procurement*. The government's preference for maintaining a domestic provider base within 'sensitive industries' can provide a justification for strategic procurement.<sup>1</sup>

The defence industry provides a clear example of domestic firms survival directly depending on government purchasing commitments and regulatory environment (see Dunne et al., 2003). An interesting illustration

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<sup>1</sup> The Government Procurement Agreement precludes countries from using domestic supplier preferential treatment to promote local industrial sectors. But, exceptions to the Agreement include procurement indispensable for national security or for national defence purposes.

of this fact is the 1993 merger wave of US military firms.<sup>2</sup> In the pharmaceutical industry, according to Kyle (2007), in many producer countries the price for prescribed drugs to be paid by domestic health authorities is set high enough to support the local pharmaceutical industry, which is a big employer and important export earner.<sup>3</sup> Interestingly, in both industries, there has been a recent tendency towards an increase in concentration. In the defence industry, for the top 100 firms, Dunne et al. (2003) report falls in the inverse Herfindahl index from 49 to 22, between 1990 and 1998. For the pharmaceutical industry, Matraves (1999) reports an increase in global market shares of the top 10 pharmaceutical companies from 25% to 31% between 1988 and 1995, also firms in ranked places from 11th to 20th saw increases in their market shares. Changes to procurement policies may be behind these trends.<sup>4</sup>

The above mentioned industries share a number of additional characteristics which may influence procurement decisions. First, procurement authorities usually have a preference bias for the consumption of domestic goods ('home bias'), which could arise from concerns about security of supply in conflict or a desire to maintain a domestic industrial base in these sectors. Such concerns are subject to change across industry and time (see Achilladelis and Antonakis, 2001; PICTF, 2005 and NHS procurement review, 1998). Second, procurement authorities are interested in purchasing a variety of products that gives an aggregate of either military capability or medicines provision. Variety is important to the procurement authority so as to cover a spectrum of health and security risks. Third, there is a relatively well-established set of producer countries. Most countries cannot afford the massive R&D required to set up a major weapon systems or innovative drugs industry and, therefore, there is a small number of producer countries serving both themselves and the non-

producer countries. This means that there is scope for producer countries to interact strategically.

Our main objective is to examine the impact of strategic procurement behaviour on the market structure of producer countries. More specifically, we analyze the impact that changes in home bias, taste for variety or the relative size of the non-producer market may have on procurement prices and market structure. We also study whether governments get a 'better deal' from their domestic producers, that is, whether the price paid for domestic procurement is lower or higher than the price at which domestic producers sell internationally. In addition, we investigate the potential impact of international coordination of procurement decisions on concentration. Such analysis is relevant to the industries we have in mind in this paper. As discussed by Hartley (2006), there is an ongoing debate within EU countries about the possible gains from coordinating defence procurement decisions. Different possible levels of coordination are being suggested; the lowest level would just imply a coordinated decision on domestic procurement. It is the consequence of this type of cooperation that we aim to model in our paper. There has also been an increase in the coordination in the regulation of the pharmaceutical industry in the EU which is relevant to the present paper (see Vogel, 1998).

We construct a model of strategic public procurement and international trade. There are both producer and non-producer countries. Governments in producer countries buy products from the domestic firms and also import from the rest of the world, governments in non-producer countries cover their public procurement needs through imports. Governments endogenously determine the number of domestic firms by committing to a domestic procurement price that ensures their existence.

Our focus in this paper is the decision of the military or public health authority on how best to utilize the budgets they have, which are assumed to be exogenous. Endogeneizing the expenditure choice would be interesting, but far from straightforward. Military capability is just a component in a measure of national security. The choice of how much to spend on military capability is affected by a number of factors such as the impact that this expenditure may have on the behavior of potential adversaries (see García-Alonso and Levine, 2007 for a discussion). Even for the health sector, we are really only considering medicines provision; a complete measure of health provision would include many other factors such as numbers of GPs, preventive health, etc. which we do not analyze in this paper.

An important feature of our model is the existence of producer and non-producer countries. A big domestic

<sup>2</sup> This was stimulated by the 'last supper' when the Pentagon Deputy Secretary Perry told a dinner of defence industry executives that they were expected to start merging. It ended when the Pentagon decided it had gone far enough and blocked the merger of Lockheed Martin with Northrop Grumman in early 1997 (Markusen and Costigan, 1999). Dunne et al. (2003) provide a detailed description of these changes.

<sup>3</sup> For the case of the UK, the Pharmaceutical Industry Competitiveness Task Force (PICTF), created in 2000 is openly aimed at ensuring that the UK remains a base for the development of new drugs.

<sup>4</sup> In a recent report, the Office of Fair Trade in the UK (OFT, 2004) argues that, in sectors such as human health services and manufacture of weapons and munitions, public procurement is likely to be having an impact on market structure.

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