



On risk and cost in global sourcing[☆]

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ABSTRACT

The benefits of global sourcing as part of a firm's purchasing strategy have been widely discussed in the academic literature, yet so there are few models that provide a comprehensive risk and cost assessment to guide managerial decision-making. In particular, few models capture the dynamic nature of many cost drivers, such as transportation and energy cost, labour cost inflation, or carbon offset costs, in their calculations. In this paper, we define three basic cost elements in global sourcing: *static*, *dynamic* and *hidden* cost, and use this framework to assess the costs and risks inherent in global sourcing scenarios from three different points of view: conceptually, analytically and empirically. We highlight the key learning points from each perspective and propose a total cost model of how to make informed global sourcing decisions, which we test by applying it to three exploratory case studies of global sourcing arrangements.

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1. Introduction

'It is the maxim of every prudent master of a family, never to attempt to make at home what it will cost him more to make than to buy [...]. If a foreign country can supply us with a commodity cheaper than we ourselves can make it, better buy it of them with some part of the produce of our own industry, employed in a way in which we have some advantage.' (Adam Smith, 1776).

More than 200 years ago, Adam Smith, in his book 'An Inquiry into the Nature and Causes of the Wealth of Nations,' provided a simple, yet convincing explanation for why economies as a whole, and individual firms in specific, should engage in international trade. Unsurprisingly, the underlying principles of the Smith's arguments have subsequently found their way into the Operations Management domain, where they have been applied to three (often separate) streams in the literature, representing some of the most fundamental decisions that purchasing and manufacturing managers face. The first decision relates to the value adding tasks to be performed by a company, known as the so-called 'make-or-buy' decision (Higgins, 1955; Venkatesan, 1992) or under the term 'outsourcing' (Bettis et al., 1992; Quinn

and Hilmer, 1994). Secondly, once decided what to make in-house, managers need to decide where to locate the operations to perform these tasks (Skinner, 1964; Ferdows, 1997). Thirdly, managers need to decide where to source the required parts and/or services that are not provided internally (Choi and Hartley, 1996; Nassimbeni, 2006).

As part of the sourcing debate, a number of contributions have studied the phenomenon known as *international* or *global sourcing* (Monczka and Trent, 1991; Bozarth et al., 1998; Antràs and Helpman, 2004; Nassimbeni, 2006), investigating why and how firms increase the share of purchases bought from suppliers beyond their national boundaries. For example, numerous benefits and risks of global sourcing have been identified, such as the benefit gained by accessing lower prices and technical expertise versus the risk of increased instability in the supply chain (Levy, 1995; Nassimbeni, 2006). In addition, the strategic role of sourcing has been evaluated in a global context, suggesting differences between the mere (or *ad hoc*) sourcing of individual parts from international suppliers versus a fully integrated global sourcing strategy (Monczka and Trent, 1991; Bozarth et al., 1998). Despite the ongoing debate, the cost models and decision frameworks at hand for evaluating global sourcing decisions for specific parts or part families still do not provide managers with a toolset for the holistic cost and risk assessment of operational sourcing decisions in an international context. This is a particular shortcoming as the decision on where to source particular parts occurs on a daily basis, and the appropriate choice depends on various demand, supply and product-related characteristics that have a substantial impact on the actual cost of global sourcing decisions (Levy, 1995; Lowson, 2002). In this paper, we address

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this gap in the literature by building on the existing models (Srinivasan, 1988; Cavusgil et al., 1993; Lawson, 2002) and by extending these into comprehensive model of the dynamic risks and costs associated with global sourcing.

More specifically, we address this problem from a conceptual, analytical and empirical perspective, in order to bring the existing literature together into a more coherent framework, to propose a total cost model capable of guiding decision-making, and to test this framework empirically within three exploratory case studies. The application of the total cost model to real world cases helps us to develop a simplified decision framework to assess the suitability of parts or part families for global sourcing. The decision framework is specifically designed to reduce the complexity of the decision process, when the total cost model cannot be applied easily because of imperfect information on suppliers and/or future market developments.

The paper is intentionally restricted to evaluating external sourcing decisions; although, the findings may also be applied to internal suppliers, that is the question whether or not to offshore operations. Although outside the remit of this paper, the decision logic proposed in this paper can equally be applied to the near-shoring versus offshoring decision. By limiting the scope of the study, we can provide a more focused decision support tool that does not need to consider the various factors related to decisions on outsourcing and international manufacturing (see, for example, Quinn and Hilmer, 1994; Ferdows, 1997).

The paper is structured as follows: the next section will review the literature on global sourcing, including its context and rationale as well as the various cost drivers that need to be considered when making such decisions. Section 3 will build upon these cost drivers and propose a model to assess the total cost of such decisions, while Section 4 will support the framework empirically, applying it to three case studies before concluding with theoretical and managerial implications in Section 5.

2. Global sourcing: the conceptual perspective

This section will provide a focussed review of the global (and international) sourcing literature with the aim to develop a conceptual framework for a total cost assessment of global sourcing decisions, starting with a review of the key contributions on the context of and rationale for global sourcing.

2.1. Context and rationale

Global sourcing has received growing attention in the academic literature since the 1980s (Monczka and Giunipero, 1984), and has remained an active area for research since (see for example Levy, 1995; Nassimbeni, 2006). While the terms ‘global sourcing’, ‘global procurement’ and ‘international sourcing’ are often being used synonymously in the literature, a general consensus, in the more recent literature, follows the works of Monzka and Trent (1991), defining global sourcing as the final stage in the strategy evolution, seeking to include foreign supply sources as part of the overall purchasing strategy. For the purpose of this paper, we will use ‘global sourcing’ as synonymous for a sourcing arrangement outside of the market, where either the final product is assembled, or being sold (retailed) to its end customer.

There seems to be a wide agreement on the factors that trigger global sourcing decisions, with the primary factor being reductions in the purchase price of goods (Monczka and Giunipero, 1984; Monczka and Trent, 1991; Cho and Kang, 2001; Nassimbeni, 2006). However, firms do not only want to save cost by sourcing

parts and components from foreign suppliers, but often also enter such relationships to obtain access to new technologies or higher quality products, or to establish a foothold in new markets (Monczka and Giunipero, 1984; Monczka and Trent, 1991; Cho and Kang, 2001; Nassimbeni, 2006). Nassimbeni (2006), for example, groups the reasons for sourcing from abroad into three categories: (1) gaining access to cheaper resources and the intensification of international competition; (2) establishing a presence in new markets; and (3) obtaining access to distinctive resources. The individual factors included in these categories and their order are still remarkably similar to the list identified by Monczka and Giunipero (1984) more than twenty years earlier, suggesting that the rationale for global sourcing has changed little over that time (see Table 1).

Despite the broad agreement on the majority of the motivational factors behind global sourcing, it remains difficult to differentiate between the benefits of global sourcing from external suppliers, and the benefits of offshoring/international production and the subsequent sourcing from foreign internal suppliers. For example, it is questionable whether factors such as the ‘global attitudes of the company’ and the ‘possibility of developing a presence on foreign markets’ (see Nassimbeni, 2006) can be achieved through global sourcing from external suppliers, unless one considers the specific case of counter-trade agreements (which are outside the scope of this paper and hence will not be discussed).

The increasing importance of global sourcing since the 1980s was driven by continuously decreasing barriers to global sourcing. For example, Handfield (1994) compiled a list of critical costs and managerial problems that firms encounter, when sourcing from foreign suppliers. These included long lead-times, transport costs and custom duties as well as cultural differences and communication problems. However, the political and economical changes of the past decades have significantly reduced some of these costs/problems. For example, Glaeser and Kohlhase (2004) showed that rail, road and pipeline transport costs have been

Table 1
Rationale for global sourcing (in order of importance).

Monczka and Giunipero (1984)	Monczka and Trent, 1991	Nassimbeni (2006)
<ul style="list-style-type: none"> • Lower prices • Firm had worldwide operations and attitude • Availability of foreign products • Improved quality of foreign products • Technology available from foreign sources • To fulfil countertrade/offset/local content requirements • Due to developing worldwide competition • Improved delivery of foreign product 	<ul style="list-style-type: none"> • Cost reduction • Quality improvements • Increased exposure to worldwide technology • Delivery and reliability improvements • Introduction of competition to the local supply base • Establishing a presence in a foreign market • Satisfying offset requirements • Increase the number of available sources • Reacting to the offshore sourcing practices of competitors 	<ul style="list-style-type: none"> • Purchase materials and components at lower costs • Achieve resources not available in the home country • Possibility of acquiring less expensive manpower • Global competition • Global attitudes of the company • Possibility of acquiring advanced technologies • Reduction of commercial barriers • Possibility of developing a presence on foreign markets • Presence of plants in foreign countries • Possibility of selling products on supplying markets • More favourable taxation

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