

# Real wage growth in Papua New Guinea over three decades



*Photo Credit: NBC East New Britain*

by Martin Davies

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Until now, the study of real wages — wages adjusted for the cost of living — in Papua New Guinea (PNG) has been thwarted by a lack of data, leaving policymakers and researchers with little understanding of how wages have evolved over time. However, [a new study](#), using a novel dataset from Nasfund Superannuation covering nearly all formal private sector workers from 1999 to 2018, has provided a clearer picture of wage trends in PNG. This study not only provides a comprehensive sectoral analysis of real wage growth but also explores the broader macroeconomic factors that drive these trends: productivity growth and movements in the real exchange rate (RER) — a measure of the competitiveness of PNG's goods and services relative to its trading partners.

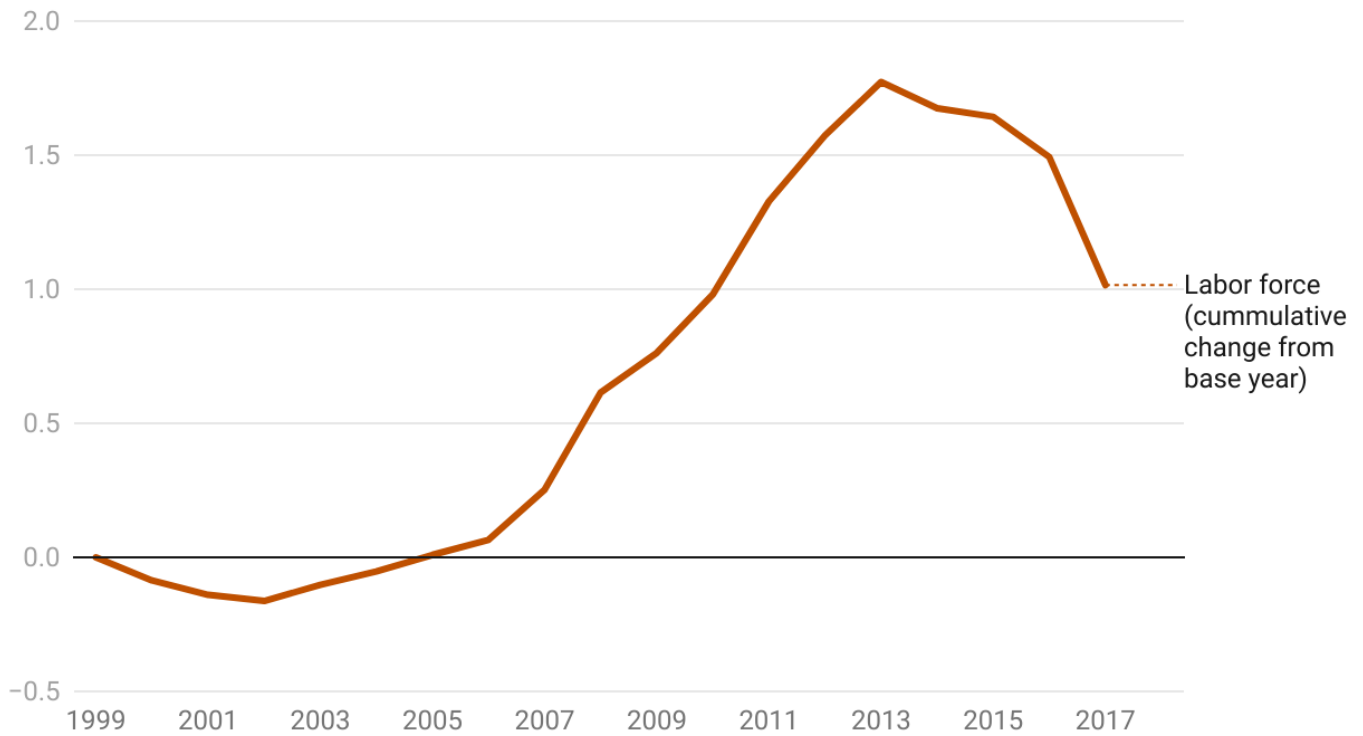
A key strength of the study is the ability to track individual workers which allows us to control for many of factors that influence individuals' real wages, such as worker skill and education levels and other unobservable characteristics. By isolating the effect of these variables, the remaining drivers of real wage growth are the effects of productivity growth and movements in the RER. This approach allows the study to clearly identify how these two factors — the efficiency with which goods and services are produced, and PNG's competitiveness relative to its trading partners — shape real wages over time. With this methodology, the movement in real wages becomes a reflection of shifts in productivity and macroeconomic conditions.

Over the 20-year period, real wages in PNG grew at an average rate of 4.5% per annum. This growth, however, closely mirrored the country's bust-boom-bust economic cycle. The first bust (1999–2002), driven by low commodity prices, severe drought and poor governance, resulted in economic contraction and declining real wages of around 8% per annum. This was followed by a boom (2003–2013), fueled by a commodity price surge and, from 2010, the investment phase of the PNG LNG project which spurred strong wage growth, particularly in the mining sector, of 8% per annum. During the second bust (2014–2018), which emerged from the end of both the commodities supercycle and the LNG construction phase and was further exacerbated by foreign exchange rationing, real wage growth slowed or declined in

the services, industry and agriculture sectors, averaging less than 1% per annum across all sectors. The economic cycle over 1999-2018 is clearly reflected in the cumulative change in the formal private sector labour force over this period (Figure 1).

## Figure 1: Cumulative change in formal private sector work force, 1999–2017

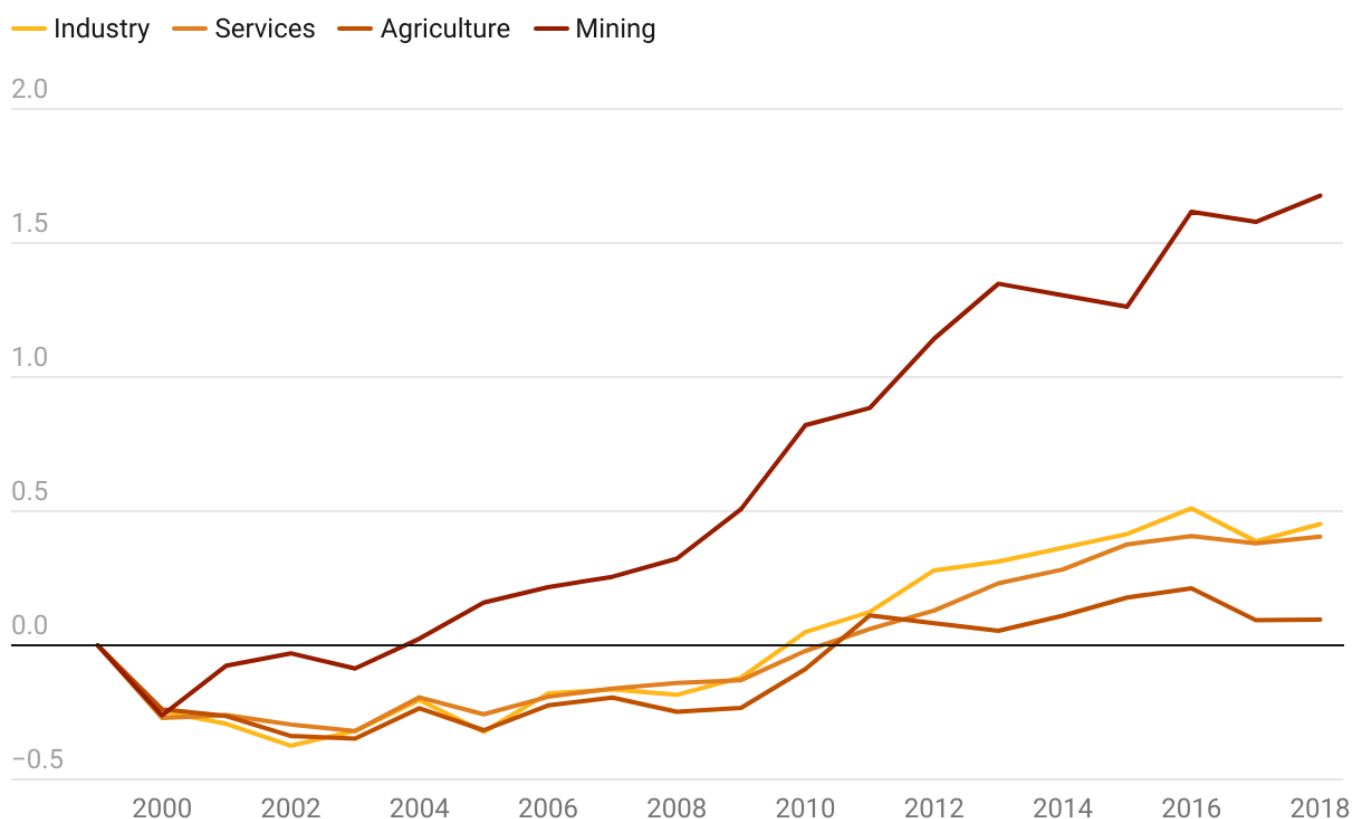
Percentage change relative to base year.



Source: Nasfund Superannuation • Created with Datawrapper

The study provides a detailed sector-by-sector breakdown of cumulative real wage growth from 1999 to 2018, revealing stark disparities — see Figure 2. The mining sector emerged as the clear winner, with cumulative real wages growing by over 150% over this period, driven by favourable commodity prices and the development of new projects like the Ramu Nickel and PNG liquefied natural gas (LNG) projects.

## Figure 2: Cumulative growth in conditional real wage by sector (1999-2018)



Source: Nasfund Superannuation • Created with Datawrapper

In contrast, agriculture consistently lagged behind other sectors. Limited investment in the sector and its vulnerability to economic shocks resulted in slower real wage growth of around 2% per annum. The services and industry sectors showed moderate growth of around 3% per annum, but their real wages began to plateau after 2013 as anticipated economic benefits from the LNG project failed to fully materialise.

The study also sheds light on the gender disparities in real wage trends. During periods of economic expansion, men experienced higher real wage growth than women. However, men also bore the brunt of wage declines during economic downturns.

Interestingly, women in the non-mining workforce experienced higher real wage growth than men. This is likely to be a reflection of the higher entry barriers women face, and the higher qualifications they require, to secure formal employment. In a companion paper using the same dataset, we find that women make up only around 30% of formal private sector workers. Here, mining was the exception, where men and women saw similar wage trends.

These findings highlight structural inequalities in PNG's labour market, where access to formal sector employment remains limited for women. Addressing these barriers through targeted policies, such as promoting gender inclusion or investing in skills training for women, could help improve female formal labour market participation.

As noted above, the study shows that the primary drivers of real wage movements in PNG are improvements in productivity growth and changes in the level of the RER.

Productivity growth refers to the ability to produce more goods or services using the same level of inputs, such as labour, land and capital. When productivity rises, workers produce more, becoming more valuable to their employers, usually resulting in higher wages. In sectors like mining, investments in technology and infrastructure have boosted productivity, and this along with surging commodity prices and the need to bid workers away from other sectors during periods of expansion are key factors behind the substantial wage growth observed. Another factor in mining maybe the upskilling of the workforce, as less skilled workers are replaced by more skilled workers, which is something we can't control for in our analysis.

An appreciating RER, as seen from 2003 to 2009, driven by the increased value of the Kina, made imports cheaper, boosting workers' purchasing power. However, an appreciating RER is a two-edged sword as it also made non-resource exports less competitive, slowing growth in the agriculture and industry sectors — a “Dutch Disease” effect. Conversely, a depreciating RER, as seen from 1999 to 2003, led to a significant decline in real wages. After 2013, the connection between the RER and real wages began to weaken, especially in the services and industry sectors, as global commodity prices fell and expectations of the LNG project adjusted to more subdued realities.

After 2013, real wage growth slowed or plateaued across most sectors. While mining remained relatively strong, non-resource sectors like services and agriculture saw limited growth as global commodity prices fell and economic expectations recalibrated. The anticipated positive spillovers to the non-resource sector from PNG LNG production failed to materialise, and the recalibration to lower non-resource growth by business owners left many workers without the wage increases they had hoped for.

This comprehensive study of real wages in PNG provides valuable lessons for policymakers. Targeted interventions are needed to support sectors like agriculture, which have consistently lagged in productivity improvements and therefore real

wage growth. Investments in productivity-enhancing technologies and infrastructure, particularly in rural areas, could help boost agricultural wages and reduce economic disparities. Additionally, allowing for greater flexibility in the RER could support wage growth across the non-resource sectors by enhancing export competitiveness and growth.

Furthermore, addressing gender disparities in the labour market is essential. Policies promoting women's inclusion in the formal labour market, combined with investments in education and training programs for women, could help close the gender participation gap and ensure that economic gains are more evenly distributed across the sexes.

Real wages in PNG have evolved significantly over the past two decades, closely tied to the country's economic cycles and resource dependence. By isolating the joint effects of productivity growth and the RER, this study provides a clearer understanding of what drives these wage trends. While resource booms have led to wage growth in mining, sectors like agriculture have struggled to keep pace, leading to an uneven distribution of economic gains. Additionally, gender disparities in labour market participation underscore the need for targeted policies to promote female inclusion in the workforce. By focusing on policies to improve productivity in the non-resource sectors, particularly agriculture, and implementing gender-sensitive policies, PNG can ensure that the economic benefits of development are more equally distributed.

### **Disclosures:**

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