

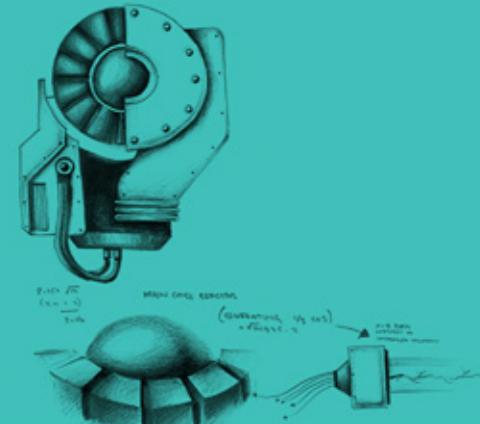
WORKER FLOWS, ENTRY, AND PRODUCTIVITY IN NZ'S CONSTRUCTION INDUSTRY

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INTRODUCTION

Workers come and go.
Good for productivity.
Entry also helps.

In this paper we study the relationships among worker flows, entry, and firm productivity. We document the flows of workers (employees and working proprietors) between firms using comprehensive administrative data on the population of New Zealand construction firms from 2001-2012. We address the following questions:

- How often do people change employers in construction, and how important is new labour to firms in construction?
- Does the amount and source of new labour matter to firm productivity? Are firms more productive when their new workers come from a certain source, such as other construction firms?
- To what extent do people bring productivity with them when they change firms, i.e., do people moving from high productivity firms tend to raise the productivity of their new employer through knowledge flows? Is the extent of this productivity transfer the same for new hires at new-entrant firms and new hires at continuing firms?
- What is the time pattern of productivity at new entrant firms? Are new firms most productive when they first enter, or does their productivity improve as they gain experience?

The construction industry is particularly suitable for this analysis, because of the apparent tension between ‘conventional wisdom’ about the role of firm churn and the recent findings of productive entrants, and also because the small size of most firms likely increases the importance of individual workers with respect to firm performance.

METHODOLOGY

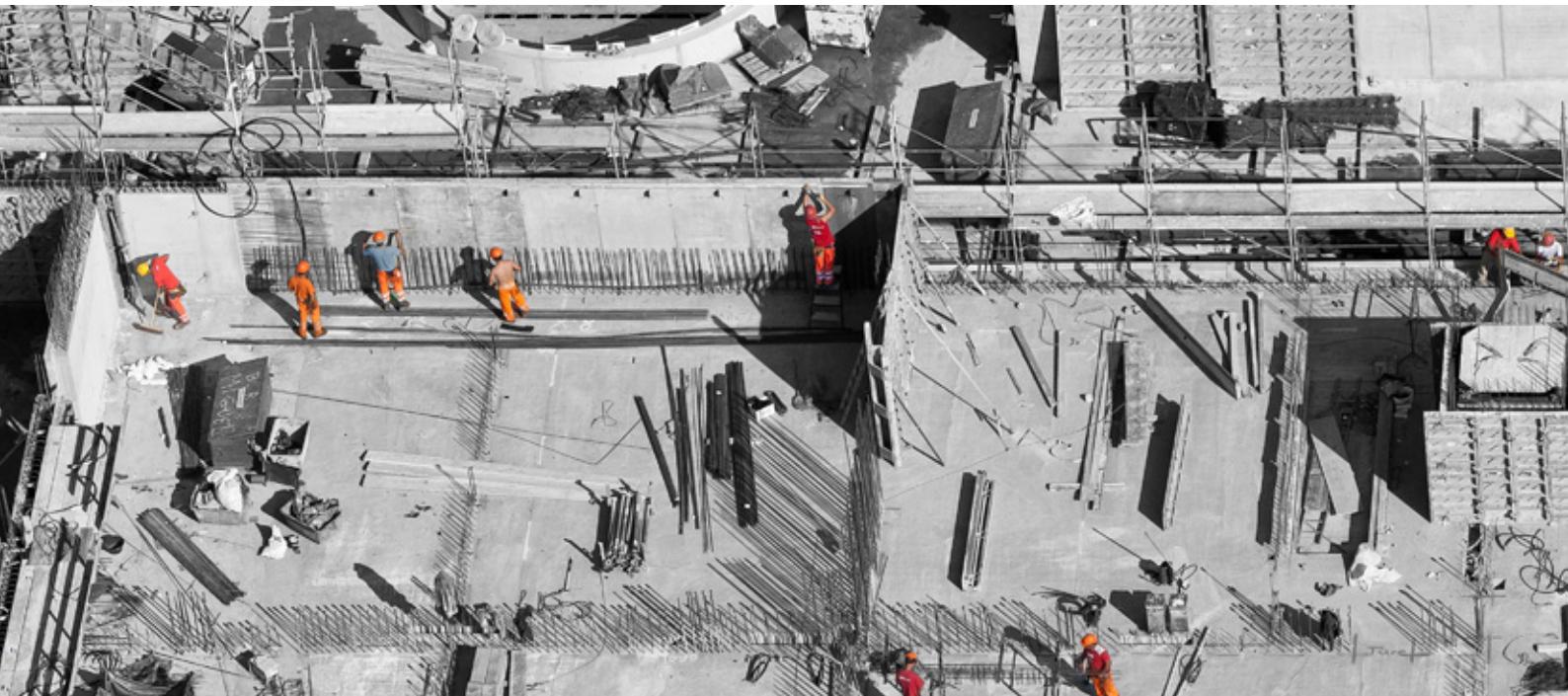
This paper uses the Longitudinal Business Database (LBD) and Integrated Data Infrastructure (IDI), which have data on, in principle, all firms and employees in New Zealand. It focuses on construction based firms identified through their ANZSIC codes and is limited to firms with production data (revenue, labour, capital, intermediate purchases). This represents about 60% of industry output according to Statistics NZ. The LBD is linked to employee records, so we can follow given employees across firms. We distinguish employees and working proprietors (a large fraction of construction firms have only working proprietors and no employees). For one analysis we also use the Business Operations Survey, which has a much smaller sample of firms.

RESULTS – JOB CHURN

The job churn rate is large. To highlight the dynamism of the labour market in construction: among those employed, fewer than 40 percent of people held the same job four years prior and only around 40 percent held the same job four years after.

About 60% of construction jobs are occupied by workers who were not at that firm in the previous three years:

- 25% were not in the dataset (meaning they were in school, not in NZ, or just not working);
- 18% were working in a non-construction firm, and
- 17% were working for a different construction firm.



The churn rate drops to just under 50 percent in the wake of the global financial crisis. Many current workers in construction have pasts and futures that involve some combination of education, overseas travel, several part-time jobs with less than 0.25 FTE worked at each one, and other activities.

The job entry rate was a few percentage points higher than the job exit rate in the years prior to the global financial crisis, peaking at 35 percent in the year ending March 2005. Because the job entry rate was higher, there was growth in the number of construction jobs from 2001-2008. After the global financial crisis the exit rate is higher, showing a decline in construction jobs.

An important proportion of construction firms' labour is new. New labour from construction tends to be smaller than the amount of labour coming from outside the labour market and all other industries combined. New entrants tend to source proportionally more of their new labour from construction.

RESULTS – MIGRANT LABOUR

The current government elected is planning to build 100,000 new homes in the coming decade, which will require more people working in the construction industry. We therefore ask: does it matter whether new construction workers are sourced from other industries or from overseas?

Our regressions found that less productive firms tend to have more new migrant labour, but productivity doesn't decrease when a given firm hires more migrants. We issue a caveat that this does not establish causality, it does however, suggest that whether new workers come from overseas or from other industries matters little to firm productivity.

PRODUCTIVITY OF ENTRANTS

Our previous research (Jaffe, Le, Chappell, 2016) found that entrants are more productive than continuing firms, with the advantage largest in the first year and then fading. These results gave a slightly misleading picture of declining firm performance, driven by a significant number of transitory firms that enter and appear surprisingly productive during their brief lives.

Entrants lasting only one year are around 8% more productive than continuers, perhaps due to the low levels of inputs used. Entrants lasting two or three years tend to be more productive at first, but experience declining productivity prior to exiting. In contrast, surviving entrants tend to increase in productivity over time, but start at a lower level of productivity compared with transitory entrants.

We cannot explain the high productivity of transitory firms, but suspect that it is an anomaly resulting from not having properly accounted for the unbalanced nature of our panel data, which means that the ‘first year’ effect in our data conflates the performance in the first year of firms that then stay around with the first year of firms that enter and then quickly exit. Once we control for such differences, we find that the productivity advantage of entrants is smaller in their first year, and the productivity performance of entrants then improves for at least a few years after entry.

In 2006, 16% of firms were new entrants, with 43% new since 2001. 13% of these firms exited the following year, and 45% exited by 2012. In this new paper, we focused on the productivity of firms that operate for at least 4 years. We found that firms that entered sometime between 2001 and 2012:

- had both higher productivity levels and higher productivity growth rates than pre-existing firms,
- were slightly less productive in their first year, than in later years, and
- grew faster than continuing firms.

Almost two thirds of firms are in Construction Services, followed by almost a third in Building Construction. The productivity advantage of entrants is present in all subsectors but is larger in Heavy and Civil.

We further note two strong tendencies (even if we cannot explain them). Firms that start up between 2001 and 2016 have persistently higher productivity than those who existed prior to 2001. The productivity observed in a firm’s first year, for entrants that continue to produce for at least four years, is lower than the average productivity eventually observed for the firm. This suggests that firms we observe entering are intrinsically different firms than the non-entrants, and that their superior performance is not an artefact of the start-up situation.

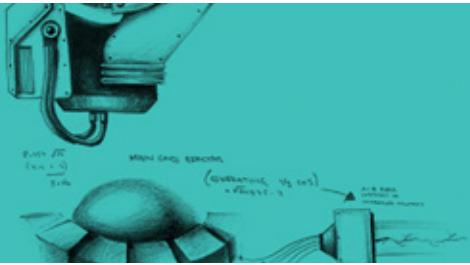
THE IMPACT OF WORKERS ON PRODUCTIVITY

Firms gaining or losing labour have higher multi-factor productivity than firms with no change, and that this holds regardless of the origin or destination. The opposite is true when looking at labour productivity, suggesting that static firms tend to have higher capital intensity. This may stem from the smaller size of firms that neither gain nor lose workers.

Firms that gained some labour from exiting construction firms are, on average, 6.5% more productive than firms that did not.

We first controlled for a firm’s having any new workers, which is associated with higher productivity. Beyond this, firms that hire new workers away from high-productivity non-construction firms do not have higher productivity, while firms that hire away from high-productivity construction firms do have higher productivity. This difference by industry suggests that workers spread knowledge between firms. The pattern is also true for working proprietors, though in their case there is some association of productivity with working proprietors from non-construction firms (though smaller than from construction).





The productivity associated with workers from high productivity previous firms is strongest in Construction Services and also present in Building Construction. It does not appear to operate in Heavy and Civil.

The higher levels of productivity of firms that hire workers from high-productivity firms could be because of knowledge flow, but could also be due to matching (i.e. good firms hire people from other good firms). Our results based on within-firm variations suggest that around 75% of effect is matching and around 25% is knowledge flows.

Having new employees from previous high-productivity firms is associated with significantly higher rates for 'new ideas for innovation from new staff' and 'new ideas for innovation from other firms in the same industry'. It is not associated with higher rates for 'new ideas from old staff' or 'new ideas from other industries'. Employees from high-productivity non-construction firms are not associated with higher innovation. This data was taken from the Business Operations Survey, which only targets firms with six or more employees. This excludes more than 90 percent of construction firms. Despite this, the transfer of productivity is stronger in small firms and might be even stronger if small firms were included in the Business Operations Survey.

SUMMARY

The high level of churn and thus dynamism in the construction sector is important for its productivity levels. There are two distinct effects, the impact of being a new entrant business and hiring people from productive construction firms.

New firms differ from firms that were active in construction at the start of our data in 2000. They are more productive on average, they grow faster, and their productivity continues to improve over time. The finding in our own previous paper that the productivity advantage of entrants is largest in their first year appears to be an anomaly. Controlling for this, we find that the productivity advantage of entrants is smaller in their first year, and the productivity performance of entrants then improves for at least a few years after entry. The implications for policy depend on whether old firms have obsolete technology, have market power and less incentive to innovative, or have simply grown complacent.

Firms (new or existing) that have new workers in a given year show higher productivity in that year. More generally, firm growth is associated with firm productivity improvement, though we cannot say anything about causality in this relationship.

Firms whose employees previously worked at another high-productivity construction firm are themselves more productive. Thus we find meaningful evidence that firm-productivity is to some extent embodied in workers and workers can transfer high productivity across firms. Our research cannot tell if productive firms losing employees are hurt, as firms with turnover tend to be somewhat above average in productivity and also because shrinking firms may be shrinking for other reasons.

Finally, it would be interesting to investigate whether these patterns have persisted in more recent years when the industry has been growing rapidly. It is possible that new entrants and new employees who are drawn into the sector when demand surges are different in nature from entrants and new employees during more stable periods.

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