

CONSTRUCTION ECONOMICS

Task 2



THE ENHANCEMENT OF PRODUCTIVITY AND EFFICIENCY TO A MAJOR UK HOUSE-BUILDING FIRM

This report prepaid to give the advice for a firm working in UK house-building which suffered from falling in sales in last few months. In a matter of view, trying to put a plan for this firm to go on it and repair its policy and priorities.

Key words:

Productivity, efficiency, house-building.

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Summary

A major UK house-building firm which has seen a 20% fall in sales in the last six months and has brought construction to a halt on a number of existing developments, because of in the current downtown, the construction industry is particularly hard hit, and the uncertain state of the market makes the client is concerned about profitability of this firm. The available evidence makes it difficult to make forecasts about the impact of the current slowdown on business formation and the stock of businesses. This report to evaluate the current state of knowledge for productivity and efficiency of house-building industry in UK flowing with suggestion conclusions and recommendations.

1. Introduction

The output-structure of a country's construction industry is most likely to influence average labour productivity through variance in the share of Repair & Maintenance in total output. However, it may well be the case that difference in size structure of the industries has some role in explaining productivity differences. However, in UK, this problem suffering from our figures for labour productivity in the smallest firms, and only estimates made by the respective statistical authorities, but to reconcile data collected from the larger firms with independent estimates of total construction output, or done following some assumption about respective productivities of larger and smaller firms.

2. Productivity and efficiency in UK construction firm

2.1. DEFINITIONS AND THEORIES FOR PRODUCTIVITY& EFFICIENCY

Productivity is a measure of output from a production process, per unit of input. There's a difference between being effective and being efficient, to be Effectiveness means; completing tasks related to meaningful goals, but to be Efficiency means; completing tasks in a specified amount of time. The model of Productivity based off effectiveness, not efficiency. Productivity may be conceived of as a metric of the technical or engineering efficiency of production. As such, the emphasis is on quantitative metrics of input, and sometimes output and it take into account both the monetary value (price) of what is produced and the cost of inputs used, and also distinct from metrics of profitability, which address the difference between the revenues obtained from output and the expense associated with consumption of inputs. (Courbois & Temple 1975, Gollop 1979, Kurosawa 1975, Pineda 1990, Saari 2006.

Productivity directly relates to the ability of firms to organise production, and the factors that determine labour productivity are;

- Quality of management,
- Workforce skills,
- Capital investment and
- Capital intensity,

To improve the construction industry productivity, it may be closely related to opportunities to innovate given by project design decisions, which are not concerning for controlling on construction firms.

2.2. ECONOMIC GROWTH AND PRODUCTIVITY

Economic growth is a production increase achieved by an economic entity or nation. It is created by two factors; an increase in production input and an increase in productivity. (Genesca & Grifell 1992, Saari 2006)

The figure below (figure1) presents an economic growth process. By reviewing the process in subsequent years (periods), one and two, it becomes evident that

production has increased from Value T1 to Value T2. Both years can be described by a graph of production functions, each function being named after the respective number of the year, i.e., one and two. Characteristic of the growth effected by an input increase is that the relation between output and input remains unchanged.

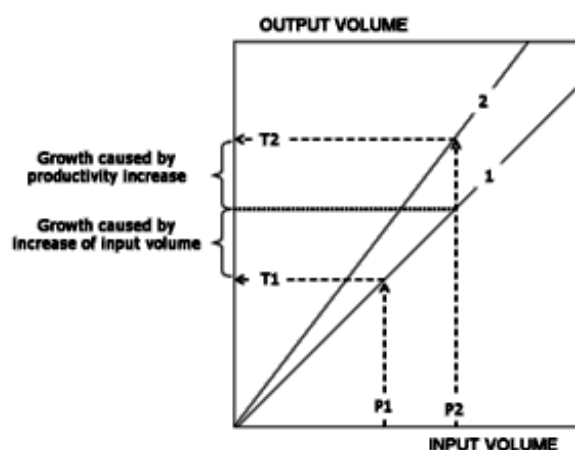


Figure 1: COMPONENTS OF ECONOMIC GROWTH (SAARI 2006)

The output growth corresponding to a shift of the production function is generated by the increase in productivity, its character according to; the production function and a consequent change to the output/input relation. The formula of total productivity is normally written as follows:

- *Total productivity = Output quantity / Input quantity*

This formula means that; changes in input and output have to be measured inclusive of both quantitative and qualitative changes. (Jorgenson and Griliches 1967).

2.3. LABOUR PRODUCTIVITY AND ITS QUALITATIVE ASPECTS

Labour productivity is generally speaking held to be the same as the "average product of labour" (average output per worker or per worker-hour, an output which could be measured in physical terms or in price terms). labour productivity is a function of measures of output (usually value-added) and labour inputs (either numbers engaged in construction activities, numbers of jobs, total labour hours worked or the costs of employment), and productivity-level compared with the main internationally-traded sectors for construction are both harder to do and, in

some senses, less urgently required, that's because a construction productivity gap does not have the same direct impact, via comparative unit costs, on international trade competitiveness of the industry, and thus on construction output and GDP levels, but because of exceptional difficulties of both output and input measurement, and increasing by the heterogeneity of construction output and complexity of national differences in output mix and quality, causing problems of finding appropriate rates of conversion to common purchasing-power units, all of that, make it so difficult to do. The concept of productivity can be applied to any measure of output per unit of input. In economics, most commonly, either labour productivity or total factor productivity (usually, output per unit of labour-plus-fixed capital-plus-human capital) are measured. Output for purposes of productivity measurement is always, in economics, conceived as value added, but if value added data is not available, we can use either gross output or physical units of output as a proxy measures, and remaining differences in output are attributed to differences in the 'efficiency' with which inputs are organised, managed and used, or to unmeasured differences in the quality of inputs.

2.4. PRODUCTIVITY IN UK

Raising UK productivity is a long-term objective but that there may be short-term issues to consider in achieving this objective, such as the impact of the current economic conditions on the drivers of productivity. The Business Cycle and Productivity provides a short assessment of the possible implications of the economic downturn on productivity and the five drivers of UK productivity which mentioned in '*Productivity in the UK: The Evidence and the Government's Approach*' that emphasis what should be monitored closely, and which policy areas might require action. Each of the five drivers highlight the specific aspects that are likely to be most significant, those five drivers are: investment, innovation, skills, enterprise and competition. Since 1999, the UK's performance on these drivers has been monitored via the annual publication of the Productivity and Competitiveness Indicators.

3. House-building; case-study for Construction in UK

3.1. CONSTRUCTION IN UK

Construction as an industrial firm is one of six broad sectors in UK, this industry appears from the best available long-term source (NIESR Sectoral Productivity Data set) to have much lower levels (in market sector) of fixed capital per worker. To measure the comparative levels and rates of change of productivity, which it has surprisingly high labour productivity (value added per person-year or per person-hour), given its apparently much lower levels of capital per worker in the construction industries, and the labour productivity in UK appears to be only partially attributable that exist in amount of fixed capital per worker. On the other hand, the data for measuring capital input in construction is particularly poor, because of problems in allocating equipment hired and used, but not owned, by the construction industry.

3.2. THE HOUSE-BUILDING MARKET IN UK

The UK House-building market consists of a relatively small number of large House-builders building most new homes and a large number of smaller House-builders, most researchers have considered that housing markets are local markets. Since the Second World War concentration in the industry has steadily increased, especially among the top House-builders. According to NHBC (2007) New House-building Statistics and OFT estimates, including new and existing homes, there were 1.8 million residential sales in 2007 in the UK (Figure2), a fall of about one per cent from the 2006 level but a rise of 15 per cent from 2005. Before June 2007 the housing market was strong after 10 years of rising prices although many commentators, and indeed some homebuilders, warned that a slowdown was inevitable, after that, in the last recession, the seizing up of the mortgage securitization market had serious implications for the mortgage market, which effected on House-builders and House-buyers, and led to a sharp slowdown in the housing market with the number of transactions in England and Wales falling by 18

per cent in Q4 2007. This caused to being the skill are lost from the industry. This lost capacity acts as a supply constraint when the market starts to rise again.

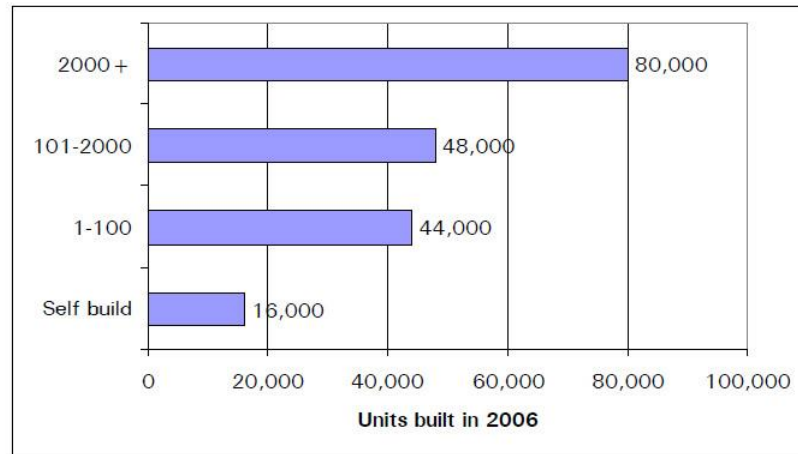


Figure 2: *NHBC, NEW HOUSE-BUILDING STATISTICS 2007 AND OFT ESTIMATES*

3.3. FACTORS AFFECTING THE HOUSE-BUILDING PRODUCTIVITY

Raising UK productivity is a long-term objective, in the other side considering with short-term issues in achieving this objective, such as the impact of the current economic conditions on the drivers of productivity, those drivers are; Investment, Innovation, Skills, Enterprise and Competition. Each of the five drivers highlights the specific aspects that are likely to be most significant.

3.3.1. INVESTMENT

It mentioned that investment in physical capital is an essential determinant of economic growth and is undertaken to improve technology, productive efficiency and future capacity in short time and in long time.

Unfortunately, for **short time**, because of the recession it won't be useful for both customers and builders and mostly of the stimulus package spent on banking system, for **long time**, the best investment suggested by Government that encourage people for low carbon economic.

3.3.2. INNOVATION

Innovation is the successful exploitation of new ideas; the impact of the slowdown on business innovation behaviour is still unclear. **In short term**, there are particular

barriers prevent businesses from being able to continue innovation activities, but **in longer term**, progress on developing an innovation nation should be made, especially in technological industries like hi-tech and intelligent house-building, or energy efficiency technologies.

3.3.3. SKILLS

The most common and important factor effecting on productivity performance is skills through formal education, training, experience and other forms of informal learning, to invest in skills is based on an assessment of the balance between the relevant costs and benefits of gaining skills which are provided by labour market. In UK skills attained by achieving a certain level of education match the skills demanded by employers. (Figures 3 and 4) show economic activity status by level of qualification for males and females respectively.

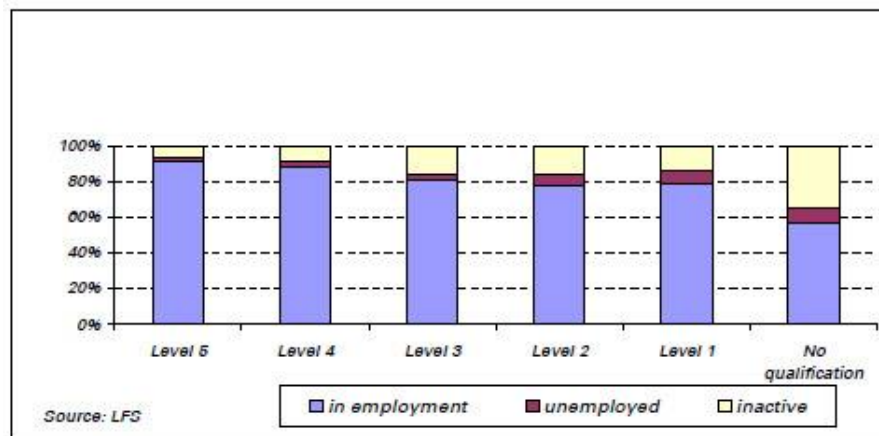


Figure 3: ECONOMY ACTIVITY STATUS BY LEVEL OF QUALIFICATION, MALE, UK 2007

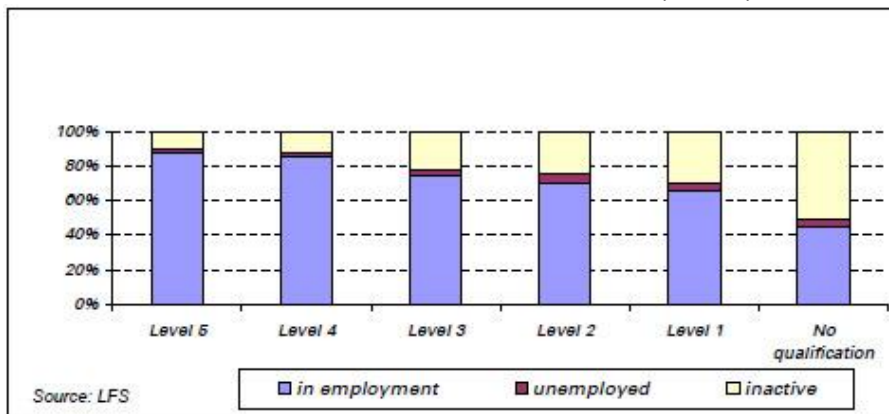


Figure 4: ECONOMY ACTIVITY STATUS BY LEVEL OF QUALIFICATION, FEMALE, UK 2007

In short term, it will be important to ensure that individuals maintain their skills especially who became unemployed.

3.3.4. ENTERPRISE

Enterprise is an important source of wealth creation and productivity growth, which impacted by:

- Culture: increases willingness to develop entrepreneurial skills and impacts positively on the actual development of such skills
- Knowledge and skills: to create entrepreneurial ambition and driving entrepreneurial performance.
- Access to finance: Lack of, or limited, access to external finance¹⁹² is likely to act as a barrier to enterprise.
- Business innovation: it's an enabler of enterprise and is a key motivation for many entrepreneurs.
- Regulatory framework: it can impact on market outcomes by influencing the decisions of firms and individuals and the way markets operate.

In short term: continuing monitor business behaviour, and issues such as access to finance and cash flow, to remove barriers to entry and expansion and ensure viable businesses stay operational during the current slowdown. **In long term**, the Enterprise Strategy launched alongside Budget 2008 outlines the framework.

3.3.5. COMPETITION

Competition is important for productivity as a greater level of competitive intensity encourages new entry and increases the pressures on incumbent firms to improve product quality and reduce prices. Competition impacts on productivity through:

- Higher levels of competition tend to increase the pressure on firms to increase efficiency and reduce costs.
- Increased competition raises the efficiency with which resources are allocated between competing firms.
- Increased competition can raise productivity by increasing the incentive to innovate.

4. Recommendations

For both house-building sector and customer

- **In the short term:**
 - Government must support and provide more financial for both house-builders and firms, and working on reducing taxes.
 - It will be important to continue to monitor business behaviour, and issues such as access to finance and cash flow, to remove barriers to entry and expansion and ensure viable businesses stay operational during the current slowdown.
 - The weakening of productivity indicators does not imply that underlying productivity is affected.

- **In the longer term:**
 - More investment in efficiency productivity.
 - More skills training for firms and house-builders
 - Government enterprise policy will inform and structure to address areas where further improvement can be made.
 - Numbers of specific Enterprise Strategy measures have already been delivered,(like a small firms) and its policy was regulated.
 - Looking to the future, for challenging homebuilders, with the new regulations and standards such as the Code for Sustainable may meet the requirements and to implement new technological solutions.

5. Conclusion

- In UK business market, it seems to be some improvement in terms of developing a positive enterprise culture, enhancing the effectiveness of investment in knowledge and skills and in promoting business innovation.
- The construction industry needs researches on developing a feasible but reasonably accurate method for measuring the value of capital inputs in this industry, especially in UK.
- House-builders should develop a strategy to increase the proportion of house buyers.

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