Whakawhanaketia Putanga Hua a Māori
- he pepa tirohanga

*Lifting Māori Productivity – a scoping paper*
Me mahi tahi tātou

Let us work as one

This report was prepared for Te Puni Kōkiri by NZIER

REALISING MĀORI POTENTIAL

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The framework above identifies three key enablers that are fundamental to Māori achieving Te Ira Tangata (improved life quality) and realising their potential. All our written information has been organised within these three key enablers or Te Ira Tangata.

1. Mātūranga – Building of knowledge and skills. This area acknowledges the importance of knowledge to building confidence and identity, growing skills and talents and generating innovation and creativity. Knowledge and skills are considered as a key enabler of Māori potential as they underpin choice and the power to act to improve life quality.

2. Whakamana – Strengthening of leadership and decision-making.


4. Te Ira Tangata – The quality of life to realise potential.

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KEY POINTS

PRODUCTIVITY IS PERVERSIVE: WE ALL WANT MORE FOR LESS

It is easy to write off “productivity growth” as just another piece of economic jargon that has little or no implications for the average New Zealander, including Māori. But history shows that productivity is a key – perhaps the key – driver of national incomes and average living standards. Recent research by the 2025 Taskforce suggests that the income gap between New Zealand and Australia now equates to around $64,000 per household. Given that average Māori incomes are lower than the New Zealand average, the gap between Māori households and Australian households will be larger still. Boosting productivity growth will be vital if we are to ‘close the gap’ by 2025.

LIFTING MĀORI PRODUCTIVITY WILL DELIVER BROAD BENEFITS

Productivity is about using resources more efficiently. A better use of resources will deliver a wide range of benefits including higher incomes, better use of the environment and higher quality social services such as health and education.

TE PUNI KŌKIRI HAS A CENTRAL ROLE IN SUPPORTING MĀORI PRODUCTIVITY GROWTH

Te Puni Kōkiri can support Māori students, workers, asset owners and businesses directly through targeted policy interventions around training and R&D. It can also help to fill information gaps that might be preventing Māori from making the best long term choices about where to allocate their assets.

MEASURING MĀORI PRODUCTIVITY WILL BE A CHALLENGE

Effective Te Puni Kōkiri policies designed to promote Māori productivity need to be monitored and evaluated to ensure they deliver value for money. Doing so is hampered by a lack of readily accessible data on the Māori economy. There are various data sets that contain information on Māori assets and income. But they are not always up to date, are challenging to define, and are not centralised. Until we have accurate and regularly published estimates of Māori GDP and the Māori capital stock, for example, then partial estimates are all that are available.

BUT THE SOONER THE DATA GAPS START TO BE FILLED, AND THE SOONER MĀORI BUY INTO PRODUCTIVITY AS A PRIORITY, THE BETTER

As well as its policy initiatives, Te Puni Kōkiri has a key role in promoting productivity, both through building a deeper relationship with Statistics New Zealand to encourage the collation and dissemination of Māori economic data; and through demonstrating behaviours that promote the more efficient use of resources.
PURPOSE OF REPORT

Productivity isn’t everything, but in the long run it is almost everything. A country’s ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker.


Te Puni Kōkiri’s Statement of Intent (SOI) 2009-2012 aims to identify where Māori can make an improved contribution to the New Zealand economy in the medium to longer term.¹

Key outcome measures include:

Growth of the Māori asset base, including housing, and an increased contribution of this asset base to GDP (i.e. improving the rate of return on Māori assets)²

• Increased secondary and post-compulsory educational achievement
• Higher levels of Māori employment and household income
• Enhanced Māori business services.

The theme underpinning all of these desired outcomes for the contribution of Māori to the New Zealand economy is boosting productivity. As Krugman’s quote above suggests, productivity growth is central to lifting living standards and delivering better social and cultural outcomes for Māori.

Te Puni Kōkiri wants to gain a better understanding of the conceptual and practical aspects of defining and measuring productivity as it relates to Māori economic, cultural and social objectives. This will inform its thinking around potential policy interventions for supporting Māori productivity growth. This in turn will contribute towards Te Puni Kōkiri having a constructive and positive voice in the ongoing debate about New Zealand’s productivity performance.

This scoping report provides a conceptual overview of productivity, summarises the extent of existing data on the Māori contribution to the New Zealand economy and Māori productivity, and identifies options for filling information gaps in the current stock of knowledge.

¹ The SOI also outlines a number of immediate challenges facing Māori as the New Zealand economy recovers from the recent recession. These include the loss in Māori asset value in trade-exposed sectors such as agriculture, fishing, forestry and tourism and the labour market effects of the slowdown, which traditionally disproportionally affect Māori. These cyclical challenges are not to be under-estimated. Although the recession has technically finished and the economy is growing again, the effects on Māori employment and households could be felt for some time yet. However, this report deliberately takes a longer term perspective on the potential of the Māori economy, primarily because productivity tends not to change too rapidly in the short term.

² Note that the estimates of the Māori asset base calculated by NZIER and others do not include housing. However, the SOI definition recognises that housing is an important asset for Māori (as it is for other population groups in society).
WHAT IS PRODUCTIVITY AND WHY DO WE CARE?

DEFINING PRODUCTIVITY

Productivity is a big buzzword in policy and business circles at the moment. The government has stated its intentions to close the per capita income gap with Australia by 2025, relying on boosting productivity as its major weapon.

At its most basic level, productivity is simply the ratio of output to input. That is, how much output can be generated from a given set of inputs. At the firm level, this is how much of a good or service can be produced for any combination of capital, labour, land, energy and technology. At the economy wide level, productivity refers to the amount of Gross Domestic product (GDP) that New Zealand can produce using its available resources.

Productivity growth, therefore, is the change in output that is driven by a change in the levels or mix of inputs.

It is common to examine productivity in terms of looking at one input at a time. For example, labour productivity growth refers to the change in output that is attributed to a change in labour input. Capital productivity growth is the change in output resulting from a change in the capital stock. These are both relatively easy to measure.

Total factor productivity (TFP) or multifactor productivity (MFP) is usually defined as whatever is left over once labour and capital productivity are accounted for. It represents how technological change, managerial efficiency improvements, changes in the quality of inputs, etc, affect output.

IT’S ALL ABOUT LIVING STANDARDS

Productivity growth matters because it is a key driver of income growth. And income – whilst not a perfect measure of how ‘well off’ we are as a society – is a good indicator of the average standard of living.

According to the 2025 Taskforce (2009, p3), the income gap between Australia and New Zealand “is large...For a family of four, that gap is worth around $64,000 a year”.

The major driver of that gap, aside from natural resource endowments, is often associated with New Zealand’s relatively poor productivity performance. Simply put – Australia is far better at generating output from its given resources than is New Zealand. It is more productive.

There are in fact subtle differences between TFP and MFP. TFP refers to measurements when all inputs are used in the denominator. MFP refers to the ratio of output to a subset – usually labour and capital – of inputs.

See Treasury (2003) and Statistics New Zealand (2009a) for more technical details on measuring productivity.

It is important to note that productivity growth is not about replacing labour with capital. It is easy to think that productivity growth is represented by factory owners using more machines instead of workers, causing negative impacts on employment, particularly in relatively low skilled areas of the economy.

But this is too simplistic. Productivity growth means that workers produce more value (more stuff or more valuable stuff) per hour. This raises incomes which is shared between these workers (wages) and owners of capital (profits). These workers and capital owners have more money to spend on other goods and services in the economy, which stimulates demand elsewhere, leading to more employment and income growth in other parts of the economy. The government in turn receives more taxes through income, corporate and indirect taxes such as GST. This allows it to deliver higher quality social services such as health, education, etc. So productivity growth is ‘a rising tide that can lift all boats’.

**BUT IT’S NOT JUST ABOUT THE MIGHTY DOLLAR**

Productivity is most often referred to – as above – in relation to economic output or GDP. However, the concept of getting more from less can apply to any type of resource, be it simple to measure in dollar terms or not. Productivity can also be thought of in terms of what benefits society generates from its various resources. This is not only about people producing and selling things (i.e. incomes) but a much broader notion of living standards, which encompasses health, social, cultural, and environmental ideas. These are not always easily measured or captured in GDP (see Stiglitz, Sen and Fitoussi, 2009). These non marketed services from cultural, environmental and other resources are important for Maori and Maori GDP – as traditionally measured – may thus be more biased down than for other groups.

For example, a key challenge for Māori is lifting educational standards. Education is an input that can make Maori labour more productive. In other words, by investing in human capital, through the right type and right amount of education, Maori could lift the value of what their labour produces, that is it could raise the rate of return of their human capital. This can be thought of as a form of productivity related to Māori human capital. There is a stock of Māori human capital in the New Zealand economy, and there are benefits – both to Māori and to the wider economy – from lifting the rate of return on that capital. What institutional settings, incentives and policy settings need to be in place in order to generate the most value from the Māori labour force?

We could also think of “cultural productivity” as the amount of cultural benefits and awareness of Māori history/culture that can be generated by a given set of inputs. This is important for both commercial and cultural reasons. Is the cultural value of outputs delivered by Māori tourism operators in Rotorua, for example, as high as it could be? How could it be improved without any significant change in inputs? Or could there be improvements in the way that cultural traditions are passed down through whanau over generations to ensure that these values are maintained and strengthened over time? These cultural assets are valuable, albeit difficult to measure.

Another example of productivity relates to ‘value for money’ from government agencies. At a time of fiscal pressure, all agencies are being pushed to deliver efficient services and do more with the fiscal dollar. Encouraging productivity within Te Puni Kōkiri programmes can make a positive contribution to these efforts.

The environment is another area where productivity becomes very important, both in terms of valued and non-valued outputs. Māori own significant amounts of natural resources that

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Te Puni Kōkiri (Ministry of Māori Development) means a group moving forward together.
generate benefits that are not easily captured in GDP statistics. However, this does not mean that Māori should treat these assets any differently to their other physical or personal assets – they should aim to derive as much output and benefits from their natural resources, even if this output is non-tradable.

Furthermore, we live in a water and carbon constrained world. Both are likely to face market pricing in the near future (e.g. through the Emissions Trading Scheme). There will be clear financial incentives to reduce the amount of water and carbon per unit of output, and especially agricultural output which is so vital for the Māori contribution to the New Zealand economy. So trying to generate efficiency gains from production processes that reduce carbon emissions or water usage will be beneficial for Māori.\(^6\)

So productivity isn’t just about squeezing every last drop of income from workers. It is about getting as much benefit from each of society’s resources as possible. It is a means to an end, not an end in itself. And as the 2025 Taskforce notes (p.15):

\textit{Most people, whether or not they fully appreciate it, value economic growth, and the ability of the economy to generate more, mainly for the choices that growth enables them to make. Those choices might be exercised in the form of consuming more or better things – bigger houses, better quality food, designer clothes, more toys for the children. It might take the form of more exotic holidays, or early retirement.}

\textit{Or it might be better health – countries with higher incomes typically produce better health outcomes, and can afford technologies and treatments not generally available in poorer countries.}

Improving productivity, therefore, leads to a widening in the scope of choices that Māori workers, households, capital owners, land owners, business owners and policy makers can make. This is surely a worthwhile objective.

**HOW HAS NEW ZEALAND DONE?**

As noted above, New Zealand’s recent productivity performance has not been great:

- Average labour productivity fell by 0.3% per year between 2006-2009, compared to average growth of 1.9% per year between 1978-2009.\(^7\)

- Multifactor productivity dropped by 1.5% per year between 2006-2009, compared with annual growth of 0.9% over the past two decades.

- Our labour productivity is just 55% of that in the US, and 69% that of Australia (OECD, 2010).

- Our multifactor productivity has averaged just 0.4% between 1985 and 2006, compared to 1.0% in Australia, 1.1% in the UK, 1.3% in the US and an astounding 3.3% in Ireland. A similar pattern can be seen in average GDP growth rates.

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\(^6\) This also aligns with Treasury (2009, p.12) which promotes “using natural resources to bring the greatest benefit to society – within the limits of sustainability”.

\(^7\) This is for the measured sector only. the measured sector covered approximately 74 percent of the economy. It excludes the following industries: government administration and defence, health, education, ownership of owner-occupied dwellings, and property services (Statistics New Zealand, 2009a).

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Our poor productivity performance has dragged down growth, as shown in Figure 1. Clearly, as a nation, we need to lift our productivity game.

In the remainder of this report, we review the existing literature on measures of Māori productivity, identify some gaps in the data and analyse what role Te Puni Kōkiri might have in supporting Māori to lift their productivity.

Figure 1: Contributions to economic growth

Source: Statistics New Zealand, NZIER
MĀORI ECONOMIC DATA – STOCKTAKE

ECONOMIC FRAMEWORK

Māori productivity is covered, somewhat indirectly, in a number of reports discussing the Māori economy and Māori economic development (see for example TPK 2007a; NZIER 2007; Whitehead and Annesley 2005; Infometrics 1999).

Many of these reports consider Māori productivity in descriptive rather than quantitative terms due to a lack of relevant Māori specific data (see for example Whitehead and Annesley 2005; TPK 2002). Several authors, however, have estimated the Māori contribution to GDP (NZIER 2007) and other Māori economic performance measures (NZIER 2005). In addition, Statistics New Zealand does collect some Māori specific information. These data, quantitative estimates and qualitative descriptions provide some insight on Māori productivity.

A useful framework for considering Māori productivity is provided by a New Zealand Treasury paper prepared for the Hui Taumata 2005 Steering Committee. 8 The three themes of Hui Taumata are closely aligned with the concept of productivity (Whitehead and Annesley 2005):

• developing assets (asset productivity)
• developing people (labour productivity)
• developing enterprises (combined asset and labour productivity).

We look at these below to determine what ‘hard facts’ we can obtain from existing data sources.

ASSET PRODUCTIVITY

The importance of industry composition

Māori asset productivity varies by sector with low returns in primary industries and evidence of relatively high returns in the service sector. Māori asset to labour ratios are comparatively high (NZIER 2003). As a consequence there is generally low output per asset, or in other words relatively unproductive assets. Data suggests however, that Māori asset productivity is relatively high in education, property, health and community services (TPK 2007a; NZIER 2005).

Māori Trusts had relatively low returns in 2005: 1.8% and 1.2% to equity and assets respectively (Statistics New Zealand data reported in TPK 2007a). This probably reflects the high share of assets in primary industries held by Māori Trusts (where productivity tends to be lower). Māori Trusts as a group have a significantly lower return on equity and assets than the

average of all New Zealand businesses. Their returns were only slightly lower, however, than New Zealand wide returns on agriculture, forestry and fishing.\(^9\)

The high share of Māori assets in land, and the primary sector generally, is to some extent a consequence of Treaty of Waitangi settlements returning predominately land to Māori (see Coleman et al 2005).\(^10\) Settlements have resulted in, at times rapid, growth in Māori assets from the 1980s.

Te Puni Kōkiri estimate that total Māori-owned commercial assets grew in value from $8,992 million in 2001 to $16,450 million in 2005/06, about 1.5% of the reported value of the New Zealand business sector (TPK 2008). While data and methodological difficulties cause some problems when comparing across time, NZIER (2007) suggests that the Māori contribution to the New Zealand economy has increased over this period.

The rapid increase in assets was accompanied with a reduction in asset productivity. Māori trust return to equity decreased from 5.1% in 2001 to 1.8% in 2005 (TPK 2007a). This compares to around 10% return to equity based on the New Zealand stock exchange over the same period. This possibly reflects growth in the share of total Māori assets in the primary sector, problems shifting new assets to productive uses, or slower growth in labour or other inputs needed for productivity in combination with accumulated assets.

Evidence suggests that Māori asset productivity performance is stronger in service sectors. NZIER (2005) estimates identify education; property and business services\(^11\) and; health and community services as areas where Māori operating surplus per unit of asset base is higher than New Zealand averages (NZIER 2005 and SNZ Annual Enterprise Survey).

Several reports (for example NZIER 2005; NZIER 2003) identify tourism as another sector where Māori assets are, or have the potential to be, relatively productive. Tourism is also considered by many to have considerable productivity potential due to Māori entrepreneurship and tourist demand for authentic cultural experiences (NZIER 2003).

### Barriers to improving asset productivity

As noted above, a significant share of Māori assets are in the form of land. Te Puni Kōkiri in Controller and Auditor-General (2004) note several factors that hamper Māori ability to make land more productive:

- **Multiple ownership.** According to Kingi (2009), in 2008 there were 26,480 Māori land certificates of title with an average size of 59 hectares and an average number of owner interests of 73 per title. This makes communication and land use decision-making difficult, particularly as many owners are absentee (TPK 2002). It also makes it more difficult to access finance due to problems using collectively owned land as collateral (NZIER 2005; Whitehead and Annesley 2005).

- **Governance and management.** There is a lack of people with planning and decision making expertise to govern or manage assets (Te Puni Kōkiri in Controller and Auditor-General 2004). NZIER (2005) suggest, on the other hand, that Māori leadership and

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\(^10\) 40% of Māori assets are in the tertiary sector, 8% are in secondary industries and the remaining 52% are in primary industries (TPK 2007)

\(^11\) Māori have significant holdings of assets in property and business services (NZIER 2005).
management ability may be understated in the literature, although they point out that Māori senior experience is generally as members of boards rather than in management (NZIER 2005).

Other factors noted by the Controller and Auditor-General (2004) include limited information on current and potential Māori land use; difficulty accessing some Māori land, and; problems dealing with local authorities attempting to recover rates arrears.

LABOUR PRODUCTIVITY

Labour productivity is largely determined by the amount of capital available per worker, as covered above, and multifactor productivity – how efficiently capital and labour are combined (Whitehead and Annesley 2005).

We focus below on multifactor productivity (MFP). MFP is influenced to a large extent by people’s skills and qualifications. Consequently education and training are key determinants of labour productivity.

Appropriate education and training are important for lifting and maintaining productivity in all sectors of the Māori contribution to the New Zealand economy. The role of knowledge and innovation for improving output in the primary sector is stressed by Skilling (2006; and in TPK 2007). Te Puni Kōkiri suggest that primary industry training is of particular importance for Māori because of the large share of the population active in primary production (TPK 2007).

The growing presence of Māori in service industries, such as property services or education and health (NZIER 2005), highlights the importance of training to maintain current (high) levels of labour productivity in these sectors.

Improving multifactor productivity - education and training

The skills and knowledge for improving human capital and multifactor productivity can be accumulated through formal education training and/or on-the-job training (Whitehead and Annesley 2005). As well as a direct positive impact on MFP, education and training improves labour market participation, which in itself tends to improve a person’s productivity (see Whitehead and Annesley 2005).

Māori levels of education and training have improved considerably, both over time and relative to other groups (see Ministry of Education 2009; TPK 2002):

- A higher percentage of Māori than ever before are attaining the highest level of qualification at school, while a smaller share are leaving school with little or no attainment (see Department of Labour 2009). ¹²
- The number of Māori tertiary graduates almost doubled between 1994 and 2000, increasing from 11.8% to 14.6% of the graduate population (TPK 2002).
- The number of Māori tertiary students increased by 15,000 (23% of the total) between 2001 and 2008 (Ministry of Education 2009). ¹³

¹² From 2005 to 2008 the portion of Māori attaining NCEA 3 or higher increased from 10.8% to 19.5%. Over the same period the percentage leaving with little or no formal achievement decreased from 25% to 10.4%


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Research suggests that Māori have a similar occurrence of on-the-job training as Pakeha, and that their training may even be more intensive (Gibson and Watene reported in Whitehead and Annesley 2005).

Although Māori education has improved considerably there is still room for further improvement. A greater proportion of Māori are leaving school with no qualification relative to other groups. And Māori are more likely than Pakeha to participate in certificate and diploma level courses while being under-represented in degree level and post-graduate study (Whitehead and Annesley 2005). According to Scott (2009), an undergraduate degree (on average) generates earnings one year after completion that are some 33% higher than those from a diploma and 50% higher than that from a Level 4 certificate (usually associated with a one-year vocational or trades-based training course). Improving Māori education outcomes is likely to be positive for Māori productivity.

Māori productivity strengths – innovation and relationships

Multifactor productivity is determined by more than simply training and education, however. One of the important drivers of recent rising Māori living standards has been the initiative of Māori people in developing new business activities and social services (Coleman et al 2005). NZIER (2002) also note the innovative products and services produced by Māori individuals and organisations (NZIER 2002).

Also highlighted as important for productivity, and generally considered a strength of Māori, are strong personal relationships. Whitehead and Annesley (2005) and TPK (2007) highlight Māori strengths in building and maintaining networks and their ability to work collaboratively – a result of tribal structures.

SUMMARY

Although the literature does not deal directly with Māori productivity in any detail, reports on the Māori economy and Māori-specific data enable us to infer some tentative conclusions:

• Māori asset productivity varies considerably across sectors, as does asset productivity in New Zealand in general. Many Māori assets are based in the primary sector where asset productivity is generally low. Māori primary industry assets may even be less productive than in the wider New Zealand primary sector due to management and ownership issues.

• Māori education and training strongly influence MFP and Labour productivity. Māori tend to lag in educational attainment statistics, but these measures have shown marked improvements. This is likely to be having a positive impact on MFP, and will probably be reflected in higher Māori productivity over the next few years.

• The key productivity challenge facing Māori today is shifting from increasing the quantity of Māori assets, to improving the distribution of existing human and physical capital amongst sectors in the New Zealand economy. The use of Māori assets must be diversified – based on a sound economic framework – to avoid over-reliance on any one sector.

• Finally, as noted by TPK (2002) Māori Trusts particularly may have incentives for investment other than maximising financial returns. In some cases low financial return to assets may reflect a more social or cultural focus to asset use. This is perfectly valid, and recognises that wellbeing is a holistic measure that is well served by non-economic returns.
THE WAY FORWARD: HOW CAN TE PUNI KŌKIRI HELP?

Since productivity growth is essentially about creating more choices for Māori, it is useful to think about where Te Puni Kōkiri might best assist. It is not immediately obvious that officials have a role in telling Māori students, workers and firms what they should do with their assets. That is a role best performed, in general, by the marketplace. Provided adequate information is available, then Māori should be able to respond to market-based incentives (profits, wages, social returns).

However, it may be the case that Māori do not have sufficient information to be able to make fully rational economic decisions. The market doesn’t always function properly. In this case, Te Puni Kōkiri can play a valuable role in providing information and matching those who own assets with those who demand assets.

Some of the barriers to improving land asset productivity mentioned above can be addressed, to some extent, with appropriate human capital. Improving the quality of labour is recognised as a key step to improving multifactor productivity and productivity growth generally (see for example Sharpe et al 2009). According to the New Zealand Treasury, improving the education and skills of Māori people will provide the most significant contribution to Māori economic development over the next 20 years (Whitehead and Annesley 2005). Te Puni Kōkiri (2007) agree, highlighting the importance of knowledge for labour productivity. Te Puni Kōkiri has a crucial role in using its networks and in-house knowledge to assist education providers to design educational courses that directly target identified weaknesses in the quality of Māori human capital. Te Puni Kōkiri also needs to continue to pro-actively ‘market’ these education and training courses to Māori communities.

In addition to providing direct support in terms of Māori-specific training and educational initiatives, Te Puni Kōkiri can also have a role in assisting Māori businesses to make more informed decisions about how they use their existing and future assets. Examples are:

- Building deeper and broader relationships between Te Puni Kōkiri and Statistics New Zealand to ensure that collecting and publishing Māori economic data is a shared priority.
- Wider dissemination of Māori economic data to highlight how current Māori assets are being used, and how the returns generated by these assets differ from the wider New Zealand economy.
- Commissioning and disseminating forecasts of potential growth areas where Māori could make a significant contribution in the future. This will help Māori communities, asset owners and workers take a longer term perspective on where they place their efforts in order to maximise their potential productivity.

The first step towards achieving higher productivity growth and thus delivering better economic, social, environmental and cultural outcomes for Māori, however, is to start generating an awareness of the centrality of productivity for the future of Māori.
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APPENDIX A: PRODUCTIVITY BY NUMBERS

A simple mathematical representation is as follows:14

\[ Y = A * f(K, L, E, NR). \]

Where

- \( Y = \) GDP
- \( A = \) Technical change
- \( f = \) function of
- \( K = \) Capital
- \( L = \) Labour
- \( E = \) Energy
- \( NR = \) Natural Resources.

Productivity is obtained by taking the first differential of this equation with respect to \( Y \). Productivity growth is calculated by looking at the change in the first differential.

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14 In reality, technical change (our \( A \)) affects each input (K,L,E,NR) differently, but for simplicity’s sake, the mathematical representation is simply highlighting that technical change is a key driver of productivity.
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