

## Has NZ's Construction Industry's Productivity Related GDP Contribution Increased by the Productivity Commission's Target of 20% by 2020

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### SYNOPSIS

*The construction sector in New Zealand is considered to have a continuing low level of productivity. The industry has been contributing less to the National GDP than construction industries in America, Australia and the United Kingdom. This research aimed to determine via document analysis and survey questionnaires, whether New Zealand's construction industry might accomplish a 20% increase in GDP contribution (ie 5.4% to 6.48% by 2020) as set by the Productivity Partnership in 2012. Publications suggested the construction industry's contribution to the National GDP follows the average profit-based productivity trend of four large NZX listed construction or construction related companies. If true, it is forecasted that the target of a 20% increase will not be reached. Since 2017, the four selected NZX listed companies' productivity has plateaued, or decreased. A survey questionnaire undertaken, with selected Auckland based commercial construction related employees focussed on gauging whether the respondents' companies placed an emphasis on productivity measures and reporting. The productivity results from the survey questionnaires, evidenced that managerial and human resources are plaguing the construction industry. Conversely, the results showed that management and systems enhancers are the likely factors needed to improve productivity in the construction industry.*

**Keywords:** Construction sector, GDP, NZX, Productivity

### INTRODUCTION

The Productivity Partnership formed in 2010 by the New Zealand government and industry, agreed to a common goal to improving construction productivity by 20%, by the year 2020, (Productivity Partnership 2012). The suggested areas for improvement were: Skills, Evidence, Procurement, and Construction Systems (Productivity Partnership 2012). In addition, 'The Research Strategy for the Building and Construction Industry', (BRANZ, 2013), compiled a list of research areas to be investigated being Industry structure, Productivity measures, Industry processes, Skills, Technology, Client value, Operating environment, Canterbury rebuild and Auckland's growth. In terms of industries and contributions to the economy (and Gross Domestic Product - GDP), construction's contribution has been lacking during the past three to four decades in New Zealand. When comparing New Zealand's construction GDP contribution of 5.4%, with the United Kingdom's 8%, America's 9% and Australia's 7%, it was evident there is significant potential for improvement, (BRANZ 2013). This research was undertaken to gauge how the initiative has been tracking if NZ is to reach the goal of a 20% productivity increase, and how that has been and will be evidenced and measured. The results relate to national, construction, and industry specific GDP contributions over the past 10 years, and summarise the publicly available published financial statements of four NZX (New Zealand Exchange) publicly listed construction, or construction related companies. The financial statements were compared in terms of Revenue, Profit and the Assumed Staff Hours of Work during the past 5 years. In addition, an analytical survey focussed on potential productivity

inhibitors and enhancers, was completed by respondents working in mid to large scale commercial sector construction companies in Auckland.

**Defining Productivity** – There are several published literature definitions-for example, The Oxford dictionary (2018) states - “*The effectiveness of productive effort, especially in industry, as measured in terms of the rate of output per unit of input*”, which aligns closely with the Productivity Commission’s view. A common line of thought was to measure productivity by dividing output by input, whilst a definition by Teicholz (2013, p.1), focussed on the greater construction industry - “*when measuring the output of the entire industry rather than a task, output (productivity) is defined in dollars of revenue (for a given base year) per work hour*”.

Fuemana *et al.* (2013), listed a lack of communication, strategic planning, management training, reviews of past projects building regulations as negative productivity drivers in New Zealand. This was confirmed by Chancellor *et al.* (2015, p.64), who stated that “*regulatory impediments hinder productivity growth*”. Lean construction principles and tools, specifically the Last Planner System (LPS), have also been suggested to improve construction productivity at a project level, (Bosnich & Kestle 2015).

## RESEARCH AIM AND OBJECTIVES

The Research Question attempted to establish what local commercial construction companies know about their own productivity and whether managers are monitoring productivity levels. An additional aim was to establish what the companies knew about New Zealand’s construction sector productivity nationally. There were two sub-questions underpinning the main question - “which productivity inhibitors, accelerators, and productivity measurement methodologies are being used by commercial construction related companies in Auckland?”

## RESEARCH METHODS

A mixed method research approach was undertaken involving qualitative survey questionnaires with directors, project managers, design managers, commercial managers, digital engineers and quantity surveyors, and a document analysis. Data collection focussed on current construction practice and experiences of the stakeholders. Fellows and Liu (2009) argued that survey research, has the ability to yield effective data, and Denscombe (2010) stated that “official documents present authoritative data in a short timeframe”, therefore underpinning the methods adopted for this research. The document analysis was undertaken using published statistics involving 4 large NZX construction or construction related companies’ (including the financial statements). How the construction industry is tracking since the Productivity Commission’s report in 2013 was explored using freely available online NZ Statistics databases.

## SUMMARY FINDINGS

**Document analysis - NZ Statistics** - The NZ construction industry contributes a small percentage of the overall contribution to the National GDP. Of note is that the National GDP has increased every year, and the year-on-year the net effect has been positive for most of the past 9 years. Construction showed a decrease (negative growth) at 2011, however it has shown positive growth since.

**Document analysis - NZX Companies** - Productivity, when calculated using company revenue, showed slowing or negative growth. The average trend of the selected 4NZX

companies was negative from 2017 (3 of the 4 companies), and the associated productivity calculated using company profit was more pronounced compared to the revenue for the period.

**Survey Questionnaire** -. Productivity-reporting results - 11 of the respondents reported that their companies do measure and report on productivity, where it was being recorded, and to whom it was being reported.

## RESEARCH SIGNIFICANCE

The NZ GDP has increased during the past 5-10 years, as has the construction average contribution to the GDP (44% over the past 9 years). However, the slowing /negative productivity trend from 2016, means productivity is on a trajectory to miss the 20% improvement by 2020 - (needs to be 6.48% of NZ GDP). This is due in part to Christchurch's reparatory/rebuild slowdown. The productivity inhibitor results from the survey questionnaires, showed that managerial and human resources were plaguing the construction industry, whilst management and systems enhancers were the key factors to improve productivity in the construction industry. The productivity of sub-contractors was not the primary focus of this research, but would be a relevant and related future research project as would exploring any ITA (Industry Transformation Agenda) links. Another recommendation is for government to initiate the annual preparation of a national productivity report, comprising all NZX listed companies.

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