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Procurement

Frank A.G. den Butter

VU University Amsterdam, and Tinbergen Institute.

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Tinbergen Institute Amsterdam
Roetersstraat 31
1018 WB Amsterdam
The Netherlands
Tel.: +31(0)20 551 3500
Fax: +31(0)20 551 3555

Tinbergen Institute Rotterdam
Burg. Oudlaan 50
3062 PA Rotterdam
The Netherlands
Tel.: +31(0)10 408 8900
Fax: +31(0)10 408 9031

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Procurement: the transaction costs perspective in a globalising world

Frank A.G. den Butter [*]

Abstract

Fragmentation of production into more and more complex supply chains is a prominent feature of globalisation. It implies that transaction costs as part of total costs of ownership carry a large weight in procurement decisions. An analysis of the various types of transaction costs is also essential in the "make or buy" and location decisions in global sourcing. A distinction can be made between "hard" and "soft" transaction costs. Soft transaction costs are difficult to quantify but become more important in strategic business decisions now that formal trade barriers gradually disappear and transport costs are reduced. Business strategies to keep transaction costs low in the long run can also, to a considerable extent, explain socially responsible business conduct from the perspective of rational economic behaviour

Keywords: procurement, outsourcing, transaction costs, managing transactions, orchestrating the supply chain.

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[*] Vrije Universiteit, Department of Economics, De Boelelaan 1105, NL-1081 HV Amsterdam, The Netherlands, tel. +31-20-5986044, fbutter@feweb.vu.nl..

Procurement: the transaction costs perspective in a globalising world

1. Introduction

The split up of the supply chain in more and more parts is a prominent feature of the ongoing globalisation in the world. In fact this fragmentation of production is a consequence of the process of specialisation, which is a major source of productivity growth and economic welfare. In his famous example of the pin factory, Adam Smith already noted the importance of specialisation and division of tasks for productivity. However, on the one hand the economics of scale associated with specialisation reduces production costs, on the other hand, production processes and activities should be coordinated so that the need for coordination increases. The result is an increase in all kinds of transaction costs, associated with the various forms of coordination. The better the coordination processes are organised, the lower these transaction costs are. Therefore, a decrease in transaction costs enables more specification and will result in a further split-up of the supply chain, and in more fragmentation of production. That is exactly what happens in a globalising world.

In a globalising world we also observe specialisation in the management of production. On the one hand there is specialisation within the parts of the supply chain where using economics of scale and factor endowments (e.g. cheap labour, available capital, natural resources) production within that part of the supply chain is made more efficient. These are the comparative advantages described by the traditional theory of international trade. On the other hand there is specialisation with respect to organising the coordination processes. More efficient methods in linking the various parts of the value chain are developed and implemented . Here the comparative advantages relate to keeping the transaction costs low or bringing them down. In this case value is created by the ability to orchestrate the supply chain. It characterises the function of the headquarters of the multinational companies, but nowadays also specialized small and medium sized firms are confronted with orchestration and linking various parts of the supply chain. Obviously purchase and sales play a prominent role in this orchestrating function.

Against this background this paper discusses how globalisation and the increasing importance of transaction costs affect strategic decision making in supply chain management which is essential to procurement. Here, in line with the Wikipedia definition, procurement is the acquisition of goods and/or services at the best possible *total cost of ownership (TCO)*, in the right quantity and quality, at the right time, in the right place for the direct benefit or use of governments, corporations, or individuals, generally via a contract. Simple procurement may involve nothing more than repeat

purchasing. Complex procurement could involve finding long term partners – or even 'co-destiny' suppliers that might fundamentally commit one organization to another. Obviously, procurement becomes a more vital element of value creation in economic activities, when (worldwide) fragmentation of production increases. In a global market procurement decisions are directly linked to sourcing strategies, so that procurement, in abroad sense, becomes an integral part of the general management of an internationally operating company or organization.

The next section (section 2) discusses this development. Further specialisation and fragmentation of production imply that the transaction costs will gain importance as part of the total costs of ownership. Section 3 shortly reviews the theory of transaction cost economics from this viewpoint. A major decision in splitting up the supply chain is where to produce parts of the supply chain and whether to do it yourself or let the production be done by local suppliers. These location and “make or buy” decisions of subcontracting and outsourcing, and their consequences for economic welfare, are discussed in section 4. Section 5 examines how the various types of transaction costs related to procurement in a globalizing world can be located within the two dimensions, namely external versus company specific internal factors, and subjective, qualitative factors that are difficult to quantify versus objective factors that are more easily quantifiable. Section 6 focuses this debate on the ethical aspects of procurement and on what role rationality, as the fundamental assumption in economic reasoning, plays in the trade-off between people, planet and profits (triple P). Section 7 concludes.

2. Procurement and fragmentation of production

For a long period the Netherlands witnessed a steady decrease of employment in agriculture and industry, whereas employment in services and trade has increased. This development is much connected with the increasing division of labour and specialisation, both within the Dutch economy and in the world. Specialisation means exploitation of economics of scale and using differences in competences and in availability of resources when producing goods and services. Due to specialisation and the resulting (international) trade, production will take place where relative costs are lowest. Availability of raw materials and presence of capital, both physical capital goods and human capital, determines the types of products and services that are made and traded in a country. These are the factor endowments of a country (or a company) which are the sources of *comparative advantages*. The introduction of this paper mentions how Adam Smith already noted that division of labour and specialisation are the main sources of wealth. Specialisation becomes profitable when persons or nations have different endowments and skills in producing different commodities. That is why the comparative advantages have been central to international trade theory ever since Ricardo came up with the concept. In various ways trade theory has tried to explain actual trade flows from the principle of comparative advantages.

However, most of the traditional trade theories do not account for the fact that trade is not for free: the effective exchange of goods and services is costly. In essence all trade

transactions relate to exchanges of property rights. So trade and specialisation bring about *transaction costs*. Traditional trade theory does not reckon with these transaction costs and calculations show that international trade would be much larger indeed, when there were no such transaction costs. As Trefler (1995) notes:
"Factor endowments correctly predict the direction or the service trade about 50 percent or the time, a success rate that are matched by a coin toss" .
In short, in a modern economy, the traditional way of looking at comparative advantages does not explain much of the trade flows and of international operations of large (and nowadays also medium sized) companies. Therefore taking transaction costs into consideration is essential to get a better understanding of these trade flows and international operations. These transaction costs can also be regarded as frictions in (international) trade which are the cause that the optimal trade equilibrium from a purely neoclassical perspective is not reached in practice. In fact there is much less trade than in a frictionless economy. The theory of these frictions is comparable to the description of search frictions in labour economics, that give rise to dynamic unemployment equilibria (see e.g. Mortensen, 1989, Mortensen and Pissarides, 1994). Here, employment is also lower (and unemployment higher) than that it would have been in a frictionless economy.

Transaction costs which bring about trade frictions and specialisation in production are much intertwined. On the one hand, division of labour and specialisation enable a more efficient production of goods and services. This applies both to division of labour and specialisation within companies and between companies and countries. On the other hand division of labour and specialisation also imply that the different activities must be coordinated. The coordination is a major source of transaction costs. This coordination can take place either through the market mechanism between firms – horizontal coordination – or through the hierarchy within a firm. In case of coordination via the market a trade transaction implies an exchange of property rights. Both coordination mechanisms bring about different types of transaction costs (see next section). Coase (1937) already noted that firm size is determined by these transaction costs. In equilibrium marginal transaction costs through coordination via the market are equal to marginal transaction costs with hierarchical coordination. In case transaction costs via the market mechanism become smaller – functioning of markets becomes better, smarter procurement via the market – firm size will decrease. An increase in firm size, e.g. through mergers or acquisitions, will be profitable in case of a relative decrease in transaction costs through hierarchical coordination. These relative differences in transaction costs are relevant in the judgment of active shareholders (hedge funds) on optimal firm strategy. A merger between two firms (e.g. banks) may be profitable in case of economies of scale ore scope, where parts of transaction costs are consolidated and netted out. On the other hand mergers may become costly, and less profitable than originally expected, when the linkage of different cultures of the merging firms brings about additional transaction costs through coordination problems. Relative differences in transaction costs are also a determinant in the make or buy decision of firms when (out)sourcing part of their activities (see section 4).

Transaction costs can be too high for a trade transaction to take place. In that case the advantages of division of labour and specialisation do not outweigh the disadvantages. Then, a reduction of transaction costs will imply that more specialisation becomes profitable and that the amount of trade transactions increases. It means also that existing trade becomes cheaper. In both cases such reduction of transaction costs will enhance welfare. One of the major driving forces of globalisation is a worldwide reduction of transaction costs. Obviously developments in procurement played a major role in this respect. The resulting upsurge of specialisation and division of labour has led to a fragmentation of production, where the production chain is split up further and further. Those parts of the chain, which could be produced at lower costs elsewhere, and where the lower costs of production outweighed the transaction costs, were outsourced, either to foreign producers or to subcontractors at home. This fragmentation of production has changed the character of the trade in such a way that a new kind of trade theory is in order. Grossman and Rossi-Hansberg (2007) argue that no longer trade in products and services should be the focus of the theory, but rather the trade in tasks.

Fragmentation of production has not only changed world wide production patterns, but also at the national and local levels. It means that producers make more and more use of subcontractors and of specialised suppliers. In the Netherlands the number of “zzp ers” (self-employed persons without staff) has strongly increased. The change in production technology in the construction industry in the Netherlands offers a good example. Empirical data provide ample evidence for the trend in the construction industry that components of the work and activities are more and more executed by subcontractors. Data collected by the Economic Institute for the Building Industry (EIB) show that the number of specialised companies increased over the last 25 years with approximately 13%, whereas the number of general construction companies has decreased with approximately the same percentage (see Sijpersma, 2004). This trend becomes also clear when looking at the average share of value added in gross turnover of general companies in the building sector. This share decreased of approximately 25% in the period 1987-1991 to almost 21% in the period 1997-2001. It implies a reduction of the own production of 16%. In the infrastructure construction sector the fall of the share was still larger, namely from 35% up to 28%. This means a reduction of own production with 20%.

Evidence from surveys conducted by the EIB with the main contractors suggests that the major reason for subcontracting is the increasing specialised character of the activities and the knowledge and risks connected with it. Another important argument is that through subcontracting variations in availability of production capacity can be smoothed. The construction companies in principle prefer to make use of an established network of specialised subcontractors. These preferences of the construction companies are also reflected in the most important selection criteria when choosing a subcontractor. The selection is in the first place made on the basis of the requested quality of the work and the (insured and/or trusted) guarantees that the subcontractor can offer. Earlier experiences with the subcontractor and his proven reliability play an important role in the selection process. It shows that trust formation and establishing a reliable network

are important elements for the reduction of transaction costs, including failure risks and communication errors.

These data emphasizes the importance of the transaction costs at subcontracting. Specialised firms can deliver a quality product which the main contractor cannot or only at very high costs. The gains of specialised firms delivering quality products more and more outweigh the transaction costs so that subcontracting increases to be profitable. A steady relationship with subcontractors and suppliers, that already have acquired a reputation of reliability strongly contributes to keeping transaction costs low. In order to remain competitive it is important, however, to keep the subcontractors and suppliers "sharp" and always have a fall back option or alternative in negotiation processes. This example from the building industry shows that also at a national level, the role of procurement gains importance.

Globalisation and fragmentation of production imply that the share of the transaction costs in the total costs increases. It opens up the possibility for companies, and more in general for a country, to specialise not so much in making the own production more efficient and obtain, or retain, comparative advantages in the production process in a narrow sense, but to specialise in being a more efficient coordinator of the production process. In that case the company, or the country, obtains a comparative advantage in coordinating the production, and hence in orchestrating the value chain. These are the type of activities that characterise a trading nation such as the Netherlands (see WRR, 2003).Supply chain management (SMC) and procurement are important parts of this orchestrating function. More in general, in a trading nation, the ability to reduce transaction costs and to create value by efficient coordination can be labelled good *transaction management*. In this respect procurement can contribute much to good transaction management as, in a globalizing world with increased fragmentation, transaction costs will constitute an ever growing part of the total costs of ownership.

3. Transaction costs economics

The previous section already emphasised the vital role of transaction costs in the coordination of production in a globalizing world. A major and somewhat unresolved aspect is the definition and measurement of transaction costs. A first step would be to come to a clear classification and taxonomy of the different types of transaction costs. Trade transactions can take place as exchange of property rights between legal bodies in market transactions, but also in a more informal manner within the hierarchical organisation of a (large) company, or within a network of traders or even within a family. The literature (see, e.g., North and Wallis, 1994; North 1994) provides a first step to a classification of various types of transaction costs, but in practice the demarcation between various types of transaction costs (see Box 1), and between direct production costs and transaction costs is fuzzy. Such spilt up of total costs (at market prices) in direct production costs and transaction costs would provide insight in the relative importance of transaction costs as part of total costs. The hypothesis of this paper is that the share of transaction costs in total costs increases in a globalizing world,

and that therefore the ability to keep transaction costs low, and to obtain comparative advantages in transaction management, becomes more and more important.

The transaction costs are partly caused by formal trade barriers, such as import restrictions and tariffs. Together with transport costs these are the hard and observable part of transaction costs. However, soft and less observable transaction costs, become more important in a globalizing world where formal trade barriers gradually disappear (albeit with ups and downs). These soft transactions costs relate, amongst others, to the search for a good trading partner, the negotiating and making of the contract, control on execution of the contract and juridical sanctions if the contract is broken. Part of these soft transaction costs can be regarded as informal trade barriers. They are the consequence of differences in language and culture, lack of knowledge and insufficient trust (see e.g. Den Butter and Mosch, 2003, Linders, 2006). Probably the calculation of all of these transaction costs at macro level will show a further increase of these costs. Such rise in costs at the macro level seems paradoxically when keeping transaction costs low and reducing these costs further is seen as the strength of the Netherlands economy. However, such an outcome would imply that lower transaction costs provoke more than proportionally additional trade transactions. So the reduction of transaction costs creates additional value, which translates into a higher value added in the transaction economy.

Box 1 ***What are transaction costs?***

Transaction costs are all costs made in trade transactions, either as an exchange of property rights in a market transaction, or as an exchange of responsibilities in a hierarchical situation. In other words transaction costs can be associated with the fuss and ado that occurs when purchasing or selling goods and services, when changing the location of production and splitting up the supply chain. An entrepreneur who is able to keep his transaction costs low, will be more successful to offer an attractive product to the market, as this type of costs plays a considerable role in international trade. In principle two types of transaction costs can be distinguished: the “hard” transaction costs and the “soft” transaction costs. The hard transaction costs relate to costs that are readily perceptible and quantifiable, such as transport charges, import levies and customs authorities tariffs. The soft transaction costs are much more difficult to observe and measure. One can think of all kinds of costs of making and checking contracts, information costs, costs because of cultural differences and communication failures, tacit knowledge on legal procedures, formation of trust and reputation, network building, costs associated with risks and with rules and regulation in order to reduce risks, security requirements etc. Now that the hard costs decrease because of trade liberalisation and lowering of transport charges, the soft costs become more important. Good entrepreneurship in trade is needed to valuate these soft transaction costs

In spite of these problems of definition and measurement some attempts have been made to estimate the size of transaction costs at the macro-level. Following the methodology of North and Wallis (1986), De Vor (1994) asserted that in 1990 total transaction costs in the Netherlands economy amounted to almost 53% of GNP. It implies that more than half of value added in production in the Netherlands relates to conducting transactions. In the period 1960-1990 total transaction costs increased with about 9 %-points. This can be ascribed completely to an increase in the private sector. According to De Vor’s

measurement transaction costs in the private sector are (in 1990) over 5 times higher than in the public sector. Van Dalen and Van Vuuren (2005) measure by means of occupational data that in the Netherlands approximately 25% of workers is employed in transaction jobs, and 29% if one includes transport tasks. However, these occupational data do not take into account time spent on coordination by production workers. Klamer and McCloskey (1995) note that one quarter of the GDP is related to persuasion, i.e. talks to make "real production" possible. In their survey on "trade costs", Anderson and Van Wincoop (2004) illustrate the size of these trade costs by means of the tax equivalent of these costs: what would be the tax tariff on direct production costs if all trade costs where regarded as taxes – from a theoretical point of view trade costs have the same distortional effects on production as taxes. Anderson and Van Wincoop have a rather broad definition of trade costs so that it comprises most of the transaction costs discussed earlier in this section. Their main finding is that trade costs are large and variable. The example of the Barby doll, as discussed in Feenstra (1998), illustrates these large costs. The direct production costs of the doll are $1, but they are sold in the US for about 10$. So the costs of transportation, marketing, wholesaling and retailing have an *ad valorem* tax equivalent of 900%. In their own (rough) calculations Anderson and Van Wincoop arrive at an estimate of the tax equivalent of "representative" trade costs for industrialized countries of 170%. The number breaks down as follows: 21% transportation costs, 44% border related trade barriers and 55% retail and wholesale distribution costs (2.7 = 1.21*1.44*1.55). Anderson and Van Wincoop argue that further evidence on the importance of trade costs should be obtained by using microeconomic founded gravity equations.

The theory of transaction costs economics (see e.g. Williamson, 1998) provides more insights in the role of transaction costs for the working of the economy. It illustrates the relevance of transaction costs for understanding several of the empirical phenomena that are impossible to understand without relying on such costs. The theory centres around four areas of research in which transaction costs are dominant, viz. (i) industrial organization with a focus on the determinants of the boundaries of the firm (the Coasian theory discussed above) , (ii) international trade with a focus on the multiple dimensions of transaction costs distinguishing between transport costs, institutional costs and cultural costs of exchange (iii) foreign direct investments with a focus on outsourcing and the organization of the firm in a globalizing world, and (iv) networks with a focus on the role of social and regional networks, and on standards as institutionalized settings that facilitate exchange of goods, ideas, etc.

Institutions play a major role in transaction costs economics. Different institutions may bring about different types of transaction costs. A major example is whether transactions take place according to formal or informal contracts. Although globalisation brings about some convergence of institutions, or to formulate it more specifically, some dominance in Anglo-Saxon trade institutions, cultural, legal and social differences between the various countries and regions of the world will remain. Knowledge of, and feeling for these differences is of utmost importance for keeping transaction costs low in international trade relationships. The traditional position of the Netherlands as a trading

nation is that of a meeting place for these different ways of trading. Therefore openness to these differences, and the possibility to establish links between the various institutions of trading, should be a major focus for a trading nation, and for the skills of the professionals that are needed in such nation. The same applies for companies that operate in the global economy. When a company is really involved in world wide sourcing, it should balance between the Anglo-Saxon, the European continental (Rhineland), the Middle Eastern and the Asian ways of trading. Each of these ways of trading requires specific knowledge on how to keep transaction costs low.

Transaction cost economics provides us with further insights into the welfare enhancing effects of specialization, but also to the limits of the extent of specialization (Williamson, 1998). The way in which transactions are organized is endogenous according to the transaction costs theory. Alternative modes of organization imply different transaction costs. Transaction cost economics sees a trade off between transaction costs and efficiency of production. If a transaction is simple and transparent, the market is well-equipped to facilitate the transaction. But when transactions get more complicated and other issues become more important (e.g. because of sunk costs or intellectual property rights), more complex contracts have to be designed and enforced.

Consequently, the transaction costs will rise. At a certain moment, transaction costs will be so high that it will be more efficient to internalize different production stages in a single firm. This will reduce transaction costs because there no longer is a need to formulate and enforce complicated contracts. But, meanwhile, internalizing production will lead to less efficiency, because hierarchical structures provide less powerful incentives than markets. The choice for a certain mode of organization thus depends on the characteristics of the transaction and the institutional environment. In the extreme case, when public interests enter the arena, transaction costs can lead to regulation or even a public bureau (Williamson, 1998, p. 47).

The influence of transaction costs on the organization of firms also relates to the way innovations enhance firm productivity, and hence to innovation policy. As argued above, the production costs of goods and services in a production chain can be split up between direct production costs and transaction costs. Direct production costs relate to production within parts of the production chain, whereas transaction costs relate to costs involved in linking the various parts of the chain. In the traditional organisation of a firm from the industrial sector, the production chain consists of relatively few parts so that transaction costs are relatively moderate. In that case it is most profitable to enhance the efficiency of production by a reduction of direct production costs within the parts of the production chain. In such situation innovations (e.g. through R&D) should be directed at making the production process itself more efficient. However, in the situation of a firm with global activities the production chain is split-up in many parts. Here the transaction costs of linking the various parts, either through outsourcing and subcontracting production tasks or through dividing production tasks over various plants on different locations in the world, transaction costs become relatively important. Now efficiency of production can be enhanced by focussing innovations (and R&D) on a reduction of transaction costs. It

illustrates how innovations in trade can contribute to productivity increases and to preserve comparative advantages in transaction management. It also shows the importance of innovations in procurement.

4. Outsourcing and FDI: the "make or buy" and location decision

As argued in the previous sections a major and recently much discussed question in the globalizing world is whether to produce at home or move (parts of the) production abroad. Together with the make-or-buy decision, this location decision leads to the following possibilities:

(i) production at home: internalised production in the home country;
(ii) subcontracting (or outsourcing) at home: externalised production in the home country;
(iii) offshoring: internalised production abroad; part of foreign direct investments (FDI);
(iv) offshore outsourcing: externalised production abroad.

In a more general sense the term outsourcing is used for all kinds of moving production to other places. Then it relates to existing jobs and production activities whereas the term *global sourcing* is used in case of new jobs and production activities (job creation). Obviously all of these decision problems are very much connected with procurement

In order to illustrate various aspects of outsourcing, consider a two-stage production process, with the second stage executed in the home country. If the first stage of production is internalized in the home country, this leads to a domestic firm. If the first stage is outsourced, either to a domestic or to a foreign producer, this leads simply to a business purchasing its inputs. The only difference between buying from a domestic firm and a foreign firm is that the former does not and the latter does lead to international trade. Another option is to have the first stage produced abroad by a foreign affiliate. This leads to a *vertical multinational enterprise (MNE).* The establishment of a vertical MNE involves an initial investment in a foreign country, followed by exports to the home country.

Offshoring will be more attractive when the foreign location advantages are big, international trading costs low and (in the case of intra-firm offshoring) there are few restrictions on international investment. Outsourcing will become more attractive if the efficiency advantages of outsourcing are big, transaction costs low and internalization advantages small.

Now, consider the case where the company has the option to start serving foreign demand as well. The company may decide to refrain from serving the foreign market, which would not change anything. If the company possesses some ownership advantages and decides to serve the foreign market, it has three options. The first is to produce domestically and export the final goods. The second is to supply licenses to a foreign company, which will produce the goods and will serve the foreign market. The

last option is to open a foreign plant that produces for the local market. This is called a *horizontal MNE*.

Exporting will be attractive when there are economies of scale (at the plant level) and the transaction costs of exporting are low. Licensing is the option when the transaction costs of licensing are relatively low in comparison with those of exporting and economies of scale are rather present at the firm level than at the plant level. When licensing is hard (e.g. because it involves the transmission of sensitive firm specific knowledge) and the transaction costs of exporting are high, opening a foreign plant becomes an attractive option (Visser, 2005, p. 6).

It is important to realize that the second case, where the company starts serving a foreign market, differs in one aspect from the case of serving the domestic market only. In the case of the, earlier mentioned, vertical MNE exports and international investment are complements. In the second case, by contrast, a horizontal MNE is an alternative to exports. Therefore, the two are substitutes in that case. This difference is a central issue in the literature on MNEs (e.g. Yeaple, 2003 and Markusen and Maskus, 2001) and springs from the type of location advantages of the foreign affiliate.

If a foreign affiliate is set up to avoid international trading costs, it will lead to a horizontal MNE (which produces the same good in different countries). This interpretation of MNE motivation is in the literature referred to as the proximity-concentration hypothesis (Markusen and Maskus, 2001, p. 29). When it is set up for production efficiency reasons (defying international trade costs), it will lead to a vertical MNE. This kind of motivation for multinational activity is called the factor-proportions hypothesis (Markusen and Maskus, 2001, p. 29).

Obviously, vertical and horizontal MNEs are ideal types. In practice, most MNEs are simultaneously horizontal and vertical. Yeaple (2003) terms these MNEs complex MNEs. These complex MNEs are the businesses best capable and most likely to engage in "global sourcing". This is the process of deciding for every single business process whether to outsource it and whether to offshore it.

The possible gains from international coordination can be illustrated with the help of the simple accounting model of a company that first produces a product itself but then decides to specialize in coordinating the import (or more generally: the production elsewhere) of that good.

$$NG = M \times p(M) - T(M) - C(M) \qquad (1)$$

where:
NG stands for the net gain for the company when it decides to give up producing and to start coordinating production,
M for the number of imported (or offshored goods),
p for the sales price of the product,

T for the that transaction costs that offshoring induces,
C for the total production costs.

Now, consider the following stylized case. A company that produces a final product decides to stop producing the product and to import it from abroad. In the initial situation it employed 100 workers to produce 100 final products. In the new situation 400 products can be bought abroad for half the price (200) on the condition that all 100 workers of the firm stay employed to coordinate the transaction (they represent all transaction costs). So we assume no net job losses or gains in the home country. If the sales price of the final product is not expected to change (let us say it remains constant at p = 1), the total revenue of outsourcing (i.e. $M \times p$) is 400. The transaction costs (T, valued on the basis of opportunity costs) are 100. Since the costs of production abroad are 200, the net gain (NG) is 100 (i.e. $400 - 100 - 200 = 100$). Productivity statistics would in this case indicate that the productivity of the company's workers has doubled, since the company of hundred workers first had an added value of a hundred, which grew to two hundred. Such a productivity growth is probably a lot harder to achieve with an improvement in the production technology. It also illustrates how productivity increases which are in the statistics allocated to industry and the production sector, can in fact be generated through a reduction of transaction costs

Of course the case above only aims to illustrate which decisions are to be made, and what mechanisms are at work in the "make or buy" and location choices. In practice it is a dynamic decision problem where all elements of the problem should be modelled in a more sophisticated way. Yet, at least the case shows that, in the short run, considerable efficiency gains can be achieved with performing the coordination function, whereas, by assumption there is no loss of jobs associated with the outsourcing in the home country. The implicit assumption of the numerical example is that in the country of outsourcing, employment increases. With how much depends on the relative productivity of the workers in that country.

From a more general perspective this accounting exercise shows that there are 3 major factors that govern the "make or buy" and location decisions. First of all, the net gain depends on the relative costs of producing abroad (depending on C). The lower unit production costs abroad, the more attractive it becomes to perform the coordination function. Conversely, outsourcing also becomes more attractive when unit production costs (e.g. real wage costs corrected for productivity increases) at home are rising faster than abroad. Of course, in reality the strategic decision to outsource – and where to produce – should be based on dynamic expectations of these relative prices. Higher expected domestic production prices, e.g. because of a fall in labour capacity, should be anticipated in the decision to outsource, but on the other hand, expectations of wage increases and production price rises abroad should call for cautious decisions with respect to outsourcing. Obviously exchange rate expectations also play a role in this respect.

The second and, from the perspective of this paper, most important parameter is the transaction costs (i.e. T). The lower the costs are, the bigger the efficiency gain is. In this way, the ability and knowledge to reduce transaction costs by profitable "make or buy" and location decisions can be regarded as trade innovations which enhance productivity in a similar manner as innovations in the production process. Given production costs at home and abroad, the numerical example above assumes that transaction costs have fallen from at least half of the production price at home to one quarter. Such a change in transaction costs makes outsourcing profitable, at least when we assume that wages of the domestic workers remain the same and when we disregard the costs of substituting (or schooling) the production personnel to personnel engaged in transactions and in orchestrating the production. As a matter of fact these replacement or schooling costs are part of the transaction costs and constitute, together with other transition costs, an important element in the dynamic cost and benefit analysis of outsourcing.

This is an aspect which requires more sophisticated modelling from the perspective of labour market developments. The transition from production workers to workers with good coordination skills will bring about considerable labour market dynamics and requires a proactive education policy with respect to skills needed in the new situation. There is destruction of production jobs and creation of transaction and coordination jobs. The net employment effect will depend on the (relative) productivity in the coordination function and on product demand. In a long run equilibrium at the labour market the situation will hold where relative wage differentials between production and "transaction" workers reflect relative productivity levels. A reduction of transaction costs other than through personal skills of transaction workers may enhance the proportion of transaction workers in total employment. Hanson (2001) discusses the consequences of such changes in relative wages due to outsourcing and provides examples of changes in production structure resulting from the trade between the US and Mexico, and from Hong Kong's role in intermediating China's exports.

Of course, a dynamic cost and benefit analysis of outsourcing should not only be conducted in order to determine whether to outsource or not. The analysis should also look at various expected transaction costs in the selection of the location and in the decision to "make or to buy". Here the analysis of the various risks is an essential part of the cost/benefit analysis. Sometimes it can be preferable to make use of local suppliers, even when the transaction costs to guarantee the warranted quality of the outsourced production or tasks will be higher than when production at location was done in a plant owned by the mother company (FDI). Such choice for local suppliers can be justified when the expected transaction costs of setting up a plant owned by the mother company - compliance with local cultures and laws – outweigh the additional transaction costs of letting local producers comply the warranted quality standards. Taking these different transaction costs into consideration is an essential part of modern procurement. In this vein Visser and Lambooy (2004) assess the importance of transaction cost economics for analysing location decisions of logistic service firms.

The third factor that influences the efficiency gain is the sales price (i.e. p). Of course, especially in the long run, the sales price is not fixed, but will change as a consequence of the increased supply of the product. It especially happens when competitors embark on producing abroad too. The price changes will depend on the characteristics of the product market. If there is perfect competition, the efficiency gains will lower the price of the product until all gains for companies are zero (i.e. $NG = 0$). In this equilibrium at the product market, the entire efficiency gain will be converted into consumer surplus. Without perfect competition part of the gain from outsourcing will be kept by the producer so that it leads to higher profits.

5. Procurement, globalisation and transaction costs: discussion in a matrix

The foregoing discussion emphasises the importance of the concept of transaction costs for procurement in the globalizing world economy where supply chains are split up in more and more parts. The types of transaction costs that play a role in procurement depend much on how procurement is defined and what aspects are included in the decisions to purchase. The Wikipedia definition of the introduction provides a rather broad definition of procurement. In his inaugural lecture Wynstra (2006) collected a number of definitions of his discipline of purchasing and supply management which is very much related to procurement. He mentions:
"The decision making process by which formal organisations establish the need for purchased products and services, and identify, evaluate and choose among alternative brands and suppliers" (Webster and Wind,1972)
"Obtaining from external sources all goods and services which are necessary for running, maintaining and managing the company's primary and support activities at the most favourable conditions" (Van Weele, 1994)
"Managing the external resources of the firm, aimed at acquiring inputs at the most favourable conditions" (own definition by Wynstra c.s.)

A common element of these definitions is that they describe procurement (or purchasing and supply management) as a decision process where, in a very broad and dynamic sense, total costs for the firm (or formal organisation – it means including non profit organisations and governments) are minimised. Moreover, procurement seems to be restricted to purchase from suppliers at the market, so that it does not include the "make or buy" decision. In general the total costs for the firm or institution are labelled as total costs of ownership (TCO). TCO can be split up in direct costs of purchase – the price paid to the supplier - and several types of transaction costs. Minimizing TCO implies that not always the supplier with the lowest direct costs will be selected. A supplier with higher direct costs is to be preferred when this higher price is matched by a larger reduction of transaction costs. Both the direct costs, e.g. in case of licensing, and the transaction costs include an element of discounted future costs. They comprise not only the costs made up to the moment of purchase and the exchange of property rights (or right to use), but also expected future costs. Moreover, the split up of TCO between direct costs of purchase and transaction costs can be somewhat arbitrary, e.g. in the case of maintenance costs and costs of repair. Yet, the major contribution of the concept of

transaction costs to procurement is that it enhances the awareness of which costs to include in TCO. It provides a clue of which costs to consider in the selection of a supplier. However, again there is a measurement problem: some types of transaction costs to be included in TCO are hard to quantify.

The procurement life cycle in modern businesses can be described in seven stages (see e.g. Archer and Yuan, 2000): (i) information gathering; (ii) supplier contact; (iii) background review; (iv) negotiation; (i) fulfillment; (vi) consumption, maintenance and disposal; (vii) renewal. These stages can be regarded as a more detailed description of the three stages distinguished in a trade transaction: (a) contact, (b) contract and (c) control. All three stages bring about transaction costs (see Den Butter and Mosch, 2003). In the *contact* phase of a potential transaction, the buyer is looking for information about his preferred product (price and quality), potential suppliers, or, when the product does not yet exist, which producer could invent and/or produce it for him. The seller is trying to find a buyer for his product through marketing activities. Here transaction costs are mainly search and information costs. The *contract* phase starts directly after the moment the potential trading partners have found each other and are inclined to make a deal. Here transaction costs are made in negotiating the terms of the contract. Parties have to decide on how to make a reasonable slit-up of the expected rents of the transaction and what to write down in the contract. The phase of *control* consists of the monitoring and enforcement of the contract. Both involve high transaction costs, especially at large distances. Monitoring means that business partners check whether the other party is doing what he promised to do. If the check turns out that this is not the case, the next step is enforcement of the contract. The most common solution for enforcement is to start a legal procedure. Especially in international trading relationships, this is often a troublesome affair. It takes time and money in large quantities and foreigners often feel being mistreated by prejudiced national courts when they file a claim against a national company.

It should be noted that Gebauer et al. (1998) use an alternative wording for these three phases in the case of procurement, namely information, negotiation and settlement An important difference between the costs made in the contact (or information) phase and in the other two phases is that contact or information costs are sunk costs which are to be made anyhow, even if no trade relationship results. These costs compare to search costs in labour contracts, which give an option value to successful matches, but which also require negotiation on the distribution between the partners of the proceeds of these matches, or contracts in trade relationships.

In the seven stages in the life cycle of procurement the following transaction costs may play a role:

(i) *Information gathering*: If the potential customer does not already have an established relationship with sales/ marketing functions of suppliers of needed products and services it is necessary to search for suppliers who can

satisfy the requirements. These are similar search and information costs as in the contact phase described above.

(ii) *Supplier contact*: When one or more suitable suppliers have been identified, requests for proposals or tenders may be advertised, or direct contact may be made with the suppliers. In this stage transaction costs mainly relate to the costs of establishing contacts and on deciding which information to provide. The building up of trust between the partners, in case this is a first transaction, is a major cost factor in this stage

(iii) *Background review*: In this stage references for product/service quality are consulted, and any requirements for follow-up services including installation, maintenance and warranty are investigated. In this stage transaction costs comprise information costs, costs of considering technical specifications of the products or services and the network costs of finding reliable references

(iv) *Negotiation*: In this stage negotiations are undertaken, and price, availability, and customization possibilities are established. Delivery schedules are negotiated, and a contract to acquire the product and services is completed. Transaction costs in this stage comprise negotiation costs and the (legal) costs of writing a contract. These transaction costs compare with the transaction costs of the contract phase described above.

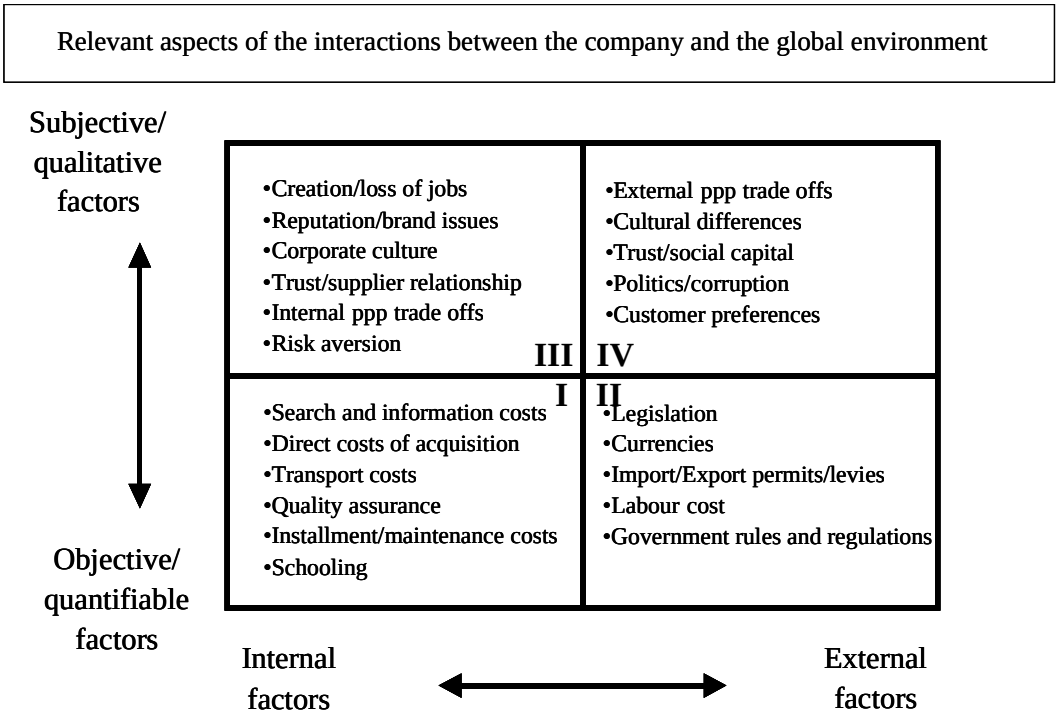
(v) *Fulfillment*: In this stage supplier preparation, shipment, delivery, and payment for the products or services are completed. Installation and training may also be included. The transaction cost in this stage relate to some of the "hard" transaction costs described in Box 1.

(vi) *Consumption, maintenance and disposal*: During this phase the company evaluates the performance of the products or services and any accompanying service support, as they are used. The transaction costs are part of the costs of control discussed above.

(vii) *Renewal*: When the contract of the supply of products or services expires, and the question is whether the contract should be renewed, the experience of the company with the products or services is evaluated. Transaction costs in this stage are evaluation costs. Now the choice to be made in the procurement process is whether to consider other suppliers or to continue with the same supplier. The former case brings about new search costs and implies the start of a new life cycle of procurement.

The influence of globalisation on total costs of ownership in procurement, and on the role of transaction costs therein is summarized in the matrix of figure 1. The figure shows a split up in four blocks where the subject of globalisation is addressed along two main directions. Here possible sources of transaction costs, or more broadly, welfare costs, are considered to stem, on the one hand, from objective and quantifiable factors, or from subjective factors that are not easily quantifiable. The latter are the soft issues for which transaction costs can only be determined in a qualitative sense. On the other hand there is a split up between internal factors, i.e. issues that specifically affect the firm at the micro level, and external factors which are generic issues of globalisation.

Figure 1 Transaction costs related issues of procurement and globalisation in a 2x2 matrix



Obviously the demarcation between these issues is rather fuzzy. Governance, legal issues, export controls and taxation are topics that have a direct effect on the transaction costs of a firm. The generic aspect of it is that these issues cannot be solely determined by the firm itself but that they are, to a certain extent, exogenous conditions for a firm when making optimal procurement decisions. On the other hand offshoring and (out)sourcing decisions of firms, that are solely made on the judgement of various expected transaction costs by the firm as described in the previous section, may bring about external effects that have consequences for the rest of the world (e.g. employment and changes in economic structure). These external effects – externalities in economic theory – play a major role in the subjective or "soft" issues mentioned in quadrants III and IV of the matrix. The following section discusses these issues further. As a matter of fact, some of the objective or "technical" issues of quadrants I and II do not only bring about "hard" and easily measurable transaction costs. The discussion above shows that e.g. quality assurance, supplier selection and qualification, but also legal issues (see Den Butter and Mosch, 2003) and protection of intellectual property rights bring about transaction costs which are difficult to quantify and can, for that reason, be characterised as "soft:". Therefore, to some extent they should also be located in quadrants III and IV of the figure.

6. Ethics and rational behaviour in the PPP trade-offs

Some of the issues in quadrants III and IV of figure 1 relate to ethical and societal aspects of firm behaviour in procurement. From the broad perspective of welfare economics two problems are relevant in this respect, namely income (re)*distribution* associated with equity issues, and *external effects*.

The issue of distribution has the broadest scope. It plays a role at the national level and, in the discussions on the effects of globalisation, at a world wide level. Distribution is a core element in welfare analysis: it is the *trade-off between equity and efficiency* which is fundamental in economic discussions on political decision making. More equity, i.e. a more equal distribution of income or wealth, will, according to most economic analysis, be obtained at the cost of less efficiency, e.g. less economic growth. The relative weights in the social welfare function, i.e. the "price" in terms of less economic growth that a nation (society) is willing to pay for more equity, are determined by political preferences, and are considered to be exogenously given for economic welfare analysis. A similar trade-off exists between the triple P aspects: profit, people and planet. More attention in the decisions of governments (or firms) for the planet, i.e. environmental aspects, may imply less profits (or economic growth), especially on the short run. A similar trade-off holds true for the choice between profit and people. Here people symbolizes a generous social security system at the macro level (quadrant IV) and a friendly personnel policy at the firm level (quadrant III) where the interests of the workers carry a large weight. Issues of (re)distribution, which stem from the equity efficiency trade-off are essentially the responsibility of the government. Political discussions on how to influence the purchasing power for various types of households are a consequence of this responsibility. The responsibility for the triple P trade-offs are less clear cut. Although it is sometimes regarded as a social responsibility of business to take the triple P aspects into account, in essence it is also the responsibility of the government to guarantee a healthy environment and a good social climate, which may go at the cost of some of the profitability of the business sector.

An important aspect of this issue of (re)distribution is the discussion on the alleged positive and negative aspects of globalisation, i.e. the further fragmentation of production and specialisation of labour, for the distribution of income and wealth in the world[1]. The two following quotes indicate that there are huge differences of opinions.

"Globalisation has dramatically increased inequality between and within nations…"
(Jay Mazur, Labor's new internationalism, *Foreign Affairs*, Jan/Feb 2000)

"We have to reaffirm unambiguously that open markets are the best engine we know of to lift living standards and build shared prosperity"
(Bill Clinton, Speech at the *World Economic Forum*, 2000)

These are opinions from the political arena, but also amongst economic experts there are, to say the least, shades of differences with respect to the effects of globalisation on

[1] This discussion benefited from a bachelor's thesis by Bart van Ooy

world income distribution. Here the discussion is between those with a pessimistic and those with an optimistic view. There is some consensus that in the long run trade, and openness to trade, will enhance world wide welfare. The question whether such welfare increases will go along with more, or less income inequality is more open to debate. Part of the optimistic view on the effects of globalisation is based on empirical studies of Dollar and Kraay. Dollar and Kraay (2002) show that there is a positive link between increasing trade and economic growth. As they also found empirical evidence that there is a one-to-one relationship between growth and poverty alleviation, they conclude that trade is good for growth and growth is good for the poor. In Dollar and Kraay (2004) they conclude that the evidence from individual cases and from cross-country analysis supports the view that open trade regimes lead to faster growth and poverty reduction in poor countries.

This pro-globalisation empirical evidence has also met some criticism, which was confirmative for the more pessimistic view. Lindert and Williamson (2001) show that the majority of the liberalizing Latin American countries, Eastern Europe and the Philippines have seen an increase in wage inequality due to more openness for trade. There are several explanations for the differences between this empirical evidence and standard theory that trade enhances welfare in all respects. First of all trade liberalization often went together with opening of the capital account, which tends to raise the real exchange rate. When this happened trade liberalization shifted the demand more towards imports and so encouraging the producers of traded goods to take cost-cutting measures, like restructuring production, which reduce the absorption of unskilled-labour and so raise income inequality. Also more pressure arises on relaxing legislation on minimum wages and collective bargaining, changing the factor distribution (Taylor, 2004). Another explanation has to do with the problems that occur in low-income countries which have specialized in the export of primary commodities. There have been large price shocks and declining terms of trade in the last two decades that seriously hurt these countries. Their earnings and trade to GDP ratio decreased despite the trade liberalization and depreciation of the real exchange rate. Also structural rigidities and governance problems that hindered the reallocation of resources towards the export sector typified these countries, the impact of this is unclear for inequality but for poverty it is definitely unfavourable (Bridsall and Hamoudi 2002). Also the protectionism by OECD countries was a problem for the countries that exported goods that competed with Northern goods. This all led to a fall in employment and earnings in the import-substituting sector without a raise in jobs in the exported orientated sector due to trade liberalization in these countries.

A major proponent of the optimistic view is Bhagwati. In Bhagwati (2007) he argues that more openness benefits developing countries more than autarky, as no evidence for sustainable economic growth going together with autarky can be found. Countries that have seen a continuous economic growth also show a continuous increase in trade. An interesting argument relates to the social impact that globalisation can have on the wage differential between men and women. In case of harsh international competition firms are more reluctant to pay men more than equally qualified women. So, in traded

industries, the wage differential is closing faster than in non-traded industries. Moreover, according to Bhahwati globalisation might actually decrease child labour instead of increasing it, as is often claimed. Knowing that the returns on primary education are high, but that through credit-constraints it is often not possible for parents to borrow money to send their children to school, the increase in income through globalisation will give the incentive for parents to send more children to school, instead of sending them to low-wage jobs. With this argument Bhagwati shows that globalisation actually can have a human face, instead of the often claimed inhumanity of globalisation. Anyhow, in the trend of world wide globalisation, individual countries have to make a choice between openness and autarky. Then the choice for openness is the best one. However, within the choice of openness the political and economic difficulties that may come about in the transition from one system to another have to be taken into account: the transition to freer trade, and working with an open economy, require political and institutional support.

Each country has to find its own way in this reform of political and economic institutions. In this respect Stiglitz (2002), who holds a somewhat more pessimistic view on the effects of globalisation, argues that foreign direct investments (FDI) bring not only access to capital, but also to markets and technology, which is positive. However, this opening up for FDI often also means opening up for short term financial capital, which exposes a country to major instability. The case of China shows that such instability can be avoided. China has done a great job in attracting FDI, without being exposed to instability caused by short term financial capital. Another reason why China has been so successful in creating economic growth is that they have chosen to do it in their own way, not under the influence of the rich West. They opened up gradually; by almost only export orientation and not opening up for import that much. The same goes for Chile, which also created its own set of rules when opening up for trade. It did not fully follow the IMF and World Bank guidelines, known as the Washington Consensus, but shaped their institutions in a way that was most profitable for Chile itself.

This discussion on effects of globalisation on world wide welfare and income distribution goes far beyond the scope of individual strategic decisions by firms. In this respect the discussion on external effects is more relevant. These externalities relate to decisions of firms which bring about positive or negative effects for others which are not taken into account by these individual firms. A well known example of a negative externality is environmental damage, and of a positive externality the use of knowledge by others than those that invested in acquiring that knowledge. In principal it is the government that has to repair the market failures that the externalities bring about. The government can internalise external effects e.g. by imposing taxes for the use of the environment, or by subsidizing R&D. However, such policy measures to repair market failures can bring about rather high implementation costs, which have the character of transaction costs. Examples are the bonding and monitoring costs in the principal agent situation when firms or citizens have to comply with government regulation. Such government regulation evokes costly extrinsic motivation to obey the rules. Transaction costs would be much lower when firms or citizens would be intrinsically motivated to

internalise externalities. Keeping or regaining such intrinsic motivation to comply with rules and regulations, and to avoid decisions which are harmful to society, should, from the perspective of ethical economics, be a major behavioural lead in socially responsible business conduct. To take into consideration the societal effects of business decisions where the decision making process goes beyond merely maximising profits or minimizing costs for the firm can be regarded as an economic virtue in business conduct (see Den Butter, 2007a).

However, given the reasoning from transaction cost economics, it is very difficult to separate this ethical business behaviour from rational behaviour for the own interest of the firm. Reckoning with environmental issues of sustainability, or creating a good social climate and working conditions for the workforce may bring about additional transaction costs on the short run, but on the long run such behaviour may large reductions of transaction costs. Through such seemingly correct socially responsible business conduct costs stemming from adverse public opinion formation or shirking of workers can be avoided. Obviously judgements on the sizes and relative importance of these transaction costs are difficult to make, as different corporate policies between e.g. Shell and Exxon with respect to environmental issues show.

Given the postulate of rationality in economics it is an intriguing question why firms should engage in genuine altruistic behaviour towards society. Assuming rational behaviour, Graafland. and Mazereeuw Van der Duyn Schouten (2007) conducted a survey amongst 20 Dutch business executives about the influence of their eschatological believes on socially responsible business conduct. By extending the personal utility functions of business executives with three elements, namely the probability to enter heaven (rather than hell), utility in the heavenly state and utility in the hellish state, they tried to measure to what extent their decisions and ethical behaviour were driven by these motives. Their results from the empirical analysis were somewhat mixed. They found no relationship between socially responsible business conduct and the believe that good works influence the eternal destination. Yet in a partial correlation a significant positive result was obtained for those executives who believe that good works influence the heavenly utility and their socially responsible business conduct. All in all it seems that the extension of rational behaviour to include eschatological believes provides some further explanation of ethical conduct of businesses, but that the additional explanatory power is limited.

A major element in the relation between globalisation and procurement, that is mentioned both in quadrant III and in quadrant IV of figure 1, is *trust*. On the one hand trust formation and building up the reputation of a reliable partner in trade can involve transaction costs, but on the other hand, when trust between suppliers and clients is established, it can considerably reduce the transaction costs of procurement (quadrant III). Hunt (2004) describes how a bond of trust may permit an implicit quid pro quo to substitute for a bribe. From a societal point of view this reduces corruption, but bribes may also be costly in procurement, not so much because of the direct amounts of money

to be paid, but more so because of the negative consequences that bribing may have on public opinion.

Building trust and trustworthy behaviour of firms can also be beneficial to society as a whole (quadrant IV). In other words, trustworthy behaviour brings about positive externalities. On the other hand, loss of trust and reputation will not only involve high transaction costs for the firm itself but also for society as a whole. An example is the case of Enron, which, according to McAffee (2004), could like banks, be considered as a market maker. Its largest business was in natural gas contracts, where it created a long-term natural gas market by offering to buy or sell long term natural gas contracts. Trust is a major asset of such market makers. When Enron revealed $1.2 billion in hidden debt, which represented the visible portion of something over $ 8 billion of hidden debt, in a matter of months Enron's revenues went from over $100 billion per year to nearly zero. Enron collapsed while other firms with questionable accounting survived, because Enron's operations where completely dependent on being trusted by its clients. Obviously this loss of trust was not only harmful to Enron itself, but caused a loss of trust and therefore higher transaction costs in the whole business community. In this respect the rational behaviour of a firm to be and remain trustworthy can also be seen as socially responsible business behaviour.

7. Conclusions

The Netherlands economy can be characterised as a transactions economy (Den Butter, 2007b). In a globalising world, with increased specialisation and trade and where the production chain is split up in many parts, the challenges of a transaction economy are in keeping transaction costs low. Further innovations in trade and in orchestrating the value chain will bring comparative advantages in coordinating production. It also requires good skills and entrepreneurship in "make or buy" and location decisions in sourcing. Through these developments globalisation can bring new challenges for procurement. Here transaction costs as part of total costs of ownership become more and more important. Therefore a good insight in the various forms of transaction costs and in the working of the mechanisms of transaction cost economics is needed (see also Bajari and Tadelis,.2001). Ethical aspects of firm behaviour play a role in a globalising role, but socially responsible business conduct can, to a large extent, be explained from rational behaviour to keep transaction costs low in the long run.

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