Do workers share in firm success?

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New Zealand, like many other developed countries, has experienced a long-run decline in the share of total national income that goes to workers. Nominal wage growth during the 2010s was low compared to the 2000s, despite strong headline economic growth and fewer people unemployed. These trends raise concerns about whether economic success is being widely shared across the population of New Zealand.

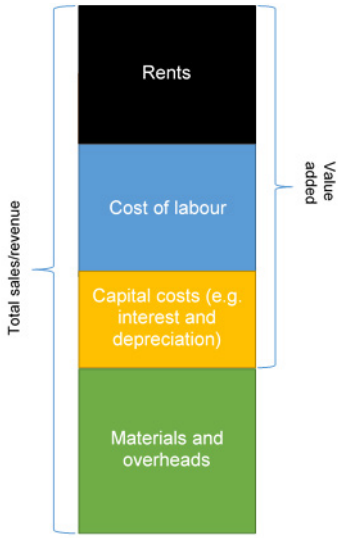
There is a lot of discussion in policy circles about ensuring that economic growth is inclusive – that the benefits of a growing economy are shared widely. Our work contributes to this discussion by looking at inclusive growth at the firm level. We look at the extent to which workers share in the financial success of the firms they work at. We do this by estimating how much the benefits of good performance are passed through to workers in the form of wages. We test whether the extent of *pass-through* has changed over time, and how much of the *pass-through* can be accounted for by *worker sorting* and *rent-sharing*. *Worker sorting* is the tendency for higher quality workers (who will attract high wages no matter which firm they work at) to work in better performing firms. *Rent-sharing* is when firms with higher rents (profits in excess of the minimum required level to remain in business) pass some of this onto workers as higher wages.

To look at these questions, we use data on firm financial performance and individual wage and salary earnings from StatsNZ's Longitudinal Business Database (LBD) and Integrated Data Infrastructure (IDI). We use information from between 70,000 and 90,000 private-for-profit firms in New Zealand per year over the period 2002-2018. These firms collectively employ between 900,000 and 1.2 million workers.

How do we define firm performance and pass-through?

Our measure of firm performance is designed to capture the amount that firms have available to pay as *wage premiums.* We call this measure of firm performance *quasi-rent* and define it as the amount the firm has left after paying capital costs (including financing and depreciation) and the cost of paying employees their *reservation wage.* Conceptually, quasi-rents capture the potential profit that a firm could earn if they paid each of their workers the minimum they would earn elsewhere.

Figure 1: Uses of firm revenue



One way to visualise what *quasi-rents* are is to consider a breakdown of what firms do with their revenue. A stylised breakdown is provided in Figure 1. Firms must pay for their materials and other overheads, capital costs (e.g. interest and depreciation), as well as the 'cost' of labour, where the cost of labour is at their employees *reservations wages.* Any remaining money after paying these costs is what we call *quasi-rents.*

Firms can use these *quasi-rents* to reward workers through a wage premium, provide income to business owners (either as a wage or a portion of profits), use the money to finance expansion or R&D, or hold the money to help them meet their costs during more difficult years. Our estimate of *wage premiums* in turn aims to capture how much more a worker is paid than the minimum that they would earn elsewhere (their *reservation wage*).

We make use of a technique that separates wages into two parts - a component that is due to individual characteristics (e.g. age, skills, and education) and a component that is due to firm characteristics (e.g. HR practices, firm performance, capital intensity). The individual component of wages is our measure of each workers' *reservation wage*, and we call the firm component the *firm wage premium*.

We're interested in how these *quasi-rents* are shared with workers in aggregate, at different firms, and within the same firm over time. We develop a set of measures to look at each of these. To look at sharing in aggregate, we look at how much of total *quasi-rents* are paid as *wage premiums*. We then look at how much more high-performing firms (those with higher *quasi-rents*) pay their workers relative to low performers, and finally we look at how much workers share in performance changes within a firm over time.

We look at two possible reasons why high-rent firms pay higher wages – *worker sorting* and *rent-sharing*. To measure *worker sorting*, we look at whether workers with characteristics associated with high wages tend to work in firms that earn high rents. This could be because higher quality workers are driving firm performance, or higher quality workers actively seek out the best performing firms. We also look at whether high-rent firms tend to pay higher *wage premiums*, which we refer to as *rent-sharing* – the extent to which potential profits are passed on to workers.

To what extent do workers share in success...

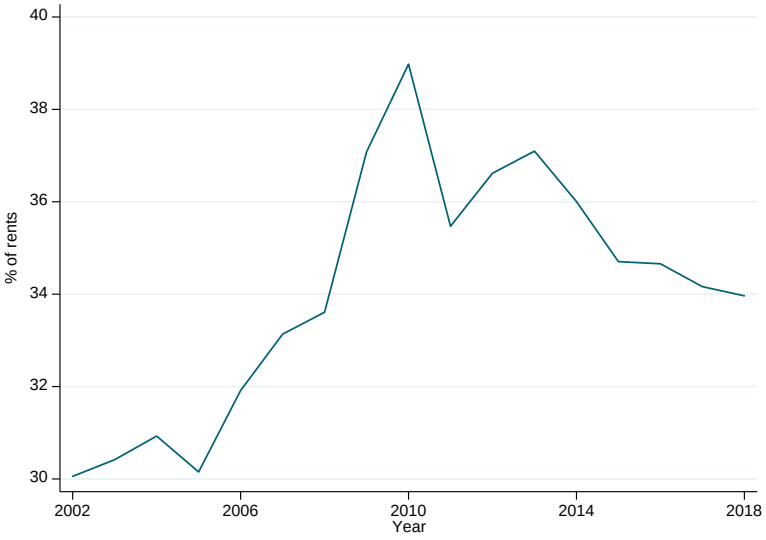
In aggregate?

We first look at how much of total *quasi-rents* are paid as *wage premiums*. Figure 2 plots the share of rents earned by workers over time. This share increased during the 2000s from 30%, reaching a peak of about 39% in 2010. This peak during the Global Financial Crisis (GFC) is a result of rents falling faster than wage premiums during the recession, leading to an increase in the share. The share has been declining steadily since 2010 as growth in rents has outpaced growth in firm wage premiums. In 2018, the share sat around 34%.

Workers do share in overall economic performance, but wage premiums vary less over time than rents. As a result, in good (high-rent) years, wage premiums are a lower proportion of rents. Year-to-year rent changes are less than fully reflected in wages – whether rents are rising or falling.

Our study focuses on the relationship between rents and wage premiums at the firm level – whether high-rent firms pay high wage premiums, and whether firms raise wages when their rents increase. As for the aggregate patterns, wage premiums vary less than rents, whether looking at variation across firms or for firms over time.

Figure 2: Share of rents paid as wage premiums, 2002-2018



At different firms?

When we look at whether firms that earn higher rents pay higher wages, our results show that yes, they do, both as a result of *worker sorting* and *rent sharing*.

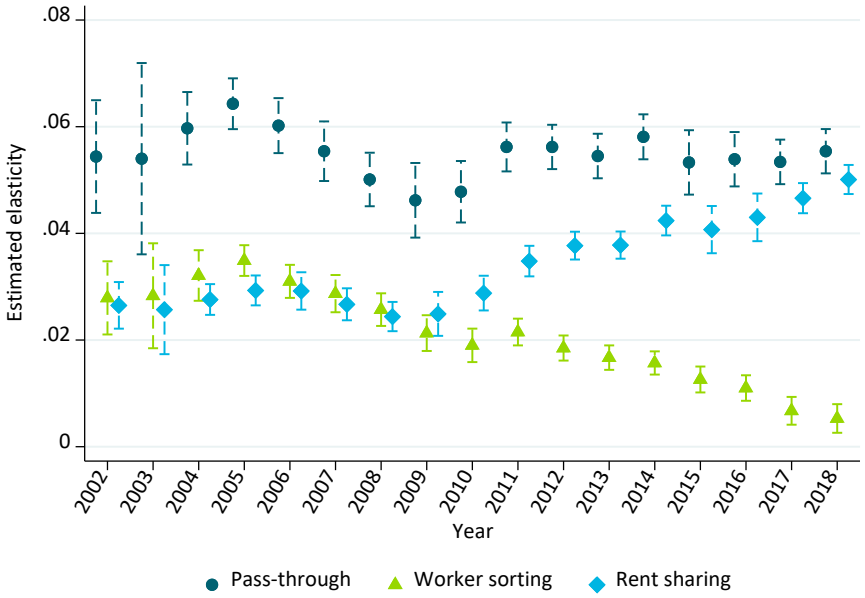
A firm that earns $10,000 more rents per worker have average annual wages that are $1,200 to $1,300 higher. A worker would expect to receive between 12 or 13 cents per dollar of the extra rents from moving to a higher rent firm. About 40% of this is due to *worker sorting*. Firms that earn higher rents tend to have higher quality workers and part of the wage difference reflects the difference in worker quality across firms.

Within firms over time?

Lastly, we look at how *changes* in rents at a firm are related to changes in wages at the same firm. We find that workers benefit from rent increases as well. The average worker receives an extra $700 to $800 per year from a $10,000 increase in rents per worker.

While these across-firm and within-firm estimates may seem small, it's important to point out that firm rents are a lot more variable than wages, both across firms and within the same firm over time. This in part reflects that changes in rents can be temporary – firms have good years and bad years, but workers are somewhat protected from these fluctuations because wages remain relatively stable. Firms may use the extra money from good years to provide a buffer to help them through bad years, or to invest in new technologies and improved production capacity to increase long-run performance. It is this long-run performance that we think is more likely to result in higher wages.

Figure 3: Estimated pass-through, rent-sharing, and worker sorting over time, 2002-2018



How has this pass-through changed over time?

We are also interested in whether *pass-through* has changed over time and whether the importance of *worker sorting* in explaining *pass-through* has changed. To examine these issues we look at the relationship between the component of wages that reflects individual characteristics and firm rents. If higher quality workers are increasingly likely to work in firms with higher rents, then sorting will grow in importance over time. Finally, we look at how the relationship between the firm wage premium and rents has changed over time.

Figure 3 shows the change in *pass-through, worker sorting,* and *rent sharing* over the period 2002-2018. The level of *pass-through* shown in Figure 3 is relatively low (0.045 – 0.065), implying that if rents are 10 percent higher, wages are only about 0.5 percent higher. Overall *pass-through* has been relatively stable over time, apart from a dip during 2008-2010 which corresponds to the GFC. This cyclical pattern is not particularly surprising. Uncertainty was high and confidence was low during the GFC as workers worried about their jobs and firms worried about the future state of their markets and their own survival. We would expect lower rates of *pass-through* when uncertainty is high.

We do see a significant change in the importance of *worker sorting* in explaining overall *pass-through. Worker sorting* and *rent sharing* each explained about 50% of the overall *pass-through* in the earlier part of our study (2002-2007). Since then, the importance of *worker sorting* has declined, while the importance of *rent-sharing* has increased. By 2018, *worker sorting* explained only 10% of the overall *pass-through*. This means that higher quality workers are less likely to be working in high-rent firms than they were in the early 2000s. It seems that workers of different quality are more evenly spread across firms with different levels of rents. This tendency for better workers to be more evenly spread across firms with different levels of rents and wage premiums is one explanation for the decline in the share of rents paid as wage premiums from 2010.

While the peak in 2010 of the wage premium share of rents in Figure 2 and the decline in *pass-through* at the same time in Figure 3 may seem odd, they are both the result of rents falling faster than wages or wage premiums during recessions. Wages tend to be sticky, meaning they don't tend to fall by nearly as much as rents, especially for existing workers. This results in an increase in the share of rents paid as wage premiums. It also weakens the relationship between wages and rents at the firm level, which results in a lower estimate of *pass-through*.

Conclusions

In this work we have developed a measure of firm performance which measures the amount available to be shared between the firm and its workers (rents) and then tested the extent to which these rents are reflected in wages. We find that workers have received between 30% and 40% of total rents, although the share has been declining since 2010. We find that workers in higher-rent firms receive about 12% of the extra rents, and workers in firms with growing rents receive about 7% of the increased rents at the firm. Our results are in line with comparable international studies on these topics.

Our results show that workers do share in firm success. Workers in better performing firms tend to earn higher wages, and workers in firms with improving performance tend to benefit from this improved performance. However, wage premiums do not vary as much as rents. In good (high rent) years, wage premiums increase only slightly, and in bad (low-rent) years, wage premiums are only slightly reduced.

Overall *pass-through* displays a slight cyclical pattern, with lower *pass-through* during the GFC, when wage premiums dropped less than rents. This likely reflects the higher uncertainty and lower confidence about the future state of the economy during this period. The most striking finding is the change in the importance of *worker sorting* in explaining *pass-through*. This has declined dramatically over our study period, indicating that workers of different quality are more evenly spread across firms with different levels of rents. Most of the *pass-through* is now explained by *rent sharing*. Investigating the reasons behind the declining importance of *worker sorting* will be an important area of research to understand the changing labour market.

Next steps and future research

There are a number of questions still to address, including which types of workers tend to benefit from higher rents or which types of firms tend to share more of their rents with workers. This is the focus of our future work.

It would be good to explore the reasons behind the differences in rents across firms. Some firms may have product market power which enables them to push up prices (e.g. due to innovative products or intellectual property). Others may have labour market power, enabling them to keep wage increases low (e.g. from being the main employer in a town). Future work could consider the source of differences in firm rents and what this means for *pass-through* and *rent sharing*. Finally, future research could consider the interactions between firm rents, *pass-through*, and labour market institutions or regulations (e.g. collective bargaining, minimum wage). This body of work will give us a much deeper understanding about the interactions between firms and workers in the labour market and the role of policies and institutions in these relationships.