National Labour Force Projections: 2006(base)–2061 (August 2012 update)

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Key facts

National labour force projections give an indication of New Zealand's future labour force.

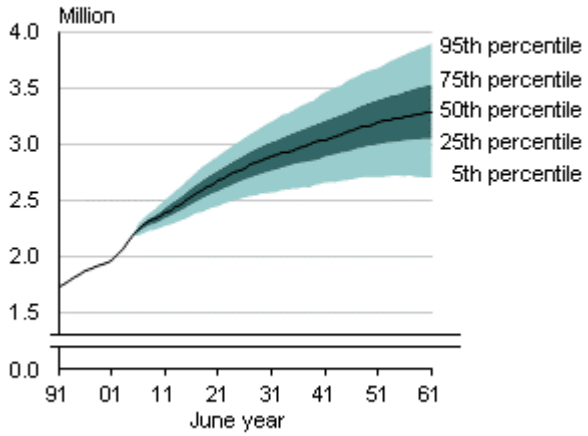
The projections indicate:

- New Zealand's labour force will continue to grow, but the growth rate will slow.
- The labour force will age, reflected in a rising median age and an increasing proportion of the labour force in the older ages.

The median projection indicates:

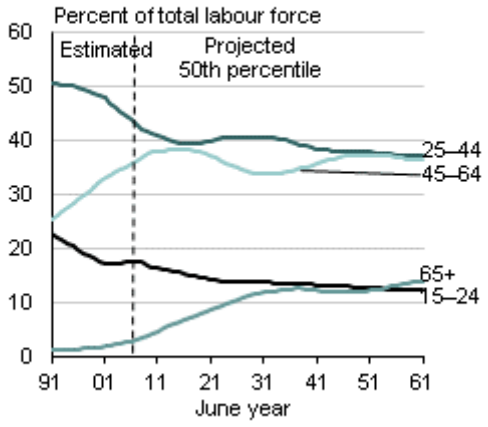
- New Zealand's labour force (2.4 million in 2012) will increase to 3.0 million in 2036 and 3.3 million in 2061.
- The labour force aged 65+ (130,000 in 2012) will increase to 370,000 in 2036 and 460,000 in 2061.
- The proportion of the labour force that is aged 65+ (5 percent in 2012) will increase to 13 percent in 2036 and 14 percent in 2061.
- The proportion of the 65+ population in the labour force (the labour force participation rate) (21 percent in 2012) will increase to about 30 percent from the mid-2020s.

New Zealand labour force
1991–2061



Source: Statistics New Zealand

Age distribution of labour force
1991–2061



Source: Statistics New Zealand

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Commentary

Important advice for using projections

National labour force projections give an indication of the future supply of people, usually living in New Zealand, available for work. They do not, however, indicate the extent to which people are available (eg number of hours per week).

The labour force includes people aged 15 years and over who:

- regularly work for one or more hours per week for financial gain
- work without pay in a family business
- are unemployed and actively seeking part-time or full-time work.

People not in the labour force include:

- people under 15 years of age
- students who do not work for pay
- people who are unemployed and not actively seeking work
- some people with childrearing responsibilities
- people who work without pay (but not in a family business)
- people who have retired.

The projections cover a range of possible outcomes based on different combinations of fertility, mortality, migration, and labour force participation assumptions. Users can make their own judgement as to which projections are most suitable for their purposes.

These projections are not predictions. The projections should be used as an indication of the overall trend, rather than as exact forecasts. The projections are updated every 2–3 years to maintain their relevance and usefulness, by incorporating new information about demographic trends and developments in methods.

At the time of release, the median projection (50th percentile) indicates an estimated 50 percent chance that the actual result will be lower, and a 50 percent chance that the actual result will be higher, than this percentile. Other percentiles indicate the distribution of values (such as projection results or assumptions). For example, the 25th percentile indicates an estimated 25 percent chance that the actual result will be lower, and a 75 percent chance that the actual result will be higher, than this percentile. Shading in graphs indicates the chance that actual results will fall within a certain range. Different shading is used to distinguish different ranges.

The following results highlight the main trends from the projections.

Increasing labour force

The total labour force is projected to rise from an estimated 2.41 million at 30 June 2012 to 2.96 million in 2036 and 3.29 million in 2061 under the median projection. There is uncertainty, however, in both the future population (size and structure) and future labour force participation rates. It is highly likely that the labour force will be in the range of 2.61–3.33 million in 2036, and 2.71–3.90 million in 2061.

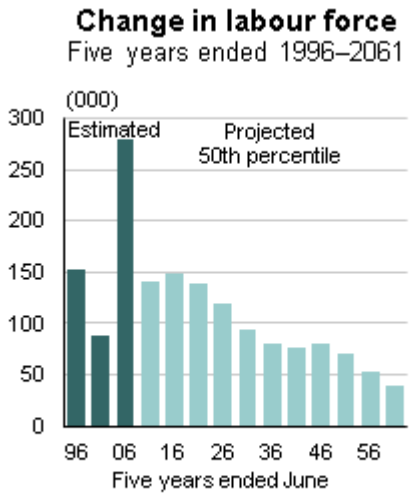
The median projection indicates that the male labour force will grow from 1.28 million in 2012 to 1.58 million in 2036 and 1.78 million in 2061. The female labour force will grow from 1.13 million in 2012 to 1.38 million in 2036 and 1.50 million in 2061.

Slower labour force growth

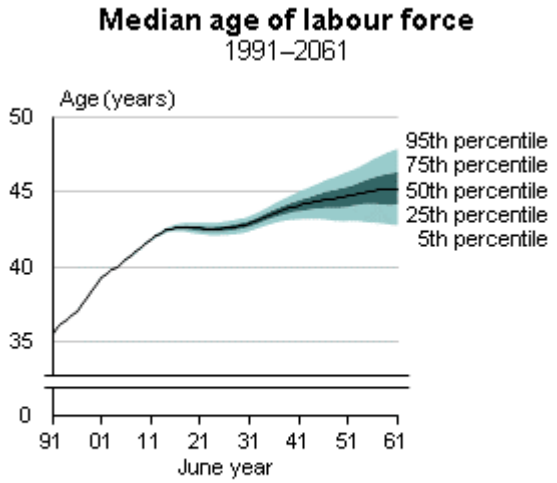
Labour force growth will slow in the future. The median projection indicates the annual labour force growth will average about:

- 1.2 percent during the 2010s
- 0.8 percent during the 2020s
- 0.5 percent during the 2030s and 2040s
- 0.3 percent during the 2050s.

Future growth in the labour force is expected to be less than historically. The projections indicate increasing proportions of older people in the population, who are less likely to participate in the labour force than people at younger ages. From 2011, the baby boomers (those born between 1946–65) began to reach age 65 years and retire from the labour force in significant numbers. The youngest baby boomers will reach age 65 years in the year 2030. As a result, smaller increases in the labour force are expected, especially after 2020, as the number of people retiring from the labour force exceeds the number of new entrants by a narrowing margin.



Source: Statistics New Zealand



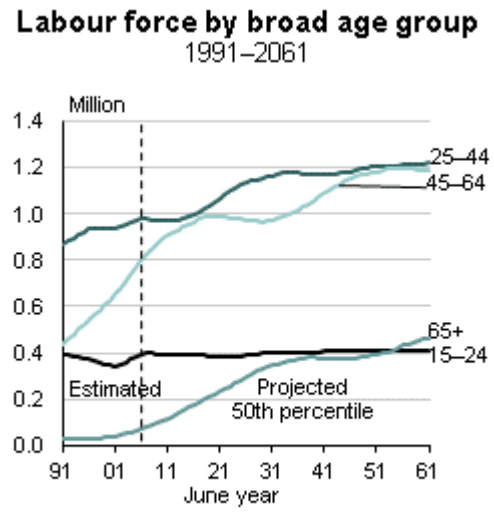
Source: Statistics New Zealand

Ageing labour force

The labour force is projected to continue ageing. The median age of New Zealand's labour force increased from 36 years in 1991 to an estimated 42 years in 2012. It is likely the median age will exceed 43 years by the mid-2030s. Half the labour force could be older than 45 years by 2061. The gradual increase in the historical and projected median age reflects the general ageing of the population, the large number of people born between 1950 and the early 1970s moving into the older ages (65+), and increasing labour force participation among males and females aged 50 years and over.

Lower proportion of younger workers

The labour force aged under 25 years is projected to remain around 400,000 between 2006 and 2061 under the median projection. Because of growth in the older segment of the labour force, the proportion of the labour force aged under 25 years is likely to decrease. From about 1 in 5 of the labour force during the early 1990s, young workers will account for about 1 in 7 of the labour force in 2021, and 1 in 8 in 2061 (median projection).



Source: Statistics New Zealand

Growth of labour force aged 25–64 years

The labour force aged 25–64 years totalled 1.9 million in 2012, and is projected to increase steadily to 2.2 million in 2036 and 2.4 million in 2061 (median projection). This broad age group made up 78 percent of the total labour force in 2012, but its share is projected to decrease to 74 percent in 2036 and 73 percent in 2061 (median projection).

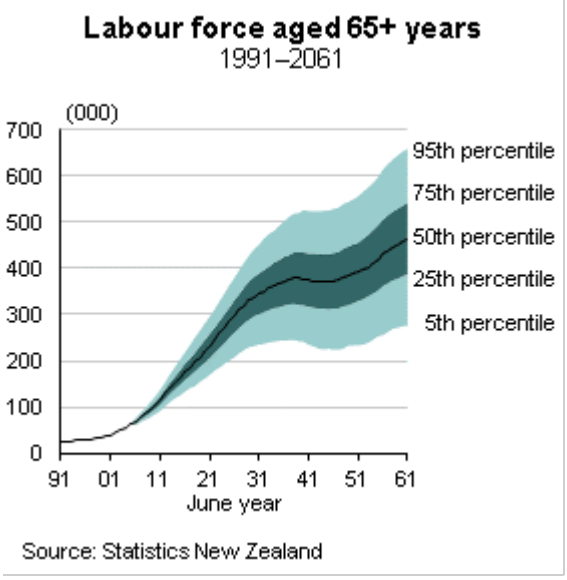
A comparison of labour force numbers in age groups 25–44 years and 45–64 years shows the impact of population ageing. In 1991, the labour force aged 25–44 years (870,000) was almost double the labour force aged 45–64 years (440,000). Between 1991 and 2012, the labour force aged 25–44 years increased by 12 percent to 970,000, while the labour force aged 45–64 years increased by 110 percent to 920,000 over the same period. The gap will continue to narrow so that by 2017 the labour force will be roughly 1 million in each age group (median projection). Subsequently, the numbers will vary as different-sized birth cohorts move through the age structure, but the size of the two broad groups will remain within 200,000 of each other.

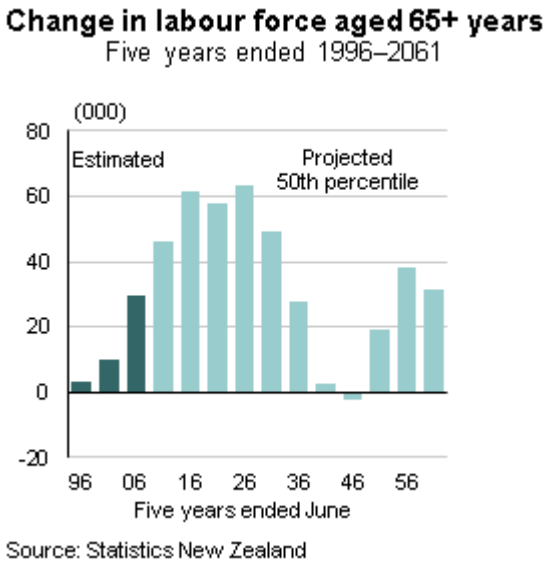
Fastest growth at older ages

The number of people aged 65+ in the labour force climbed from 25,000 in 1991 to about 130,000 in 2012. Further increases in labour force participation, coupled with more people at older ages, is likely to grow the older segment of the labour force further. It is highly likely that there will be 240,000–500,000 people aged 65+ in 2036, and 280,000–660,000 in 2061. The largest growth will occur between 2011 and 2031, as the baby boomers move into the 65+ age group.

Among those aged 65+, 1 in 16 were in the labour force in 1991. It is 1 in 5 in 2012, and is projected to increase to 1 in 3 by the mid-2020s.

As a result, by 2036, it is expected that between 9 and 15 percent of the labour force will be aged 65+, compared with 3 percent in 2006. By 2061, it is expected that between 10 and 18 percent of the labour force will be aged 65+.





Within the labour force aged 65+, the number of people aged 80 and over (80+) is also expected to increase significantly. From 8,000 in 2012, it is highly likely that there will be 21,000–64,000 people aged 80+ in the labour force in 2036, and 27,000–96,000 in 2061.

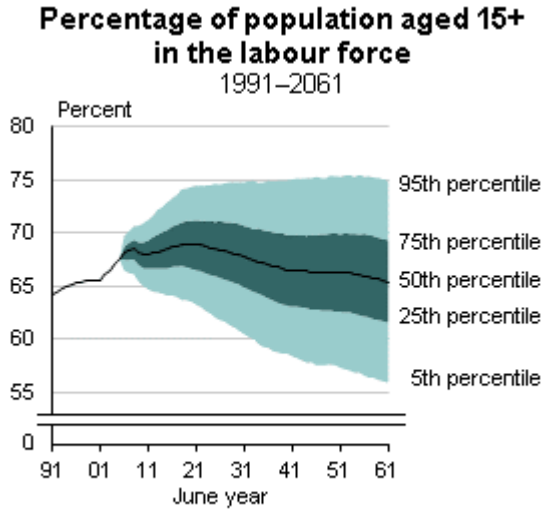
Among those aged 80+, about 1 percent were in the labour force in 1991. It is 5 percent in 2012, and is projected to increase to 10 percent by the late 2020s.

Lower proportion overall in the labour force

Overall, 68 percent of adults (aged 15 years and over) were in the labour force in 2012. The median projection indicates an increase to 69 percent around 2020, then a gradual drop to 67 percent in 2036, and to 65 percent in 2061. This drop is despite the assumptions of static or increasing labour force participation rates (LFPRs) at most ages. This apparent contradiction is caused by the changing age structure of the population, with more people at the oldest ages where LFPRs are at their lowest. For more information about LFPR assumptions, see Projection assumptions in the Data quality section.

Among males aged 15 years and over, 75 percent were in the labour force in 2006. This proportion drops to 73 percent in 2036, and to 71 percent in 2061 (median projection).

Among females aged 15 years and over, 61 percent were in the labour force in 2006. This proportion increases to 63 percent in the early 2020s, before easing back to 60 percent in 2061 (median projection).



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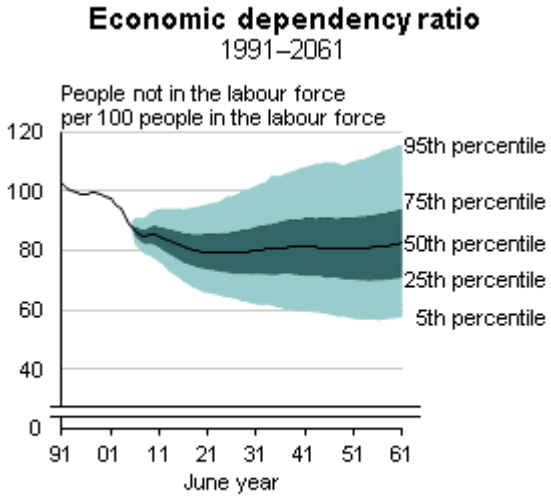


Source: Statistics New Zealand

Over all ages, there are more people in the labour force than not. The ratio of those not in the labour force to those who are (the economic dependency ratio) stands at 84 per 100 in 2012. The projections indicate that the ratio may hover around 81 per 100, but with significant uncertainty. For example, it is highly likely that the ratio will be in the range 61–105 in 2036, and 58–116 in 2061. The uncertainty largely reflects the uncertainty in future LFPRs, although uncertainty in the age distribution of the population (from the interplay of fertility, mortality, and migration) increases over the projection period.

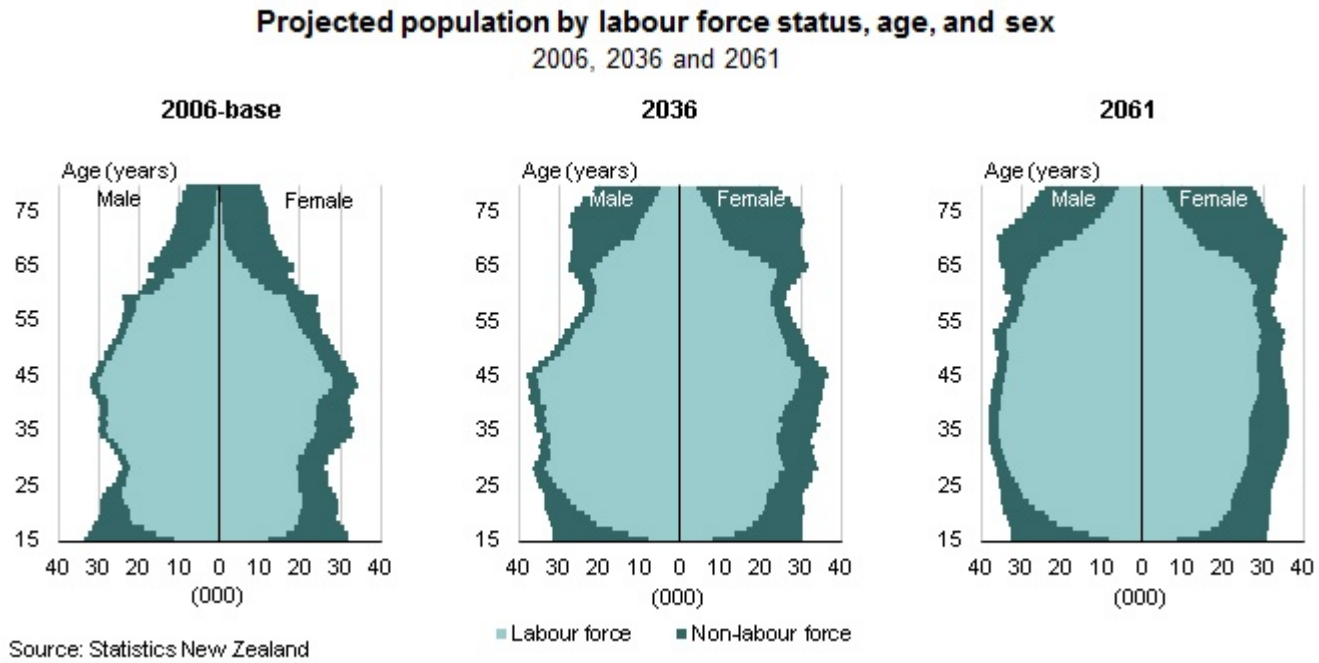
More people not in the labour force

At ages 18–64 years, most males and females are in the labour force. People not in the labour force include:

- people under 15 years of age
- students who do not work for pay
- people who are unemployed and not actively seeking work
- some people with childrearing responsibilities
- people who work without pay (but not in a family business)
- people who have retired.

In 2012, the number of people not in the labour force (at all ages) numbered 2.0 million, compared with 2.4 million in the labour force (aged 15 years and over). By 2036, people not in the labour force and people in the labour force are projected to be 2.4 million and 3.0 million, respectively (median projection). By 2061, people not in the labour force and people in the labour force are projected to be 2.7 million and 3.3 million, respectively.

The majority of people aged 65+ have retired from the labour force. The median projection indicates that the number of people aged 65+ who are not in the labour force will increase steadily from 480,000 in 2012 to 840,000 in 2036, and to 1.1 million in 2061.



Additional 'what if?' scenarios

The projections discussed above cover a range of possible outcomes based on different combinations of fertility, mortality, and migration assumptions. Five additional projections have been derived to explore other scenarios of interest.

The median projection indicates that the labour force will increase by about 900,000 workers to 3.3 million between 2011 and 2061. Labour force growth would be higher if fertility, life expectancy, or net migration (arrivals minus departures) were higher.

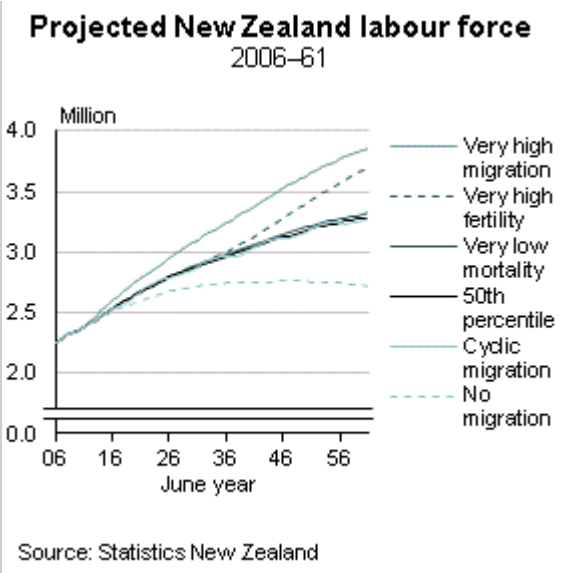
What if fertility was higher?

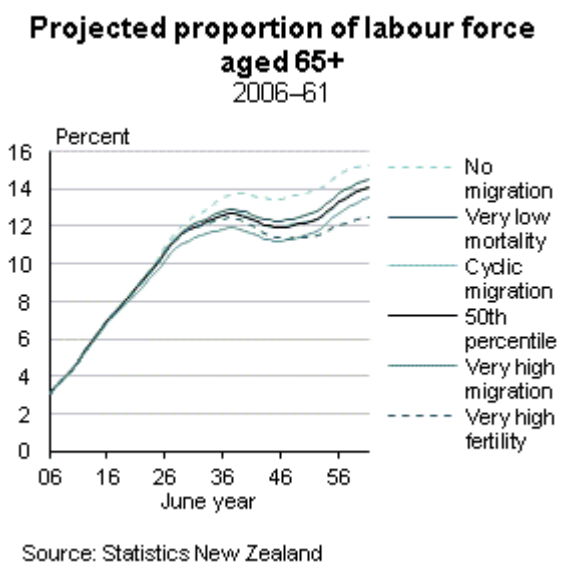
The labour force would reach 3.7 million by 2061 with a total fertility rate of 2.5 births per woman (very high fertility). The very high fertility scenario would also produce a younger age structure. The number of young workers (15–24 years) would rise by 42 percent between 2012 and 2061, compared with 5 percent under the median projection. Labour force ageing would be less pronounced, with a median age of 42–43 years over the projection period. By comparison, in the median projection, the median age increases gradually to 45 years in 2061.

The very high fertility scenario results in a higher economic dependency ratio in 2061 of 92 per 100, compared with 82 per 100 in the median projection.

What if migration was higher?

Net migration of 25,000 a year would produce a labour force of about 3.9 million in 2061 – 18 percent larger than the median projection. A very high migration scenario would have minimal impact on the ageing of the labour force, because the migrants themselves age. The median age would be about 45 years in 2061, the same as in the median projection. The economic dependency ratio would be slightly lower – 81 per 100 in 2061, compared with 82 per 100 in the median projection.





What if life expectancy was higher?

The median projection assumes recent reductions in age-specific death rates continue over the projection period. If recent increases in period life expectancy at birth continue, people could live even longer. Life expectancy could reach 95.0 years for males and females in 2061 (very low mortality). The labour force would then reach 3.3 million in 2061. This is 35,000 (1 percent) more than under the median projection. About 21,000 of these people would be in the 65+ age group in 2061. The 80+ age group would increase to over 70,000 in 2061 – 11,000 more than the median projection.

With more workers in the older ages, labour force ageing would be slightly more pronounced than in the median projection. The median age of the labour force would still be about 45 years in 2061, but the economic dependency ratio would be 88 per 100 in 2061, compared with 82 per 100 under the median projection.

What if there was no migration?

An interesting projection for comparative purposes is to assume no arrivals and no departures. This shows how the labour force is affected solely by births and deaths. With no migration, the labour force would peak at 2.8 million in the late 2040s, then slowly decline as retirements outnumber new entrants. Despite the decline, the labour force of 2.7 million in 2061 would still be 310,000 higher than the 2012 labour force. Compared with the median projection, the labour force would be lower in all age groups, but the median age and economic dependency ratio would be higher.

What if migration fluctuated?

The projections assume that net migration varies each year, although the median projection assumes net migration is a constant 12,000 from 2015. However, actual net migration tends to fluctuate significantly from year to year. The cyclic migration scenario assumes net migration fluctuates between -10,000 and +30,000 on a 10-year cycle. The net migration gain between 2011 and 2061 is the same as the median projection.

The labour force in 2061 is just 1,000 lower in the cyclic migration scenario than the median projection (3.3 million). However, between 2011 and 2061, the labour force varies between being 24,000 lower and 16,000 higher than the median projection, because of the annual differences in

net migration. Other characteristics of the labour force (eg age distribution, economic dependency ratio) are very similar between the two projections. A constant level of migration in the long term is therefore a sufficient assumption for most purposes.

For more detailed data see the Excel tables in the ‘Downloads’ box.

Definitions

About national labour force projections

National labour force projections give an indication of the future supply of people, usually living in New Zealand, available for work. The projections are based on different combinations of fertility, mortality, migration, and labour force participation assumptions.

These projections are not predictions. The projections should be used as an indication of the overall trend, rather than as exact forecasts. The projections are updated every 2–3 years to maintain their relevance and usefulness, by incorporating new information about demographic trends and developments in methods.

More definitions

Assumption: statement about a future course of behaviour (eg fertility, mortality, migration, labour force participation) from which projections of the labour force are derived.

Baby boomer: someone born in the years 1946–65, although the definition of the baby boom period varies between sources and between countries.

Base labour force: the starting labour force for the projections.

Cohort: a group of people sharing a common experience. For example, the 1900 birth cohort refers to people born in the year 1900.

Deterministic projection: a single projection from a given set of assumptions (eg about fertility, mortality, migration, labour force participation).

Estimated resident population: an estimate of all people who usually live in New Zealand at a given date. It includes:

- all residents present in New Zealand and counted by the census (census usually resident population count)
- residents who are temporarily overseas (who are not included in the census)
- an adjustment for residents missed or counted more than once by the census (net census undercount).

It excludes visitors from overseas.

Fertility: the demographic process relating to births, often summarised by birth rates and fertility rates. Fertility should not be confused with fecundity, which is the biological capacity of a population to bear children.

Labour force: the population aged 15 years and over who regularly work for one or more hours per week for financial gain, or work without pay in a family business, or are unemployed and actively seeking part-time or full-time work. This definition is used in the Household Labour Force Survey and the Census of Population and Dwellings, and conforms closely to the international standard definition specified by the International Labour Organization.

Labour force participation rate (LFPR): the proportion of a population in the labour force.

Life expectancy (period): the average length of life remaining at a given age, assuming people experience the age-specific death rates of a given period from the given age onwards. For example, life expectancy at birth for the period 2005–07 is based on death rates in that period, and takes no account of changes in death rates after that period.

Median age of the labour force: half the labour force is younger, and half the labour force is older, than this age.

Median projection: the 50th percentile, which indicates an estimated 50 percent chance that the actual result will be lower, and a 50 percent chance that the actual result will be higher, than this percentile.

Mortality: the demographic process relating to deaths, often summarised by death rates, survival rates, and life expectancy.

Percentile: indicates the distribution of values (such as projection results or assumptions). For example, the 25th percentile indicates an estimated 25 percent chance that the actual result will be lower, and a 75 percent chance that the actual result will be higher, than this percentile.

Percentiles are non-additive except the 50th percentile (median). For example, percentiles for the labour force aged 15–39 and 40–64 years cannot be added together to give the equivalent percentile for the labour force aged 15–64 years.

Shading in graphs indicates the chance that actual results will fall within a certain range. Different shading is used to distinguish different ranges.

Projection: indication of the future characteristics of the labour force based on an assessment of past trends and assumptions about the future course of demographic behaviour (eg fertility, mortality, migration, labour force participation).

Stochastic (probabilistic) projection: a projection which varies randomly according to the probability distributions of the assumptions (eg about fertility, mortality, migration, labour force participation).

Total fertility rate (period): the average number of live births that women would have during their life if they experienced the age-specific fertility rates of a given period. For example, the total fertility rate for the year 2011 is based on fertility rates in that year, and takes no account of changes in fertility rates after that year.

Related links

Upcoming releases

National Labour Force Projections (2013-base) will be released in 2015.

Subnational Population Projections: *2006(base)–2031 (October 2012 update)* will be released on 8 October 2012.

Subscribe to information releases, including this one, by completing the online subscription form.

The release calendar lists all our upcoming information releases by date of release.

Past releases

National Labour Force Projections – information releases has links to past releases.

Related information

Experimental stochastic population projections for New Zealand: 2009(base)–2111 outlines a stochastic method, and summarises the results, for projections of the New Zealand population from a 2009 base.

Household Labour Force Survey provides New Zealand's official employment and unemployment statistics.

See employment and unemployment statistics for more information about employment and unemployment.

Labour force participation of New Zealanders aged 65 years and over, 1986–2006 uses census data to examine and discuss trends in the labour force participation of older New Zealanders (aged 65 years and over).

Data quality

Period-specific information

This section contains data information that has changed since the last release.

General information

This section contains information that does not change between releases.

Period-specific information

Reference period

This release contains 2006-base projections of the labour force usually living in New Zealand. These supersede the 2006-base projections released in May 2010. The new projections have the estimated resident population in the labour force at 30 June 2006 as a base, and cover the period 2007–61 at one-year intervals. The labour force projections are derived from the latest National population projections: 2011(base)–2061 (released 19 July 2012) by multiplying the projected population by the assumed labour force participation rates (LFPRs), by single year of age and sex. Detailed projection results, including projections for individual years and by single-year of age and sex, are available in Table Builder.

Changes since the previous 2006-base projections

Stochastic projections

For the first time, Statistics NZ applied a stochastic (probabilistic) approach to producing labour force projections. Stochastic labour force projections provide a means of quantifying uncertainty, although it is important to note that the estimates of uncertainty are themselves uncertain. By modelling uncertainty in the projection assumptions and deriving simulations, estimates of probability and uncertainty are available for each projection result. Each simulation path can be considered as likely, or unlikely, as any other. However, the simulations provide a probability

distribution which can be summarised using percentiles, with the 50th percentile equal to the median.

For each assumption, the median is equivalent to the 'medium' assumption used in previous deterministic projections. Similarly, the median stochastic projection is equivalent to the deterministic projection that combined the medium fertility, medium mortality, medium migration, and medium labour force participation assumptions in previous projections (ie series 5M in the 2006-base (May 2010 update) projections). More information about stochastic projections is available in the Statistics NZ working paper Experimental stochastic population projections for New Zealand: 2009(base)–2111.

Review of assumptions

The derivation of the projections involves a review of all projection assumptions. The main changes from the previous 2006-base projections (May 2010 update) are:

- Higher **male LFPRs** at ages above 65 years and higher **female LFPRs** at ages above 50 years. In addition, there is a wider probability interval for future LFPRs at all ages, especially at ages above 50 years, reflecting the uncertainty of future LFPRs.
- Higher population projections in the long term. This reflects the combined impact of updated fertility, mortality, and migration assumptions.
    - The median **New Zealand population** from the 2011-base projections is 4.41 million in 2011, 5.36 million in 2036, and 5.99 million in 2061. By comparison, the equivalent populations from the previous 2009-base projections were 4.43 million in 2011, 5.28 million in 2036, and 5.75 million in 2061.
    - The median **annual net migration gain** is assumed to be 12,000 in the long term, compared with 10,000 in the 2009-base projections (medium variant).
    - The median **period life expectancy at birth** reaches 88.1 and 90.5 years for males and females, respectively, in 2061. This is higher than the corresponding figures of 85.6 and 88.7 years in the 2009-base projections (medium variant).

Projection assumptions

Projection assumptions are formulated after analysis of short-term and long-term historical trends, recent trends and patterns observed in other countries, and government policy.

Population projections

Labour force projections for 2006–10 are based on population estimates for that period. Labour force projections for 2011–61 are based on the population projections summarised in the release National population projections: 2011(base)–2061. In brief, these population projections assume:

- a base estimated resident population (ERP) of New Zealand of 4.185 million at 30 June 2006
- fertility rates varying throughout the projection period. The median period total fertility rate declining gradually from 2.05 births per woman in 2012 to 1.96 in 2021, and to 1.90 in 2036 and beyond.
- death rates varying throughout the projection period. The median assumption has male period life expectancy at birth increasing to 84.3 years in 2036 and 88.1 years in 2061. The corresponding female period life expectancy at birth increases to 87.3 years in 2036 and 90.5 years in 2061.

- migration varying throughout the projection period. The median net migration (arrivals less departures) increases from -3,000 in 2012 to zero in 2013, to 7,000 in 2014, and to 12,000 in 2015 and beyond.

Labour force participation

Labour force participation rates (LFPRs) measure the proportion of the population in the labour force, either part-time or full-time. LFPRs differ significantly across age for both males and females.

Assumed LFPRs are formulated from analysis of trends in the Census of Population and Dwellings and the Household Labour Force Survey (HLFS). Although the same definition of labour force is used in the projections as in the census and HLFS, some important differences exist:

- The HLFS provides the official measure of the labour force using an interviewer-administered survey of about 15,000 households and 30,000 people each quarter. By comparison, the census provides a snapshot of the labour force (usually every five years).
- The HLFS measures labour force status over each quarter, while the census question refers to labour force status in the week before the census date.
- Unlike the HLFS, the census is not subject to sample error (although both data sources may contain non-sampling errors). As a result, the census can provide information at a more detailed demographic level (eg single year of age) than the HLFS.
- Non-response in the HLFS is minimised through the use of best survey practices. Because the census is self-administered, higher rates of item non-response occur.
- The HLFS generally excludes people in the armed forces and non-private dwellings (eg retirement homes, hospitals, prisons), while the census includes everyone who is in New Zealand on census night.

These differences explain why LFPRs, as well as numbers in the labour force, vary between census and HLFS. These differ again from the base for these labour force projections, which is the estimated resident population of New Zealand in the labour force at 30 June 2006.

Compared with the HLFS, the 2006 Census generally indicated higher LFPRs for males and females at ages 65+ years. The 2006 Census also indicated lower LFPRs for males at ages 25–54 years.

LFPR assumptions are formulated by single year of age and sex, and for each projection year including the base year. Important considerations in formulating LFPR assumptions are:

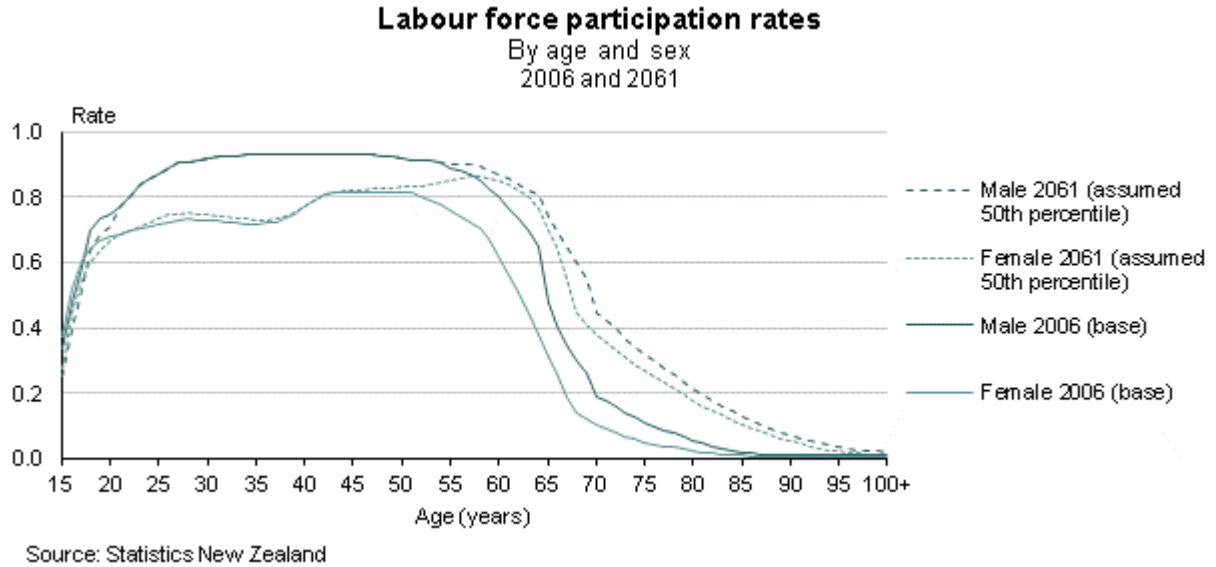
- comparability of LFPRs across age (eg consistency between adjacent ages)
- comparability of LFPRs across projection period (eg consistency between adjacent years)
- comparability of male and female LFPRs at each age and each projection year
- plausibility of LFPRs (eg $0 \leq$ LFPRs ≤ 1).

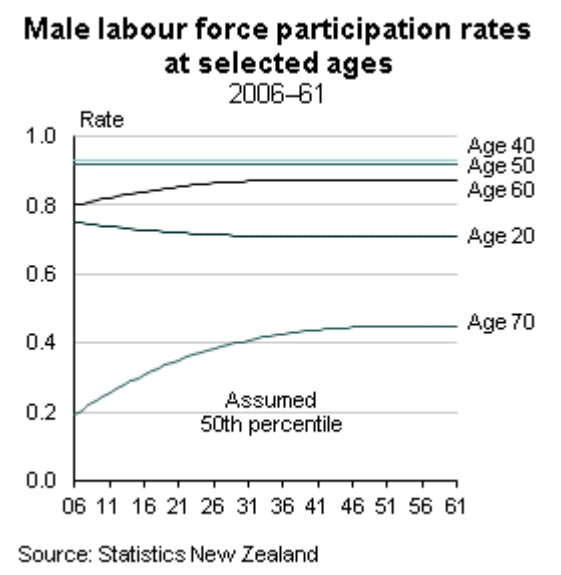
The main features of the median LFPR assumptions are:

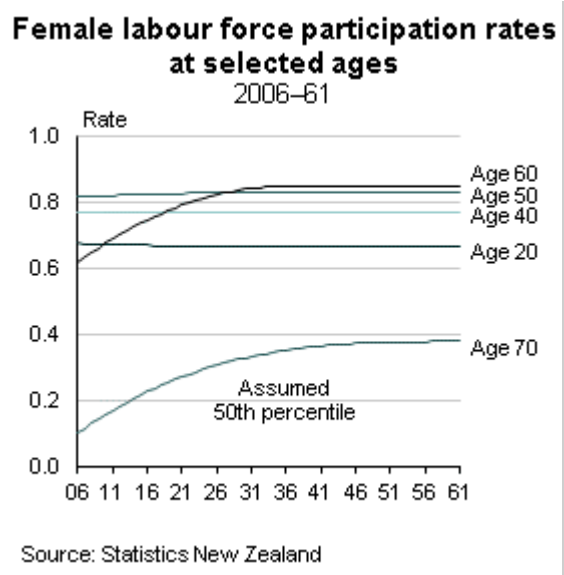
- significant increases in LFPRs for males aged 55+ years and females aged 50+ years. This reflects increased flexibility in the age of retirement (with no compulsory age of

retirement), changing attitudes to retirement, and increasing life expectancy and well-being in the older ages.

- small increases in LFPRs for females in main childbearing ages, 21–49 years. This partly reflects declines in completed family size and increases in childlessness.
- small decreases in LFPRs for males and females aged 15–20 years. This reflects the impact of the global economic recession, as well as increasing rates of participation in tertiary education.
- static LFPRs for males at ages 21–54 years.





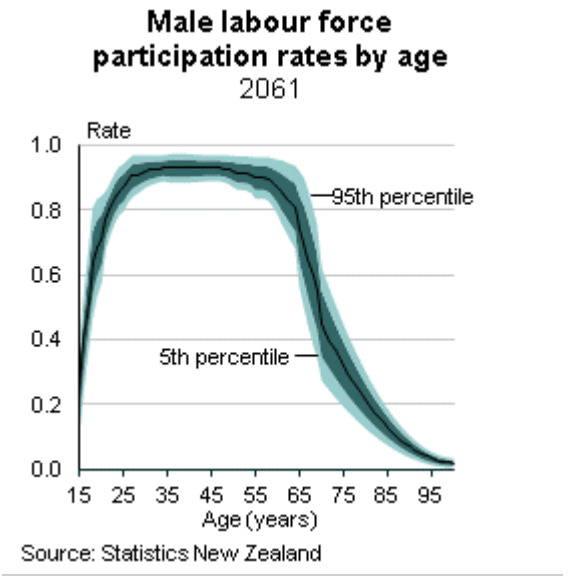


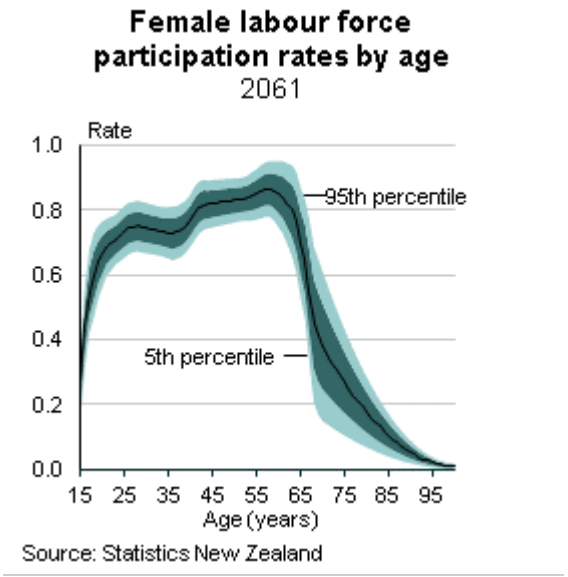
Future labour force participation trends are uncertain and depend on a range of factors.

- Changes in population composition and different trends in population subgroups (including ethnic groups).
- Trends in fertility including the timing and number of births.
- Trends in the patterns of education (especially tertiary education) and work, including the timing, duration, and proportion of time dedicated to those activities.
- Trends in the balance between paid work, unpaid work, family, and leisure activities at different ages.

- Changing macro-level conditions (eg global and national economic conditions, government policies) that affect the labour market and demand for labour.
- Trends in health and mortality, affecting well-being and life expectancy, especially at ages above 50 years.
- Changes in financial considerations, including eligibility for government superannuation, especially at ages above 60 years.

Simulations of LFPRs are produced using a simple random walk with drift model. Random errors are sampled from a normal distribution with mean of zero. For the base year (2006) of each simulation, a random number is multiplied by the assumed standard error for each age-sex, then added to the base LFPR. For subsequent years of each simulation, a random number is multiplied by the assumed standard error for each age-sex, added to the standard error from the previous year, then added to the median LFPR. The assumed standard errors in each year are formulated by expert judgement. The drift function shifts the median of the LFPR simulations to follow the assumed median LFPRs. So LFPR simulations are correlated across age-sex (ie if LFPRs are high, they are high at all ages for both males and females), but vary randomly from year to year.





Note: Percentiles shown are 5th, 25th, 50th, 75th, and 95th.

Which projection should I use?

The projections are summarised by percentiles, which indicate the probability distribution for any projected characteristic. Users can make their own judgement as to which projections are most suitable for their purposes. At the time of release, the 50th percentile (or median) indicates an estimated 50 percent chance that the actual result will be lower, and a 50 percent chance that the actual result will be higher, than this percentile. The 25th percentile indicates an estimated 25 percent chance that the actual result will be lower, and a 75 percent chance that the actual result will be higher, than this percentile. It is important to note, however, that the estimates of uncertainty are themselves uncertain.

General information

Method

Population

The 'cohort component' method was used to derive the population projections. Using this method, the base population is projected forward by calculating the effect of deaths and migration within each age-sex group (or cohort) according to the specified mortality and migration assumptions. New birth cohorts are added to the population by applying the specified fertility assumptions to the female population of childbearing age.

The stochastic approach involves creating 2,000 simulations for the base population, births, deaths, and net migration, and then combining these using the cohort component method.

Labour force

The labour force projections are derived by multiplying the projected population by the assumed labour force participation rates, by single year of age and sex. Stochastic labour force projections are derived by applying the 2,000 simulations of labour force participation rates to the 2,000 simulations of the population.

Nature of projections

These projections are not predictions. The projections should be used as an indication of the overall trend, rather than as exact forecasts. The projections are updated every 2–3 years to maintain their relevance and usefulness, by incorporating new information about demographic trends and developments in methods.

The projections are designed to meet both short-term and long-term planning needs, but are not designed to be exact forecasts or to project specific annual variation. These projections are based on assumptions made about future fertility, mortality, migration, and labour force participation patterns of the population. While the assumptions are formulated from an assessment of short-term and long-term demographic trends, there is no certainty that any of the assumptions will be realised.

The projections do not take into account non-demographic factors (eg war, catastrophes, major government and business decisions) which may invalidate the projections.

Accuracy

The accuracy of these projections is unknown at the time of release. An evaluation of previous Statistics NZ national and subnational population projections over the period 1991–2006 is available in How accurate are population projections? An evaluation of Statistics New Zealand population projections, 1991–2006.

Confidentiality

Data is combined from many sources to produce labour force projections. Therefore, it is not possible to identify individuals in our published statistics. The published statistics are also aggregated (eg to larger geographical areas), while data is also rounded to avoid conveying spurious levels of precision.

More information

Detailed projection results are available from Table Builder. More information about the demographic projections, including information about methods and assumptions, is available on our website.

Liability

While all care and diligence has been used in processing, analysing, and extracting data and information in this publication, Statistics NZ gives no warranty it is error-free and will not be liable for any loss or damage suffered by the use directly, or indirectly, of the information in this publication.

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Tables

The following table is available in Excel format from the 'Downloads' box. If you have problems viewing the file, see opening files and PDFs.

1. Summary of New Zealand labour force projections, 2006(base)–2061 (August 2012 update)

Access more data on Table Builder

Use Table Builder, a free, online tool that enables you to extract the information you want. To access the release data on Table Builder, select the following tables from the homepage:

Subject category: **Population projections tables**
Table title: **National labour force projections**

Table 1

Summary of New Zealand labour force projections

2006(base)–2061 (August 2012 update)

Year at 30 June	Projected probability distribution (percentiles)[1]					Scenario				
	5th	25th	50th (Median)	75th	95th	Very high fertility[2]	Very low mortality[3]	No migration (4)(5)	Cyclic migration (4)(6)	Very high migration (4)(7)
Labour force (000)										
2006 (base)	2,189	2,222	2,244	2,265	2,297	2,244	2,244	2,244	2,244	2,244
2011	2,276	2,344	2,385	2,440	2,507	2,385	2,385	2,385	2,385	2,385
2016	2,369	2,468	2,533	2,616	2,712	2,533	2,533	2,508	2,526	2,598
2021	2,450	2,584	2,672	2,772	2,895	2,672	2,674	2,601	2,671	2,785
2026	2,528	2,688	2,791	2,909	3,060	2,791	2,797	2,675	2,785	2,954
2031	2,572	2,766	2,885	3,023	3,201	2,894	2,894	2,720	2,883	3,101
2036	2,610	2,834	2,965	3,122	3,330	3,003	2,978	2,742	2,957	3,240
2041	2,662	2,891	3,041	3,212	3,464	3,130	3,059	2,751	3,039	3,380
2046	2,687	2,946	3,122	3,303	3,585	3,279	3,145	2,758	3,114	3,525
2051	2,713	3,003	3,193	3,399	3,677	3,428	3,220	2,756	3,191	3,657
2056	2,719	3,035	3,245	3,471	3,797	3,569	3,276	2,741	3,239	3,768
2061	2,708	3,051	3,285	3,535	3,897	3,711	3,320	2,721	3,284	3,864
Annual labour force growth (000)[8]										
2011	-21	11	26	55	87	26	26	26	26	26
2016	-23	10	33	59	92	33	33	24	27	42
2021	-32	1	25	49	81	25	26	16	37	35
2026	-31	0	22	47	79	22	23	13	8	32
2031	-42	-8	17	39	76	20	18	7	29	28
2036	-46	-11	15	41	76	23	16	3	1	27
2041	-48	-9	16	41	77	28	17	2	28	29
2046	-43	-8	16	40	76	30	17	1	2	29
2051	-42	-9	13	34	68	29	14	-1	25	25
2056	-30	-6	9	26	49	28	10	-4	-5	21
2061	-19	-4	8	18	36	29	8	-4	19	19
Annual labour force growth (percent)[8]										
2011	-0.9	0.5	1.1	2.3	3.7	1.1	1.1	1.1	1.1	1.1
2016	-0.9	0.4	1.3	2.3	3.7	1.3	1.3	1.0	1.1	1.7
2021	-1.2	0.0	1.0	1.8	3.1	1.0	1.0	0.6	1.4	1.3
2026	-1.1	0.0	0.8	1.7	2.8	0.8	0.8	0.5	0.3	1.1
2031	-1.5	-0.3	0.6	1.4	2.7	0.7	0.6	0.3	1.0	0.9
2036	-1.6	-0.4	0.5	1.4	2.5	0.8	0.5	0.1	0.0	0.9
2041	-1.5	-0.3	0.5	1.4	2.6	0.9	0.6	0.1	0.9	0.9
2046	-1.4	-0.3	0.5	1.3	2.4	0.9	0.5	0.0	0.0	0.8
2051	-1.4	-0.3	0.4	1.1	2.2	0.9	0.4	-0.1	0.8	0.7
2056	-1.0	-0.2	0.3	0.8	1.5	0.8	0.3	-0.1	-0.2	0.5
2061	-0.6	-0.1	0.2	0.5	1.0	0.8	0.3	-0.1	0.6	0.5
Labour force aged 15–24 years (000)										
2006 (base)	384	390	394	398	404	394	394	394	394	394
2011	366	381	390	402	416	390	390	390	390	390
2016	359	378	391	407	426	391	391	378	390	405
2021	341	365	381	398	421	381	381	361	384	397
2026	340	368	388	408	434	388	388	371	385	408
2031	345	379	401	424	457	409	401	384	402	428
2036	329	369	397	428	470	435	398	371	394	436
2041	320	368	406	443	502	480	407	365	407	455
2046	309	365	410	454	521	510	411	357	408	467
2051	296	358	408	457	530	525	409	348	410	470
2056	284	354	407	459	544	537	408	343	404	474
2061	275	350	411	468	569	557	412	343	412	485

Table 1

Summary of New Zealand labour force projections

2006(base)–2061 (August 2012 update)

Year at 30 June	Projected probability distribution (percentiles)[1]					Scenario				
	5th	25th	50th (Median)	75th	95th	Very high fertility[2]	Very low mortality[3]	No migration (4)(5)	Cyclic migration (4)(6)	Very high migration (4)(7)
Labour force aged 25–44 years (000)										
2006 (base)	962	974	982	989	1,001	982	982	982	982	982
2011	941	962	973	993	1,015	973	973	973	973	973
2016	952	982	1,000	1,027	1,056	1,000	1,000	982	996	1,040
2021	1,003	1,042	1,067	1,099	1,137	1,067	1,068	1,005	1,065	1,139
2026	1,059	1,104	1,135	1,170	1,215	1,135	1,136	1,022	1,133	1,236
2031	1,080	1,131	1,165	1,204	1,257	1,165	1,166	1,017	1,164	1,289
2036	1,087	1,140	1,177	1,218	1,274	1,177	1,179	1,007	1,177	1,314
2041	1,070	1,130	1,170	1,212	1,276	1,186	1,172	993	1,169	1,321
2046	1,065	1,136	1,183	1,232	1,304	1,240	1,185	995	1,180	1,355
2051	1,063	1,149	1,208	1,269	1,363	1,326	1,211	999	1,206	1,404
2056	1,028	1,131	1,211	1,289	1,407	1,404	1,214	973	1,208	1,432
2061	998	1,125	1,219	1,313	1,454	1,481	1,223	953	1,218	1,462
Labour force aged 45–64 years (000)										
2006 (base)	783	794	800	807	817	800	800	800	800	800
2011	876	896	907	923	943	907	907	907	907	907
2016	922	950	966	989	1,015	966	966	975	965	978
2021	936	970	991	1,017	1,048	991	992	1,007	990	1,013
2026	914	951	973	1,002	1,034	973	974	991	971	1,009
2031	909	951	974	1,005	1,044	974	976	978	972	1,032
2036	945	990	1,017	1,053	1,098	1,017	1,021	993	1,013	1,106
2041	1,005	1,055	1,089	1,128	1,184	1,089	1,094	1,018	1,087	1,211
2046	1,058	1,116	1,155	1,200	1,264	1,155	1,162	1,034	1,153	1,307
2051	1,078	1,140	1,184	1,231	1,299	1,184	1,191	1,028	1,183	1,357
2056	1,086	1,151	1,197	1,246	1,316	1,197	1,205	1,020	1,197	1,384
2061	1,080	1,146	1,193	1,242	1,314	1,210	1,202	1,009	1,192	1,395
Labour force aged 65+ years (000)										
2006 (base)	60	65	68	71	75	68	68	68	68	68
2011	91	105	114	123	137	114	114	114	114	114
2016	133	158	175	194	217	175	175	173	175	176
2021	170	206	233	259	295	233	234	228	233	235
2026	208	261	296	332	380	296	299	290	296	300
2031	235	302	345	390	452	345	350	341	345	353
2036	244	320	373	426	502	373	381	371	373	384
2041	235	317	376	433	525	376	386	376	375	392
2046	224	314	373	434	529	373	387	372	373	396
2051	234	330	393	456	556	393	409	382	392	426
2056	256	362	431	506	614	431	449	406	429	479
2061	276	387	462	543	660	462	483	416	462	523
Labour force aged 80+ years (000)										
2006 (base)	1	2	3	3	4	3	3	3	3	3
2011	4	6	7	8	10	7	7	7	7	7
2016	6	9	11	13	17	11	11	11	11	11
2021	9	13	17	20	25	17	17	17	17	17
2026	12	19	24	29	35	24	25	23	24	24
2031	17	27	34	41	50	34	36	33	34	34
2036	21	34	42	51	64	42	46	41	42	43
2041	25	41	52	63	79	52	57	50	52	53
2046	27	46	59	71	91	59	66	58	59	61
2051	29	48	62	76	97	62	71	62	62	64
2056	28	48	61	75	97	61	71	61	61	64
2061	27	47	60	74	96	60	71	59	60	64

Table 1

Summary of New Zealand labour force projections

2006(base)–2061 (August 2012 update)

Year at 30 June	Projected probability distribution (percentiles)[1]					Scenario				
	5th	25th	50th (Median)	75th	95th	Very high fertility[2]	Very low mortality[3]	No migration (4)(5)	Cyclic migration (4)(6)	Very high migration (4)(7)
Labour force aged 15–24 years (percent)										
2006 (base)	18	18	18	18	18	18	18	18	18	18
2011	16	16	16	16	17	16	16	16	16	16
2016	15	15	15	16	16	15	15	15	15	16
2021	14	14	14	14	15	14	14	14	14	14
2026	13	14	14	14	14	14	14	14	14	14
2031	13	14	14	14	14	14	14	14	14	14
2036	12	13	13	14	15	15	13	14	13	13
2041	12	13	13	14	15	15	13	13	13	13
2046	11	12	13	14	15	16	13	13	13	13
2051	10	12	13	14	15	15	13	13	13	13
2056	10	11	13	13	15	15	12	13	12	13
2061	10	11	13	14	15	15	12	13	13	13
Labour force aged 25–44 years (percent)										
2006 (base)	44	44	44	44	44	44	44	44	44	44
2011	40	41	41	41	41	41	41	41	41	41
2016	39	39	39	40	40	39	39	39	39	40
2021	39	40	40	40	41	40	40	39	40	41
2026	39	40	41	41	42	41	41	38	41	42
2031	39	40	40	41	42	40	40	37	40	42
2036	38	39	40	40	42	39	40	37	40	41
2041	37	38	38	39	41	38	38	36	38	39
2046	36	37	38	39	40	38	38	36	38	38
2051	36	37	38	39	40	39	38	36	38	38
2056	35	36	37	39	40	39	37	35	37	38
2061	34	36	37	39	41	40	37	35	37	38
Labour force aged 45–64 years (percent)										
2006 (base)	36	36	36	36	36	36	36	36	36	36
2011	38	38	38	38	39	38	38	38	38	38
2016	37	38	38	38	39	38	38	39	38	38
2021	36	37	37	38	38	37	37	39	37	36
2026	34	34	35	35	36	35	35	37	35	34
2031	33	33	34	34	35	34	34	36	34	33
2036	33	34	34	35	36	34	34	36	34	34
2041	34	35	36	37	38	35	36	37	36	36
2046	35	36	37	38	40	35	37	37	37	37
2051	35	36	37	38	40	35	37	37	37	37
2056	34	36	37	38	41	34	37	37	37	37
2061	33	35	36	38	41	33	36	37	36	36
Labour force aged 65+ years (percent)										
2006 (base)	3	3	3	3	3	3	3	3	3	3
2011	4	4	5	5	5	5	5	5	5	5
2016	6	6	7	7	8	7	7	7	7	7
2021	7	8	9	9	10	9	9	9	9	8
2026	8	10	11	11	13	11	11	11	11	10
2031	9	11	12	13	14	12	12	13	12	11
2036	9	11	13	14	15	12	13	14	13	12
2041	9	11	12	14	15	12	13	14	12	12
2046	8	11	12	13	15	11	12	13	12	11
2051	8	11	12	14	15	11	13	14	12	12
2056	9	12	13	15	17	12	14	15	13	13
2061	10	12	14	16	18	12	15	15	14	14

Table 1

Summary of New Zealand labour force projections

2006(base)–2061 (August 2012 update)

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Labour force aged 80+ years (percent)										
2006 (base)	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	1	1	0	0	0	0	0
2021	0	1	1	1	1	1	1	1	1	1
2026	0	1	1	1	1	1	1	1	1	1
2031	1	1	1	1	2	1	1	1	1	1
2036	1	1	1	2	2	1	2	1	1	1
2041	1	1	2	2	2	2	2	2	2	2
2046	1	2	2	2	3	2	2	2	2	2
2051	1	2	2	2	3	2	2	2	2	2
2056	1	2	2	2	3	2	2	2	2	2
2061	1	2	2	2	3	2	2	2	2	2
Median age[9] (years)										
2006 (base)	40.4	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5
2011	41.7	41.8	41.8	41.8	41.9	41.8	41.8	41.8	41.8	41.8
2016	42.4	42.5	42.6	42.7	42.8	42.6	42.6	43.0	42.6	42.3
2021	42.2	42.4	42.6	42.7	42.9	42.6	42.6	43.6	42.5	42.0
2026	42.1	42.4	42.6	42.8	43.0	42.6	42.6	43.9	42.6	42.0
2031	42.4	42.7	42.9	43.1	43.4	42.8	42.9	44.2	42.8	42.4
2036	42.9	43.3	43.6	43.8	44.2	43.3	43.6	44.9	43.6	43.2
2041	43.2	43.7	44.1	44.4	45.0	43.4	44.2	45.3	44.1	43.7
2046	43.2	43.9	44.4	45.0	45.7	43.1	44.6	45.5	44.5	44.1
2051	43.1	44.0	44.7	45.4	46.4	42.9	44.8	45.6	44.7	44.4
2056	43.0	44.2	45.1	46.0	47.2	42.6	45.3	46.0	45.1	44.7
2061	42.8	44.2	45.2	46.3	47.9	42.4	45.4	46.2	45.2	44.8
Economic dependency ratio[10]										
2006 (base)	82	85	87	88	91	87	87	87	87	87
2011	76	81	85	88	94	85	85	85	85	85
2016	70	76	81	86	94	82	81	82	81	81
2021	66	74	80	86	96	82	80	80	80	79
2026	64	72	79	87	98	84	80	80	79	79
2031	62	72	80	88	102	88	81	81	80	79
2036	61	72	81	90	105	90	82	82	81	80
2041	60	72	81	91	108	90	83	83	81	80
2046	59	71	81	91	110	90	84	84	81	79
2051	57	70	81	91	110	90	84	85	81	79
2056	57	70	81	92	113	90	86	86	81	79
2061	58	71	82	94	116	92	88	87	82	81
Average working life, male[11]										
2006 (base)	44	45	45	46	47	45	45	45	45	45
2011	44	45	46	47	48	46	46	46	46	46
2016	44	45	47	49	50	47	47	47	47	47
2021	44	46	48	50	52	48	48	48	48	48
2026	44	46	49	51	53	49	49	49	49	49
2031	44	46	49	52	54	49	49	49	49	49
2036	44	46	49	52	54	49	49	49	49	49
2041	44	46	49	52	55	49	49	49	49	49
2046	44	46	49	53	55	49	49	49	49	49
2051	44	46	49	53	55	49	49	49	49	49
2056	44	46	49	53	55	49	49	49	49	49
2061	44	46	49	53	55	49	49	49	49	49

Table 1

Summary of New Zealand labour force projections

2006(base)–2061 (August 2012 update)

Year at 30 June	Projected probability distribution (percentiles)[1]					Scenario				
	5th	25th	50th (Median)	75th	95th	Very high fertility[2]	Very low mortality[3]	No migration (4)(5)	Cyclic migration (4)(6)	Very high migration (4)(7)
Average working life, female[11]										
2006 (base)	36	36	37	38	38	37	37	37	37	37
2011	36	37	38	40	41	38	38	38	38	38
2016	37	38	40	42	43	40	40	40	40	40
2021	37	39	41	44	46	41	41	41	41	41
2026	37	39	42	45	47	42	42	42	42	42
2031	37	40	43	46	48	43	43	43	43	43
2036	37	40	43	47	49	43	43	43	43	43
2041	37	39	43	47	50	43	43	43	43	43
2046	36	39	43	47	50	43	43	43	43	43
2051	36	39	43	47	50	43	43	43	43	43
2056	36	39	43	47	50	43	43	43	43	43
2061	36	39	43	47	51	43	43	43	43	43

1. Percentiles indicate the probability that the actual result is lower than this percentile. For example, the 25th percentile indicates a 25 percent probability that the actual result for a given year is lower than this percentile.
2. Assumes a total fertility rate of 2.5 births per woman in the long term. The mortality and migration assumptions are consistent with the 50th percentile of the projected probability distribution.
3. Assumes life expectancy at birth increases at a similar annual rate as between the 1975–77 and 2005–07 complete period life tables (ie by 0.31 and 0.23 years of life for males and females, respectively) reaching 95.0 years for both males and females in 2061. Fertility and migration assumptions are consistent with the 50th percentile of the projected probability distribution.
4. The fertility and mortality assumptions are consistent with the 50th percentile of the projected probability distribution.
5. Assumes no external migration (ie a 'closed' population).
6. Assumes annual net migration fluctuates between -10,000 and 30,000 over a 10-year cycle, with an average of 12,000. Net migration over the projection period ending in 2021, 2031, 2041, 2051 and 2061 is the same as the 50th percentile of the assumed net migration.
7. Assumes annual net migration of 25,000.
8. Year ended 30 June.
9. Half the labour force is younger, and half older, than this age.
10. People not in the labour force per 100 people who are in the labour force
11. Average number of years that a person would spend in the labour force if they experienced the labour force participation rates of a given period, assuming they lived to age 80 years.

Note: Owing to rounding, individual figures may not sum to give the stated totals.

Percentiles are non-additive except the 50th percentile (median). For example, percentiles for the labour force aged 15–39 and 40–64 years cannot be added together to give the equivalent percentile for the labour force aged 15–64 years.

Source: Statistics New Zealand