Transitory profits during offshoring: a dynamic model*

Preliminary version

Michael Osterwald-Lenum†

Abstract

Models of offshoring most often exhibit predictable profits of negligible size, as competition is assumed or expected to squeeze average turnover to match the costs of offshoring. Following up on this author’s presentation at ETSG2013, which made a strong call for a credible model with massive profits to be developed, this paper presents the first version of such a model of a firm for which there are expected transitory profits (from offshoring) of such a substantial scale and persistence, for offshoring to be very attractive at the firm level, and under certain, realistic circumstances to have major macroeconomic effects - apparently of relevance to the understanding of some deeper causes of the Great global recession, which this author proposed at ESAM2011.

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† Work address: Statistics Denmark, Division of Economic Models, Sejrogade 11, DK-2100 Copenhagen Ø, Denmark. Email: MOL@dst.dk.
1 Introduction

Do we think there may be above normal profits during offshoring? Perhaps the following quote sums up a general expectation of most, if not all, economists.

"Rent can be defined as a return in excess of a resource owner's opportunity cost. Such (quasi) rents can arise naturally in competitive markets and are in fact what motivate the 'perennial gale of creative destruction.' Such 'profit-seeking' activities of entrepreneurs improve welfare through creation of new products, markets, processes, and organizational forms. However, such rents are only temporary as further competition will eliminate them in due course." Rajagopalan (1996) [35]

The research of the present author on offshoring is concerned with the scale and persistence of this rent, or above normal profits. The motivation arose in searching for a relatively simple explanation of the deeper causes of the Great recession, which has swept the economies of a large part of the major, advanced capitalist economies. The author’s first attempt at such a simple explanation was presented at ESAM in 2011, [33], and later that year in Birmingham, [32].

The author’s first quantification of the scale and persistence of the above normal profits during offshoring was given at ETSG2013 in Birmingham [34], with a presentation which tried to make a loud call for a model with substantial (above normal) profits to be what we need.

It is the ambition in this paper to present some of the ideas which I have found useful in thinking about such a model. Though I aspire to present the eventual model in a formalized way that has been too ambitious for now.

Here I present in chapter 2 the elements of a model with those properties, i.e. a dynamical model of the situation and choices of such a firm.

Focus is also on some of the reasons why economic rent, or above normal profits, may be sustainable and not very quickly competed away. Those reasons seem to depend on the specifics of the products considered and their makers’ market conditions (competitive pressures).

Moving from the micro level of individual firms’ behaviour to the meso level of industries and the macro level of entire economies, under what conditions would such a micro phenomenon as offshoring have noticeable consequences? Chapter 3 discusses those issues.

What would it take to be able to pick up the facts and find the (implied) chain-of-events relationships? Chapter 4 presents some suggestions.

Finally conclusions are drawn in chapter 5, and suggestions of further research are given in chapter 6.

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1 The quote is meant to apply generally, and applies maybe also to offshoring?
2 Which data do we need, and which theoretical structures do we need to develop?
2. Sketch of a simple model

A firm is a cluster of activities organized as projects, some of which involve producing some products in country W. With the opening up of a large mostly undeveloped country C the firm eyes the opportunity of lower labor costs if production is moved to C from W.

The firm only reports profits for the firm as a whole. This fact enables the management to have extensive influence over the activities which the firm engages in, by financing some projects from the cash-flow provided by other projects.

< the example from ETSG2013 is a stepping stone!! >

2.1 A model of the situation of a firm

2.1.1 Normal flow of projects

Improvements in firms may take many forms, here we think of them as organized as projects. A short suggestive list follows.

1. product development
2. production process improvements
3. marketing development
4. logistics improvements (products’ multiplication)
5. sourcing of materials, components and spareparts

Many projects exist and are executed in parallel. Variable cost reductions may be within a range of a few percent to maybe twenty, usually at the expense of a higher capital cost, so average costs fall not quite as much.

2.1.2 The C-offshoring project

Considering where to locate the production of components and the assembly of products and the full location and logistics of flows between production facilities are reevaluated to ensure that many opportunities are not missed while not ignoring risks and other uncertainties. These considerations usually include locations where sales are also substantial, so the distance from production to market is not excessive.

Locating production where sales are very low or nonexistent is a risky bet. It has a premise that the company is so experienced at recruiting labor with the right potential, and at training it to be able to perform the tasks which fit with the established production process and capital goods used in it. This

\[3\text{ For each project the following factors play an important role in the go-ahead decision: 1) ex ante expectations of profit, 2) uncertainty about reliability, 3) learning process about productivity, and 4) ex post experience of actual profits.}\]
way making sure that the productivity in the facility is sufficiently high for the current wage to be a
(productivity corrected) bargain.

Examples: VW(?), Toyota, Foxconn[4]

Only experience of successful prior projects may help management form realistic expectations of expected costs of all kinds. “Big-C”-offshoring came with many uncertainties. For different products the recognition of feasibility and low (actual) costs (of C-offshoring) probably came at different times during the late 1990ies and early 2000’s[5]. At this time the prospect of (at least) a quadrupling[6] of profits looked tempting!

2.1.3 To offshore or not to offshore...

{equation from Feenstra’s lectures on offshoring, from Grossman & Rossi-Hansberg on task trading or from Industrial Org.?}

{ the conditions under which it is economically rational to offshore }

{ An attempt is made at the inequality which would govern such a decision; drawing on many relevant
 aspects of the choice. }

Whether to develop the means to achieve higher productivity at the present locations, with the present staff. }

<Model of the firm, with its cost function based at the present W-locations and based at the new C-locations>

How does the situation look to the management? Is it possible to analyze and attribute the profits to their actual or at least approximate sources? Or does management attribute the profits to “everybody” or every employee contributing to production in the company?

2.1.4 Towards the end of the offshoring project

After a sustained, significantly cost-reducing project has been phased in, an internal crisis is likely to occur as the realised profit (growth) rates from this project may not be sustained by the usual rounds of internal development projects.

Once as much of manual labor intensive production has been Big-C-offshored as feasible and cost effective then the profit margin stabilizes and erosion of it from cost increases from competition in the markets for labor and resources may be expected. Here it probably is very important at what scale the C-(in-) shoring is (relative to the size of pre-existing production outside of C and to the available labor and other resources within C). When one company C-offshores then the ripples on macro variables are

[5] Reference ???
[6] This quantification of the potential was demonstrated in my ESTG2013 paper and presentation in a very simplified setup.
few and far between, but if many companies do it in parallel, perhaps major waves in macro variables may be created?

2.1.5 The long run erosion of protection from competition

The position of the firm's products within their consumers' respective varieties.

The position of the firm in bargaining about labor and other factors of production, and in protecting design, brand and production process IP-rights.

{A list of challenges to the preferential situation, perhaps from Lancaster}

2.2 The choices of a firm: Firm behavior

Important decisions which the firm's management takes are

1. where to locate production (i.e. multiplication) and the R'n'D around the production

2. how to allocate the excess profits (liquidity) among projects, shareholders, remuneration or consumers

3. which expectations of (rates of) return to raise in shareholders

4. how vigorously to protect (the uniqueness of) their products' variety in consumers' minds, and to pursue infringement of product or process protection by competitors.

The relative optimality of decisions vis-a-vis the different stakeholders is considered below.

2.2.1 splitting the benefits of offshoring

In principle the benefits of offshoring could be divided among all stakeholders (in the widest sense of the word). How it actually is divided among these stakeholders may be a source of further investigation, and rationalizing through theorizing.

Is it possible to establish a rational rule for this division? Perhaps even a recommendation?

< according to which principles would management divide the "gross profits" among other projects, employees, shareholders and management remuneration? >

< which data would management need? would marginal pricing work? >

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7 What do we actually mean by the "long run" with respect to the models envisaged? Constructing a model of the short run and of the medium run we may derive the "long run" properties of this specific model and decide that these are as we want, or start a new iteration of tweaking the model. But we cannot know the "long run" properties of all models without specifying some restrictions on which those s.r./m.r. models we consider, thereby perhaps excluding the empirically most relevant models.

8 Consumers, owners, subcontractors, employees and management. Consideration is also given relative to products and competitors.
2.2.2 **ex ante expectations of results of offshoring**

How can we discern this behaviour from other kinds impacting the data? Is it possible to derive an equation which should hold if the behaviour is significant, and not hold if the behaviour is insignificant?

How big an investment would be necessary in order to be able to reap the lower labor cost benefits?

2.2.3 **Ex post analysis**

Given the events how would the company revise its behavior in order to take account of the chains of events (and consequent changes of business environment) compared to the expected business environment? Probably the actual period of excess profits was shorter than expected due to wage and cost inflation (including non-legal costs of getting business done). This would imply that the initial capital expenditure should have been reduced. In brief, owners and consumers were not as well compensated as they could have been if costs had been kept under control in order to maximize the benefits of those groups, by reducing product prices and increasing profits - as much as possible.

2.2.4 **How it looks to investors**

Over the cycle of the offshoring investors may draw different conclusions, and perhaps never fully understand the sources of the swings in the stock prices.

The management’s choices may make it more or less transparent to investors to figure out which projects are making which profits. At one end, with severely restricted supplemental information to the annual and quarterly accounts of the company, it may be very, very costly to know where the profits arise within the company. At the other end, with full transparency and disclosure, investors know exactly which projects are responsible for the main sources of the flows of profits. Apple Inc., may be representative of the first mentioned style of management.

{Light on this from the information asymmetry literature?}

2.2.5 **Measurement of the economic rent**

Indirect evidence of increasing amounts of economic rent may come from the stock market valuation. Examples Apple, ...

**Scale.**

**Persistence.** Martin(2002), pp.221-1 (&-5)
2.3 Consequences and predictions

On the basis of the descriptions and expectations what are the expected consequences?

A list of the requirements/premises and a list of the nontrivial equations which may be expected to limit the observable outcomes. Absolute advantage may actually be more important than comparative advantage, as suggested by Fujimoto&Shiozawa [11].

2.4 Areas of potential relevance

xxx

2.5 Measurement?

xxx
3 Macro effects

Here we investigate the scale of the expected effects under three scenarios determined by the number of companies joining in in the offshoring: a few companies, a substantial number or a vast number.

3.1 One lonesome company

< When a few companies act uncoordinatedly. >

3.2 A school of companies

It is known that when a major companies relocates its production, then its dedicated subcontractors may choose to relocate as well, i.e. the eco-system of companies relocates as a consequence.

< When many companies act in concert. >

3.3 A tsunami of companies

xxx

3.4 A general outline of the cycle of massive offshoring

The division of the cycle of massive offshoring into “phases” should be related to each of the products concerned. For different products the associated phases (across products) may occur at different times. There must be special conditions for the phases across products to be synchronized.

3.4.1 Expansion phase (1/5): cost reduction

Investment in facilities and training of labor is required to offshore in-house (ref. Feenstra?). As production takes off at the new location the benefits of the lower labor costs

3.4.2 Wealth effects phase 1 (2/5): shock for companies

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3.4.3 Wealth effects phase 2 (3/5): shock for owners

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3.4.4 No-new-as-profitable-projects phase (4/5): end coming up

xxx
3.4.5 Readjustment phase (5/5): the fall

xxx

3.4.6 Downwards overadjustment phase:

xxx

3.4.7 Nearer equilibrium (until next offshoring cost reduction cycle) phase

xxx

3.4.8 Which state variables?

The preceding suggested division of the chain-of-events into phases would be more empirically testable if we can define a state variable, the values of which tell us which state (or phase) the economy is in. Such a state variable would also help us to measure the length of each phase. Which variables can we define with such property? At the (sub-) micro level, at the meso level or at the macro level?
4 Testing empirical relevance

At this early stage at best we may discover and discuss the kinds of data needed to check the relevance of the suggested model.

Testing requires access to at the level of the individual firm and its products, before and after a relocation of production of very similar, if not identical, products. Macro data are not suitable, unfortunately.

A definitive empirical refutation of this model’s general validity would require a rather extensive coverage of company data at very detailed levels. Perhaps a serious challenge at present, but in principle possible.

4.1 For effects of globalization

At what scale of international offshoring would we expect the effects to become significant, relative to the “background noise” in the data?

Some indirect approaches may be available. Studying stock prices would yield an insight into the timing of market expectations of rising future profits or sustained higher level of profits. When the prices of many stocks rise more broadly a good and “real” (market fundamentals based) reason would be expectations of higher future profits.

4.1.1 Application to offshoring to China, 1980-2010

From input-output analysis we may get a measure of the structure of the C-economy in terms of how much employment is due to (and income generated from) exports, respectively own consumption respectively gross capital expenditure? {Japanese multi-country IO: JETRO?}

4.2 For effects within an economic geographic area

The conditions under which the model’s effects turn up point to the hypothesis that they may even hold within a currency union. The limiting condition may be the reduced mobility of the labor force in the area offshored into. Is it too high then a period after training the labor may migrate to the high income area and in the process raising the firm’s costs of training the available remaining labor.

4.2.1 Application to Eastern Europe, 1980/90-2005

There definitely should be a case for seeing the effects, suggested by this paper’s model, to be investigated for the period after the Fall of the Iron Curtain during the offshoring to the Eastern European Countries (EEC). A subject of later investigation.
4.2.2 **Predictions on the situation of Southern European countries, incl. Greece, 2000-**

Over the period, year 2000 and forward, the Southern European Countries (SEC) have *not* been the destination of much offshoring, nor like the Eastern European Countries (EEC) entering the EU, did the SEC have a prior period of offshoring during the 1980/90-2005. In this situation are there any suggestions from this paper’s model regarding what these countries can do? Only indirectly. Increase competitiveness and absolute advantage in a sufficient number of products for labor income to be able to cover expenses of private and public consumption. Part of the reduction in the actual costs of doing business may come from less rent-seeking behaviour by government and the population. If only comparative advantage would actually be available to ensure that trade would create the global demand for the products which the SEC’s are relatively better at! Then no country would have idle labor resources ... .
5 Conclusion

{On the model of the individual firm in the case of massive offshoring.}

We have seen that the presented model is able to rationalize the creation of a boom with growth in stock prices, ..., and explain the difficulty investors have in recognizing which projects are having which profit streams, and thus why stock traders may become more informed by analyzing the company's activities and its profits and relating the latter to the former. Also the switch from boom to bust is explained. In order to evaluate the empirical relevance of the model we need access to data at the level of the similar products from the same company before and after offshoring.

6 Further research

Firstly expanding the model in chapter 2 in order for it to include more of the traits of real life companies involved in offshoring, as well as considering the reasons why xxxxx.

Secondly developing a precise formal version of the model sketched up in chapter 2, and deriving the macro consequences suggested in chapter 4 are high on the agenda. The value of this is expected to be checking that all assumptions made are consistent and complete, and to suggest relevant specifications which may be quantified through estimation on available data.

Thirdly gaining access to the ideal dataset for some larger companies involved in offshoring, as suggested in chapter 5, in order to be able to develop empirical tests of the relevance of this model and more generally, this line of thinking.
References

[1] Japanese multi-country IO, JETRO (?)


Further research

[16] Helpman, Elhanan: Tel Aviv lecture. {“real” reference ??}


Appendix 1: The phases of a cycle of massive offshoring and their consequences

< from 2011 papers and presentations >

Phase 0: the normal situation

Phase 1/5: cost reduction

The cost reducing transfer of production from Western economies to low-income countries, notably but not uniquely China, gave rise to excess profits as the prices of the products in Western markets did not fall at the same rate as their costs of production. These excess profits were interpreted by investors as the value of a number of intangible assets (patents, protected designs, copy rights, trademark rights) which the Western countries had produced and which these countries were supposed to be able to live off in the future, even if manufacturing was outsourced to low-income countries.

Phase 2/5: shock for companies

Effectively a massive wealth shock to the Western economies. Within companies the wealth created new product initiatives which were costly with insufficient success rates which undermined the long-run sustainability of these share prices. These initiatives created more than full employment with wage inflation as a consequence (for all skill levels) and especially demand for “creative-class” university graduates. Excessive remuneration schemes for executives. Massive investment in low-income country to enable the actual production to take place there.

Phase 3/5: shock for owners

To share owners the wealth shock increased (luxury product) consumption and ‘investment’ in real estate. Transfer of capital to the low-income country undermined the development of new technologies which might have enabled highly-skilled labor in high-income country to remain competitive and at a level not dependent on particular exchange rates to the low-income country. With much financial capital held by labor pension funds in high-income countries this large scale transfer of capital and technology by the managements of owned production companies seems unstrategic. At least from the point of view of those younger generations of workers without much human capital, who have to make do with relatively less capital (?).

Phase 4/5: end coming up

The globalization of production initiatives seem to have moved in parallel early on, but the failures of new-product initiatives of individual companies are perhaps not to be expected to be in parallel in terms
of timing, so a critical mass of failures may be needed before a random event makes the (herd of) investors change expectations more generally. Eventually when the results of these new product initiatives could not meet (the very high) profitability expectations and competition from new products (from low-income country companies), and higher costs at the globalized production locations, eroded the income base of (listed) companies, then share prices started to fall with severe consequences.

**Phase 5/5: the fall**

How far the fall will end up being seems determined by basics like exchange rates, absolute price levels, relative prices in each country (which translate to relative comparative advantages) and basic trade theory which predicts: as production 'moves' from high-income country to low-income country, we’d expect product prices to fall in the developed country’s markets reflecting the lower costs of producing in the low-income country. The same goes for wages for those skills of labor in the high-income country which are shared by skills of the labor in the low-income country.

**Phase 6: over...**

**Phase 7: towards long run equilibrium?**