

Background Paper

**POPULATION DYNAMICS AND TRENDS IN THE COOK ISLANDS
1902-2021**

Paper prepared for the Population Policy Working group

And the Central Policy and Planning Office

by

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Disclaimer: The views expressed in this paper are those of the author and do not necessarily reflect
the views of the Cook Islands Government

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Preface

This background paper has been prepared by the Technical Adviser recruited to assist in the development of Cook Islands National Population Policy 2022-2032 (Te Kaveinga Tupu'anga iti Tangata). The purpose of the background paper is to provide a comprehensive overview of the population trends and dynamics (and the conditions that determine them) that the policy aims to address in the broad public interest. Any policy developed to address population challenges must be based on verified, evidence-based findings of quality research and analysis. This is important because population policies can include sensitive matters to do with family and community life as well as development trends and national goals. The best way to address such matters is to first reach agreement on the facts. That is the aim of this background paper. A second aim is to limit the amount of statistical information that is included in the policy document itself so as to free space for discussion of the policy goals and objectives.

Readers are encouraged to send any comments they may have on this paper to the Central Policy and Planning Office. It is envisioned that the paper will be updated over the life of the population policy, which will contribute to its monitoring and evaluation.

Valery Wichman

Director, Central Policy and Planning Office

[Koutu Mana Tutara o te Ipukarea](#)

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Introduction

This paper contains the main database that has been employed to describe and explain the population dynamics and trends in the Cook Islands and to identify the “policy issues” that the Population Policy Working Group has agreed should be addressed through policy interventions by the Government in partnership with civil society and other social groups.

The paper is divided into two parts. Part A focusses primarily on demographic aspects, particularly on past population trends but also on future population prospects. Part B is concerned with the socioeconomic dimensions that are likely to influence population change and are in turn influenced by population change. The formulation of a population policy requires that the interaction between socioeconomic conditions and population dynamics is taken into account. The reason for this is that populations do not change of their own accord but are themselves determined by factors outside the demographic system. In other words, population change does not occur in a vacuum but takes place in a context that includes social, cultural and economic factors. In turn, population change and dynamics affect the socioeconomic context in which they occur.

The ultimate aims of a population policy belong in the socioeconomic context. Population features and changes through time are important mainly because they have an impact on other conditions—primarily the “quality of life” of the relevant population groups and the country as a whole.

It is important to note that the data and information in this paper are primarily derived from official statistics or based on the secondary analysis of official statistics. By “official statistics” we refer primarily to statistics based on data collected under the authority of the Cook Islands Statistics Act that is in effect at the time. By “secondary analysis” we refer primarily to the statistics produced by international agencies such as the Secretariat of the Pacific Community, the United Nations, the World Bank, the Asian Development Bank and similar agencies. These agencies do not generally collect data at national level but do report statistics generated by national authorities, often in region-wide comparative databases. Where the statistics reported by these agencies appear to be different from those published by national agencies, the reason is usually a result in the agency making adjustment to ensure comparability between countries. For example, a national statistic referring to a financial year may be adjusted to a calendar year to enhance comparison.

In general, the background paper does not make use of academic research or studies by NGOs or independent research agencies, although there are some exceptions. In the Cook Islands case there is a limited supply of recent research that is relevant to the topic of population dynamics and change. There is a significant body of research in other countries on the economics of tourism-dominated economies, but a review of this literature would require a separate analysis.

PART A: DEMOGRAPHIC PATTERNS AND TRENDS

Introduction

Population change normally occurs over long periods of time, although sudden changes are not unusual, in small populations. The time-scale over which demographers conduct research can extend to decades or even generations, in contrast to the short outlook adopted by most economists or economic planners. To provide a long-term perspective, this report provides a brief sketch of population change in the 19th century and the early 20th century leading up to Cook Islands becoming self-governing in 1965. Since self-government in free-association with New Zealand, the Cook Islands has become open to the world in many respects and this has had significant consequences for population change. Predominant among all these consequences is population mobility in various dimensions. The movement of Cook Islanders goes back to the 1950s but vastly increased in scale in the 1970s. The movement of tourists commenced in the 1970s. It has now reached a large scale and has brought with it the in-movement of foreign contract workers to supplement the local work-force which has been reduced by emigration. These patterns of population mobility bring significant challenges to the analysis of population change. In most countries, establishing the population “at risk” of experiencing key demographic events, such as births, deaths and marriages is straight forward because the population base is little affected by population movement. This is not the case in the Cook Islands where visitor arrivals have recently reached more than 10 times the residential population (or 16 times if only the resident population of Rarotonga is included). The difficulties created by large-scale population movement is not only a challenge for the measurement of change but also for the identification of the key population for which policy action is intended to serve. These considerations need to be taken into account in what follows.

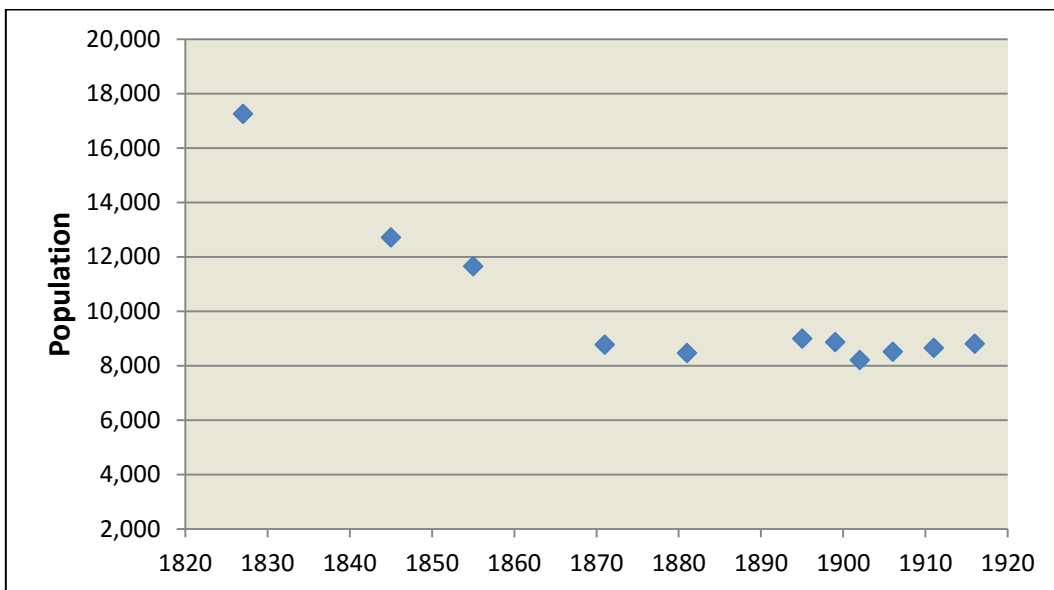
Long-term population change 1827-1920

While long-term change is mostly of historical interest, it is useful to start with the pre-missionary period, if only to give an idea of the carrying capacity of the islands before modern technology was introduced. Estimates of the population of the Cook Islands during the first half of the 19th century are based mainly on the perceptions of European explorers and early missionaries and are therefore unreliable. Some have claimed that the islands now part of the Cook Islands were once home to over 30,000 people during traditional times. However, a careful assessment of various sources (ESCAP 1983) suggests that the total population was less than 18,000 at the time that frequent contact with the world beyond the Pacific commenced.

What is clear is that the combined effect of a rapid increase in mortality caused by introduced diseases against which the people had no immunity, the removal of people from the islands by “blackbirders” (slave-raiders) and free migration to other Pacific destinations was a rapid population decline over a period of four decades. By 1860 the total population had dropped by about 50 percent although some individual islands (Rarotonga and Penrhyn) had decreased by 70 percent. By the 1870s mortality had come under some control through improved public health measures and increased natural immunity to the common diseases brought from outside. The population stabilized between

8,000 and 9,000 people for a period of nearly 5 decades after 1871 with little population growth taking place (Figure 1).

Figure 1: Population change in the Cook Islands: 1827-1920



Source: United Nations ESCAP (1983)

Population change in the Twentieth Century and up to 2021

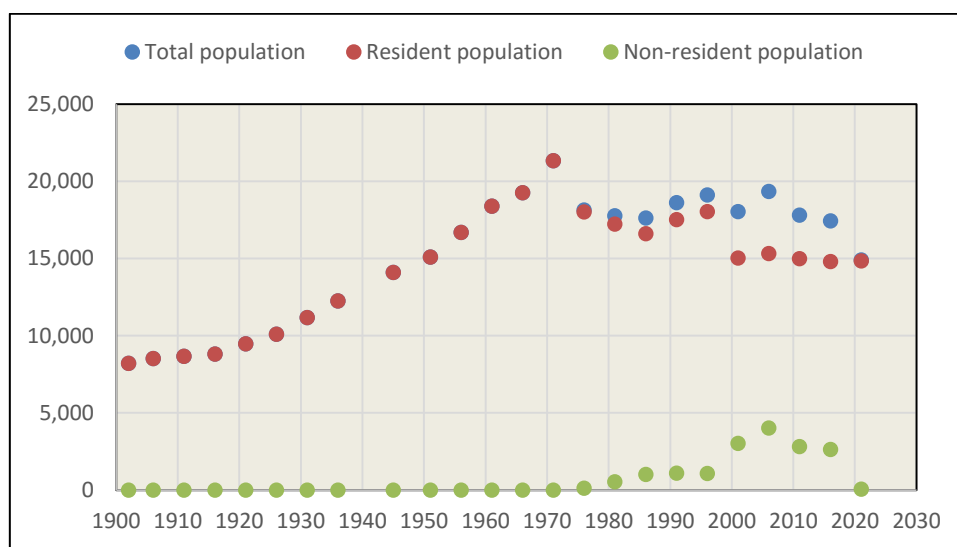
Population growth started to accelerate in the early years of the 20th Century as a result of a falling death rate, an increasing birth rate and a low level of emigration. Exponential population growth continued until the population reached a peak of 21,323 in 1971 (Figure 2). The driving force behind population growth during this period (1926-1971) was an increasing rate of natural increase (births minus deaths), which reached the high level of 4 percent per year in 1961. Actual population growth was about half this rate because emigration continued through this period at the equivalent of 50 percent of the rate of natural increase.

After 1971, the population declined significantly and the 1976 population was only 85 percent of what it had been five years earlier. The main cause of this sudden drop was an acceleration in the rate of emigration. The increased volume of net out-ward migration was mainly a function of the completion of the international airport on Rarotonga, which facilitated the use of jet aircraft and greatly increased the ease of travelling out of the country. Prior to that time shipping services were heavily booked and there was a backlog of people waiting for the chance to travel. Since that time transport has not been an impediment to population movement.

From 1976 onwards, the Cook Islands Statistics Office (CISO) has reporting two different definitions of the population: (1) the “Total” population based on all persons enumerated in the census (a *de facto* definition); and (2) the “resident” population (a *de jure* definition), also as reported in the

census. The difference between the two is the “non-resident” population, in some datasets described as “visitors”.¹

Figure 2: Population change 1900-2021 (Total and Residents)



Source: ESCAP (1983); Cook Islands Statistics Office (1977, nd, 1997, 2003 2012, 2018). Unpublished provisional results, 2022.

From the 1970s and up until the 2021 census, both the total and the resident populations of Cook Islands have been fluctuating with the ebb and flow of migrant workers, residents and visitors. There was a marked drop in the resident population in two periods—1971-1986 (especially 1971-1976) and 1996-2001. Since 2001 there has been little net change in the resident² population, which has remained around 15,000. On the other hand, the non-resident population has fluctuated quite widely, from a high of 4,018 in 2006 to a low of just 56 in 2021.

Based on the provisional results of the 2021 census, the total population dropped to 14,897 in December of that year—a decline of nearly 15 percent since 2016. This is entirely due to the near-total disappearance of the “visitor” population during the period 2020-21 as a result of the Covid-19 pandemic, which resulted in closed borders for much of this period.³

Population change and dynamics from 1971

Although the total census population of the Cook Islands has been fluctuating between 18,000 and 19,000 for the last four decades (aside from 1971 when the population peaked at 21,300), the composition of the population has been changing significantly, particularly from 1996. As can be seen in Figure 3 and Table 1, the “resident” population experienced a sudden decline of about 3,000 (17

¹ In the population census, “visitors” are persons who have been in the Cook Islands for less than 12 months. Border statistics defined visitors differently, as people who are not Cook Islanders or permanent residents.

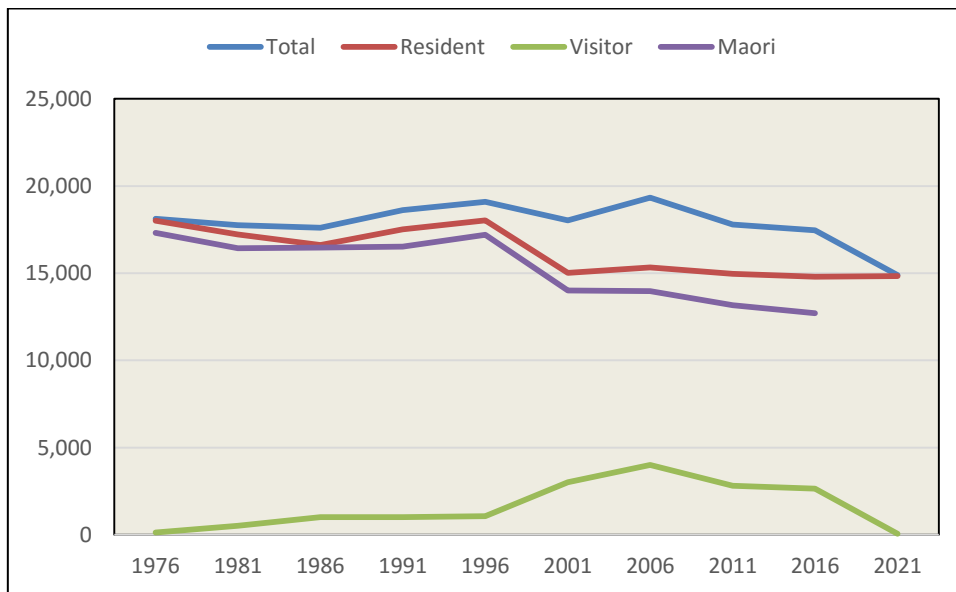
² The definition of a “resident” is as used in the reports of the population census. Other datasets may use a different definition.

³ The difference between the “resident” and “total” population in the 2021 census (provisional results) was 56.

percent of the population) after 1996. By 2001, the resident population had stabilized at about 15,000, a number that remained little changed up to the 2021 census.

A similar, but more pronounced, pattern is evident in the population that identifies as “Cook Islands Maori”. Although the 2021 census results on ethnicity are not yet available, the number of Cook Islands Maori enumerated in the census declined by 4,501 between 1996 and 2016—a decrease of 26 percent. The increasing gap between the “resident” population and the Maori population combined with a more or less stable (although somewhat fluctuating) total population suggests that ethnic groups other than Cook Islands Maori are “replacing” departing Cook Islanders.

Figure 3: Changing composition of Cook Islands population 1976-2021*



Source: Table 1

Another indicator of the changing population composition is the number and proportion of the population that is Cook Islands-born. In 1976, 16,478 persons were Cook Islands-born, equivalent to 91.5 percent of the population. In 2016, the number of Cook Islands-born persons had declined to 10,512—a 36 percent decrease. In 2016, 29 percent of the enumerated population was born outside the Cook Islands. This includes, of course, Cook Islanders by ethnicity whose parents were living abroad at the time of their birth.

Regional variations in population change

Population trends at the national level obscure significant variation between the regions and individual islands. As the largest island, the seat of government and the commercial centre of the Cook Islands, Rarotonga has distinctive population trends unlike any other island in the country. Comparing Rarotonga with the Pa Enua (outer islands) (Figure 4), population growth trends during the 20th century were similar up to 1961, with both regions increasing steadily.

Table 1: Population trends in the Cook Islands, 1966-2021

Census Year	Enumerated Population**	Residence status		% visitors	Ethnicity of residents*				Place of birth of residents				
		Residents	Visitors		Cook Islands Maori		Other		Cook Islands	% Cook Islands	New Zealand	Australia	Other
					Number	%	Number	%					
1966	19,247	--	--	0.0	18,617	96.7	630	3.3	--	--	--	--	--
1971	21,323	--	--	0.0	20,513	96.2	809	3.8	--	--	--	--	--
1976	18,128	18,004	124	0.7	17,322	96.2	805	4.5	16,478	91.5	1,155	69	426
1981	17,754	17,227	527	3.0	16,435	95.4	792	4.6	15,400	89.4	1,606	73	675
1986	17,614	16,609	1,005	5.7	16,478	94.9	812	4.7	--	--	--	--	--
1991	18,617	17,518	1,005	5.4	16,520	94.3	832	4.7	--	--	--	--	--
1996	19,103	18,034	1,069	5.6	17,204	95.4	830	4.6	14,426	80.0	2,095	--	683
2001	18,027	15,017	3,010	16.7	14,009	93.3	981	6.5	12,202	81.3	1,927	--	861
2006	19,342	15,324	4,001	20.7	13,975	91.2	1,349	8.8	11,803	77.0	--	--	3,521
2011	17,794	14,974	2,820	15.8	13,184	88.0	1,790	12.0	11,694	78.1	1,961	267	1,052
2016	17,434	14,802	2,632	15.1	12,703	85.8	2,099	14.2	10,512	71.0	2,362	400	1,528
2021	14,897	14,841	56	0.4	--	--	--	--	--	--	--	--	--

**All persons in the country on census night

-- no data

*Cook Islands Maori includes part-Maori

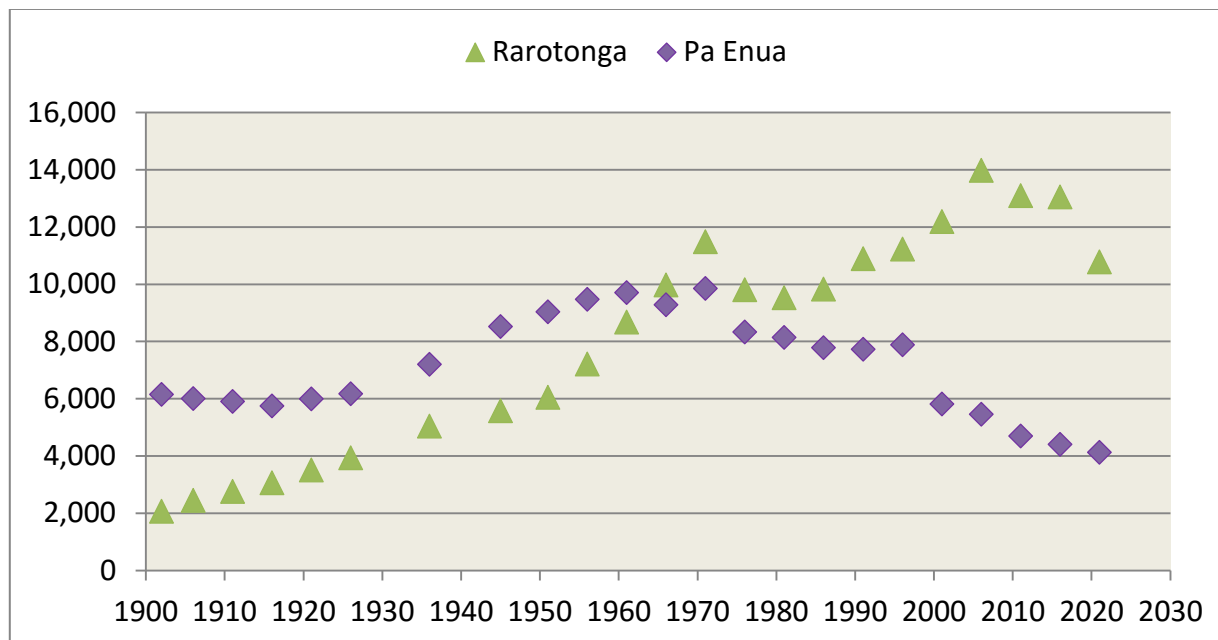
1986 is an interpolation

Sources: 1902-1981 ESCAP (1983)

Cook Islands Statistics Office (1977, nd, 1997, 2003, 2012, 2018), Unpublished provisional results of 2021 census

Until that year the majority of the Cook Islands population lived on outer islands. By 1971 the majority of the population lived in Rarotonga and this has remained the case up to 2021. After 1971, both regions showed a declining trend, but Rarotonga’s population commenced growing again between 1981 and 1986 whereas the outer islands population at first levelled off and then entered a period of sustained decline from 1996 up to 2021.

Figure 4: Population growth in Rarotonga and Pa Enea compared, 1902-2021 (Total population)



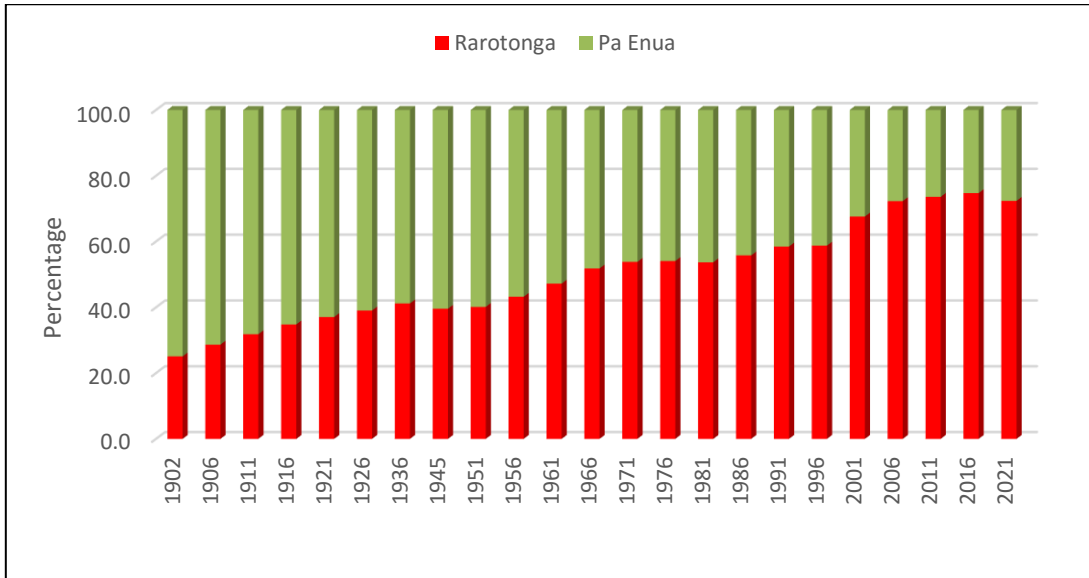
Source: ESCAP (1983). Source: ESCAP (1983); Cook Islands Statistics Office (1977, nd, 1997, 2003 2012, 2018). Unpublished provisional results, 2022.

The different patterns of population growth in Rarotonga and the Pa Enea, respectively, has changed the distribution of population in the country over time. Essentially, the geographical distribution has reversed: in 1902, 75 percent of the population lived in the Pa Enea and only 25 percent on Rarotonga; by 2021, 72 percent of the resident population lived on Rarotonga while 28 percent lived in the Pa Enea (Figure 5).

The contrast between Rarotonga and the outer islands lessens somewhat if only the resident population of Rarotonga (i.e., excluding visitors) is considered; but the fundamental differences remain. Since 1981, Rarotonga’s population has had a tendency to rebuild following sharp declines whereas this does not occur in the Pa Enea. Some levelling-off was apparent in the Pa Enea between 1986 and 1996 but a sharp population decline followed after 1996. By 2021, the resident population of the Pa Enea dropped to 4,120, the lowest it has been since the turn of the 20th Century and below the previous low of 6,803 estimated in 1871, at which time the Pa Enea population made up 78 percent of the Cook Islands total (ESCAP 1983).

The crossover-point at which Rarotonga’s population irreversibly exceeded the Pa Enea population was in 1981 (Figure 6). From that point on the two populations moved in opposite directions with Rarotonga fluctuating but on a rising trend and the outer islands also fluctuating somewhat but on a declining trend.

Figure 5: Population distribution between Rarotonga and the Pa Enea, 1902-2021*

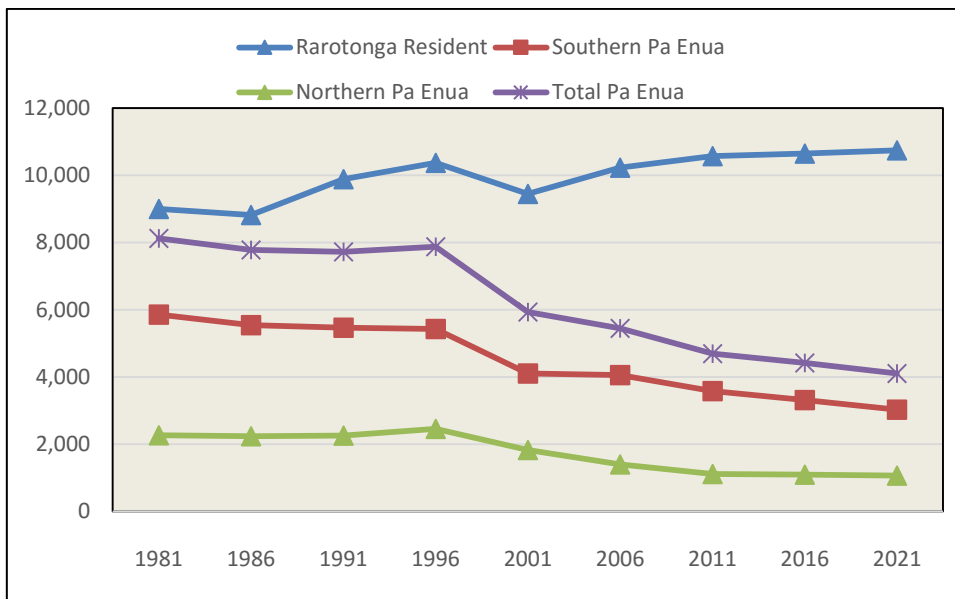


*Resident population only

Source: Source: ESCAP (1983); Cook Islands Statistics Office (1977, nd, 1997, 2003 2012, 2018). Unpublished provisional results, 2022.

Figure 6 shows that all island groups had a drop-off in population from 1996 onwards, although in Rarotonga the decline commenced in 1991. From 2001, however, the population of Rarotonga (both resident and total) began to increase again and this increasing trend continued to 2021 in the resident population. In the two Pa Enea sub-regions (Northern group and Southern group), the downward trend continued although at a somewhat slower pace than in the 1996-2001 period. Essentially, the 2021 provisional census reports show a continuation of recent trends in the Pa Enea. In Rarotonga a slow growth trend is apparent with a sign that growth is levelling-off.

Figure 6: Population trends in sub-regions, 1981-2021



Source: Source: ESCAP (1983); Cook Islands Statistics Office (1977, nd, 1997, 2003 2012, 2018). Unpublished provisional results, 2022.

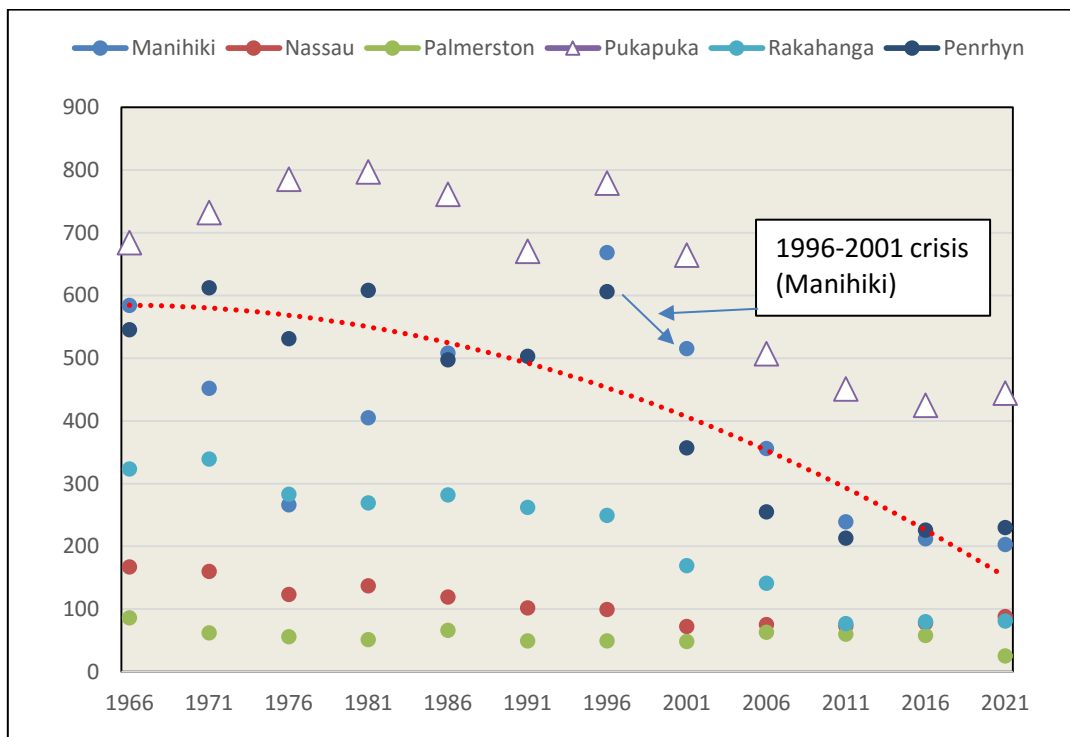
POPULATION CHANGE IN INDIVIDUAL ISLANDS

a) The Northern Pa Eua

Although the populations of all Northern Pa Eua islands have fluctuated over the 20th Century, the general trend since 1966 indicates a pattern of near convergence with all islands on a downward path except for Nassau, which has recently had growth (Figure 7). Manihiki has been the most volatile of all the Northern group islands—increasing from 405 to 668 between 1981 and 1996—but from 1996 it joined all the other islands in a steady downward path to reach 203 in 2021. The trend line on the graph (Figure 7) for Penrhyn provides a good representation of general trends in the Northern Pa Eua.

While each of the Northern islands has its unique aspects, it seems clear that population change is driven by common features. The populations of Penrhyn and Manihiki have almost converged to the same size, each having a population of just over 200. A distinctive common feature in the Northern Pa Eua is the dramatic effects of the economic crisis of 1996. Through the 1970s and 1980s, most of the northern islands had generally been holding their own demographically with some increases evident in the early 1990s. From 1996 onward, however, a steady and downward trend set in. The red trendline shows the decline in Penrhyn, with the sharp drop in Manihiki from 1996-2001 shows in the arrows. The population of Pukapuka has held up better than the other Northern Pa Eua.

Figure 7: Population change in the Northern Pa Eua, 1966-2021



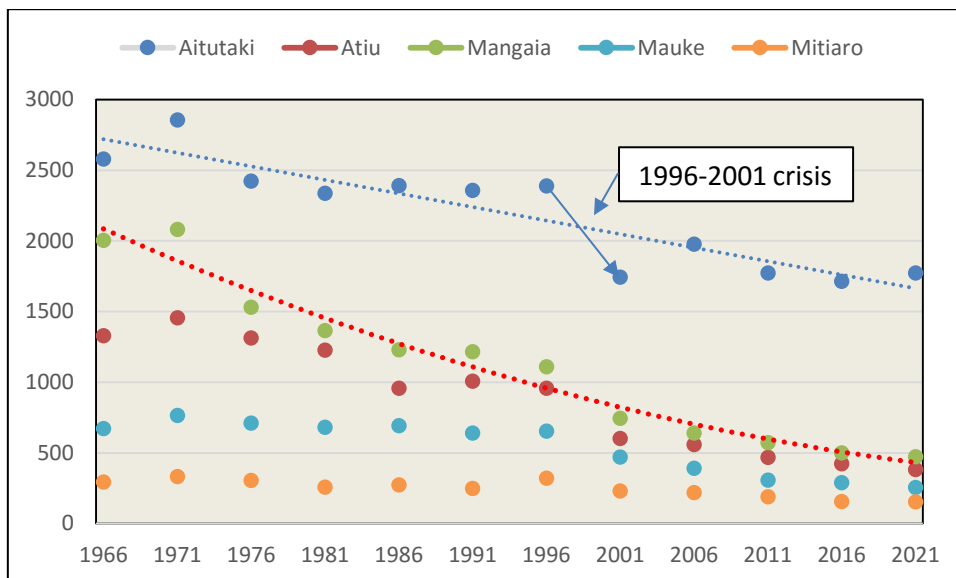
Source: Source: ESCAP (1983); Cook Islands Statistics Office (1977, nd, 1997, 2003 2012, 2018). Unpublished provisional results, 2022.

*Note: Suwarrow not shown as uninhabited.

b) The Southern Pa Enuā

While ~~the~~ some of the larger northern islands experienced a pattern of rising population up to 1996, followed by rapid decline, the Southern Pa Enuā islands all peaked in 1971 and declined at various rates over the following four decades (Figure 8). The dramatic effect of the economic crisis of 1996 that was evident in the Northern Pa Enuā islands is not so apparent in the Southern Pa Enuā islands with the partial exception of Aitutaki. For the 20 years following 1976, the population of Aitutaki was relatively stable at around 2,400. A rapid decline to 1,946 occurred after 1996—a 19 percent decrease in five years. The 2021 resident population of 1,771 is nearly 40 percent below the peak of 2,855 in 1971. The trend line for Mangaia is shown in red to represent the general trend of population decline in the smaller Southern outer islands. In Aitutaki, the trend is less steep but in the same direction. However, the resident population of Aitutaki increased by 60 between 2016 and 2021, while the “total” population (including visitors) dropped by 163.

Figure 8: Population change in the Southern outer islands, 1966-2021



Source: Source: ESCAP (1983); Cook Islands Statistics Office (1977, nd, 1997, 2003 2012, 2018). Unpublished provisional results, 2022.

Note: Manuae not shown as it is uninhabited

REGIONAL POPULATION CHANGE IN LONG-TERM PERSPECTIVE

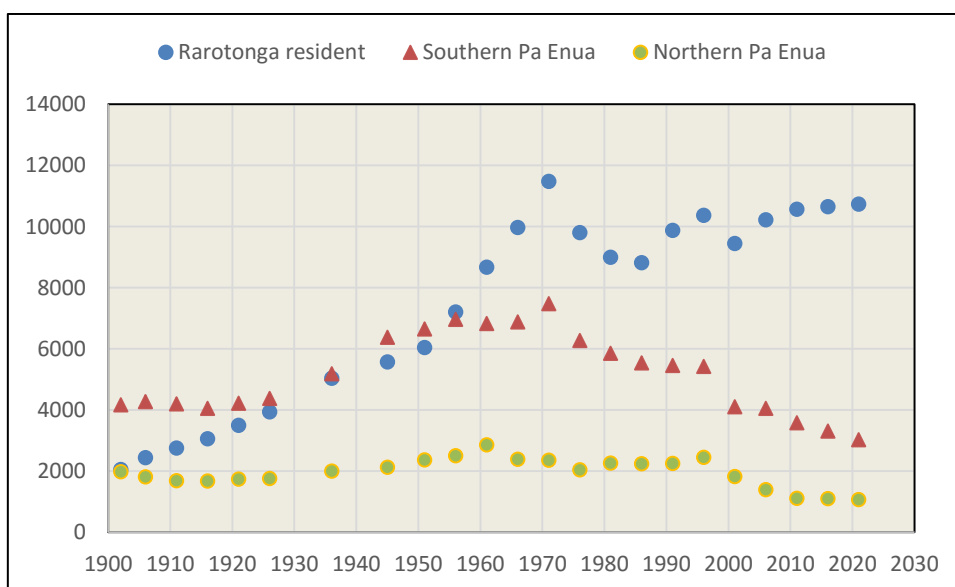
The long-term population trends in the three regions of the Cook Islands are compared in Figure 9. It is apparent that the Northern and Southern Pa Enuā reached their 20th century peak in 1961 and 1971, respectively, and have experienced a similar pattern of decline since then. Rarotonga’s trend is rather different. Population growth from 1951 to 1971 was extremely rapid, much more rapid than in either of the Pa Enuā sub-groups. Although Rarotonga’s birth rate and rate of natural increase were very high during this period, in-migration from the outer islands also contributed to its rapid growth while also contributing to decline in Pa Enuā populations. The rapid decline in Rarotonga’s resident population between 1971 and 1986 was a function of high levels of net emigration, both of

native Rarotongans and previous “rural-urban” migrants from the outer Pa Enea who were engaging in a “step-wise” pattern of migration with Auckland or Wellington as their ultimate destination.

GENERAL POPULATION TRENDS SINCE 1966: AN INTERPRETATION

Population change, either growth or decline in total numbers or changes in structure (age composition) are caused by a combination of three variables: (1) the birth rate, (2) the death rate; (3) the migration rate. To explain population trends in the Cook Islands it is necessary to examine the effects of each of these variables independently before the explanation is complete. The fertility, mortality and migration trends will be discussed in more detail below, but it is evident by the scale of the changes described above that emigration is the overwhelming cause of the observed changes in the outer islands. In Rarotonga the picture is different in that the emigration of Cook Islands Maori has been offset by the immigration of non-Maori. These changes are very likely to be driven by economic factors. The economy of Rarotonga is largely tourism-oriented and less dependent on public service employment than previously. In contrast, the Pa Enea economy is more dependent on public service employment, which is essentially the leading sector given the decline of cash-cropping. The drop in public service employment thus undermined the economies of these islands, precipitating large scale emigration of persons whose livelihood had effectively been eliminated.⁴

Figure 9: Regional population change, 1900-2021



Source: ESCAP (1983); Cook Islands Statistics Office (1977, nd, 1997, 2003 2012, 2018). Unpublished provisional results, 2022.

“DEPOPULATION”: IS IT ACCELERATING OR SLOWING?

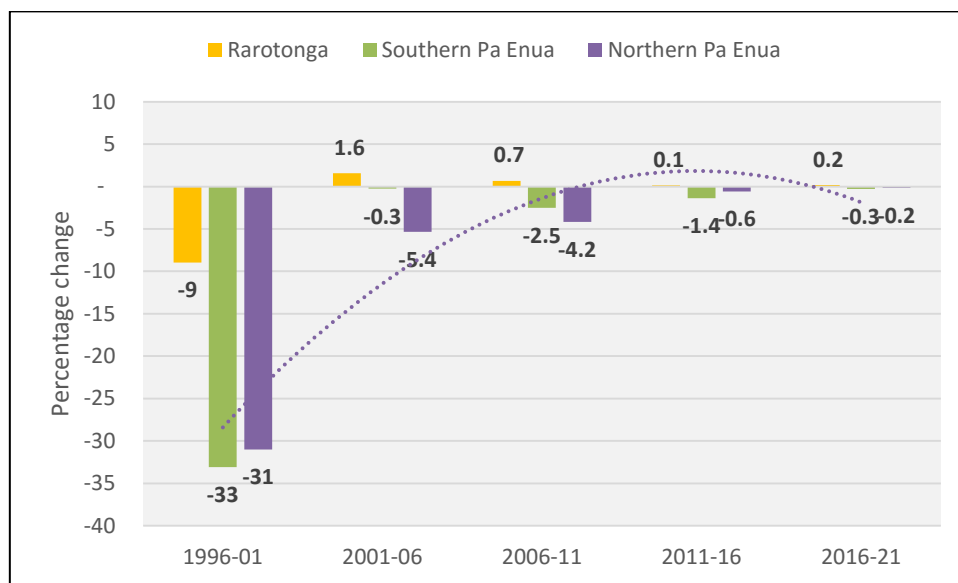
Concerns about the possible “depopulation” of the Cook Islands, or some of them, have been expressed by government officials, the private sector and the general public over many years. These concerns often follow peak periods of emigration or population decline, such as in the 1996-2001

⁴ Similar effects were evident in the Federated States of Micronesia after public sector “reform”.

period following the “restructure” of the Cook Islands economy and the reduction in the public service. In most cases, “depopulation” is not defined but refers somewhat vaguely to the steady reduction in the populations of the Pa Enea. Rather than the complete removal of the population resulting in uninhabited islands, the primary concern is that the economic and social viability of the islands will be undermined as the population decreases.

If we define “depopulation” not as the disappearance of a population from a place leading to it becoming uninhabited, but rather as sustained negative growth, then it is possible to show that the **rate** of depopulation in the Cook Islands has been dropping through time. Of course, Rarotonga is not depopulating at all according to this definition. As Figure 10 shows, although Rarotonga’s resident population dropped 9 percent in the 1996-2001 period, it has had positive growth since 2001, although the rate of growth has been slowing down through time. In the last intercensal period (2016-2021) the population only grew by 0.2 percent. In the Pa Enea, the picture is different. The period 1996-2001 saw very dramatic declines in population—with the Southern Pa Enea population dropping by one-third and the Northern Pa Enea by 31 percent. No other period has witnessed such dramatic declines in population.

Figure 10: Rates of population decline by region 1996-2021 (resident population)



Source: Estimated from data in: Cook Islands Statistics Office (1977, 1997, nd, 2003, 2012, 2018) (Unpublished provisional results of 2021 census).

The implication of these figures is that the period 1996-2001 remains unique and such a dramatic population decline is unlikely to occur again. During these five years, the population dropped by 3,017, which was 18 percent of the residential population in 1996. Over 90 percent of the total decline in population from 1996 through to 2021 (25 years) occurred in the five years 1996-2001. Since 2001, the rate of population decline has dropped to relatively low levels. Compared to the five years after 1996, the population has stabilized. Although there is negative population growth in the Pa Enea, it is not remotely on the scale of the late 1990s. In the 2016-2021 period, population decline

was only -0.3 percent in the Southern Pa Enua and -0.2 percent in the Northern islands. In Rarotonga growth was positive but also low at 0.2 percent.

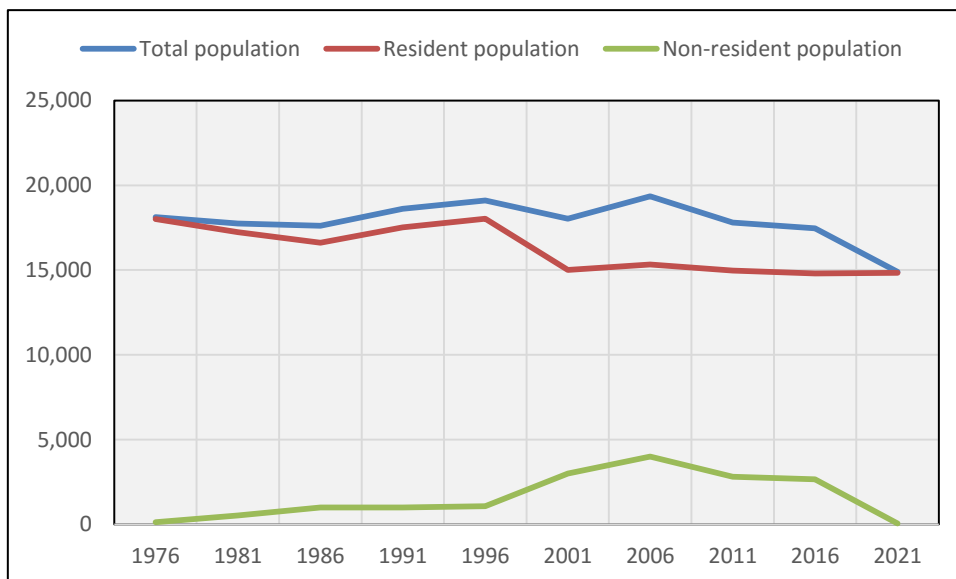
THE IMPACT OF COVID19

Measuring annual population change between censuses presents some difficulties because the only data available to estimate population size consists of birth and death registrations along with movements across the border (arrivals and departures). Because border statistics do not always provide an accurate estimate of the relative movement of “visitors” and “residents” (statuses that can change after arrival), the most accurate statistics for the period of Covid are those derived from the censuses of 2016 and 2021. However, the Covid-19 pandemic is still continuing through 2022 and is likely to stay for months or possibly years to come.

As shown in Figure 11, the main impact of Covid-19 has been the accelerated decline in the “non-resident” population. This component of the population peaked at just over 4,000 in 2006, after which it declined for the next decade and finally dropped to a very low level (56) by the time of the 2021 census. Over the same period, the resident population stabilized at around 15,000. This means that for the first time since 1976, the resident and the total populations converged to essentially the same number (15,000).

It is important to note that the definition of “resident” used in the census is not necessarily the same as the definition used in border statistics or in other jurisdictions (e.g., immigration). It is not clear whether the different definitions of “resident” can be reconciled.

Figure 11: Changes in the three main components of population 1976-2021



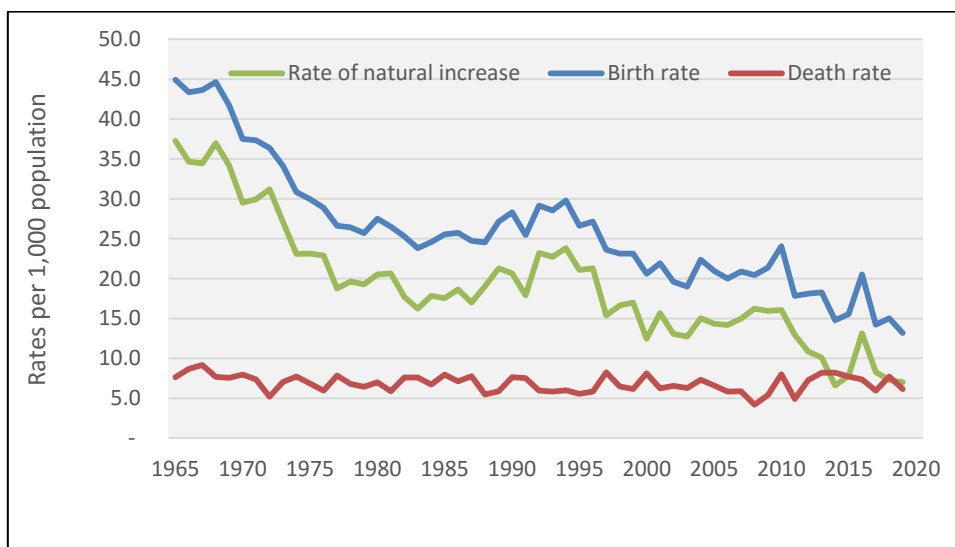
Source: As in Figure 3

DETERMINANTS OF CHANGE: POPULATION DYNAMICS

Although emigration is clearly the major factor driving population change in the Cook Islands, particularly in the Pa Enua, this does not mean that the other determinants of population change (births and deaths) are irrelevant. The population dynamics of the Cook Islands have been evolving over a long period of time. Leaving migration aside, birth and death rates in the Cook Islands have been undergoing a transition from a high rate of natural increase caused by a high birth rate and a low death rate to a low rate of natural increase caused by a declining birth rate and a rising death rate. This pattern of change is consistent with the theory of “demographic transition”, which states that a declining death rate is a precondition for a falling birth rate. It is evident in Figure 12 that the death rate had already fallen to 10 per 1,000 by 1963, at a time when the birth rate remained at close to 50 per 1000, an extremely high rate. For two decades after 1963, the birth rate dropped steadily, but for the following decade it increased, reaching almost 30 per 1,000 by 1994, the same level as 20 years previously. After peaking again in 1994, the birth rate started to decline again and has reached a historic low in 2013. Given a rising death rate since 2008, the rate of natural increase has dropped to 10 per 1,000 or 1 percent annual growth. This means that without emigration, the population would increase at 1 percent per year.

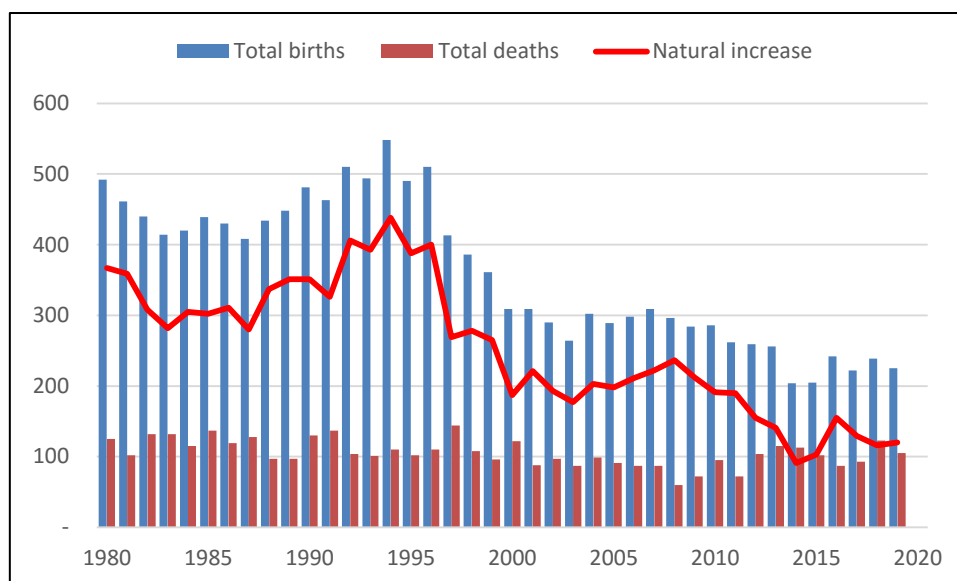
The rise in the birth rate between 1983 and 1994 is puzzling because a reversal of the birth rate once it has begun to decline is not what demographic theory would lead one to expect. However, there are unique features in the Cook Islands that need to be taken into account. For example, age structure changes caused by age-selective migration could affect the crude birth rate. To assess this possibility, it would be necessary to determine whether the total population or the number of births (or both) was changing during this period. It is evident from Figure 13 that while the number of births increased from the late 1980s to about 1994 when births peaked at 548, in the subsequent 20 years, the number of annual births dropped steadily, reaching a historical low point of 204 in 2014, a decline of 63 percent. Clearly a major change in fertility has been taking place over the past 25 years, as a result of which natural increase in 2019 was down to 120, compared to about 440 in 1994.

Figure 12: Rates of births, deaths and natural increase in Cook Islands, 1963-2013



Source: Cook Islands Statistics Office (2022b) and other years.

Figure 13: Annual births and deaths 1980 to 2019



Source: As per Figure 12.

OTHER FERTILITY AND MORTALITY ISSUES

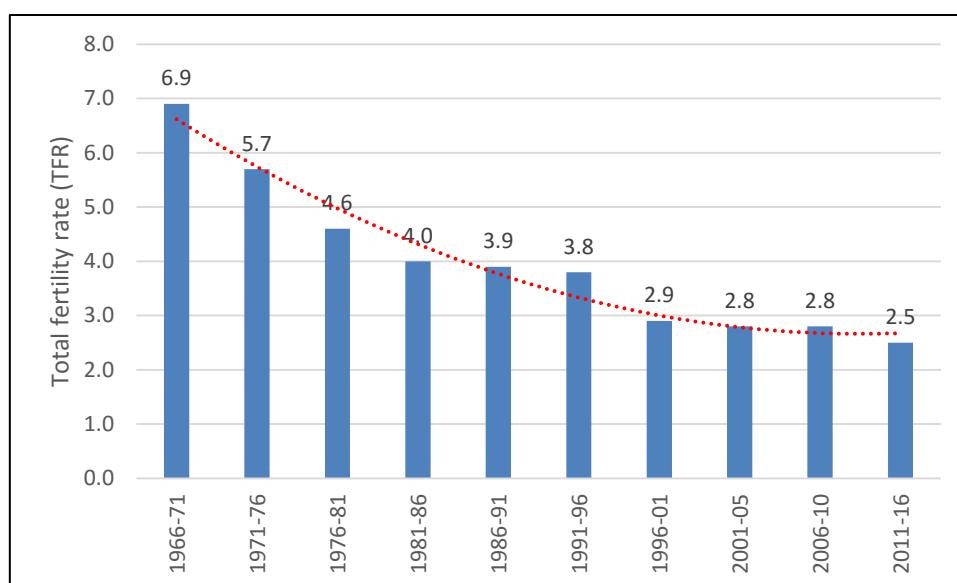
Fertility rates are used not only as indicators of potential population growth but also as indicators of women’s welfare and family welfare in general. The two key indicators examined here are the Total fertility rate (the average number of lifetime births per woman) and the teenage fertility rate (births to women aged 15-19 per 1,000 women in that age group).

The total fertility rate (TFR)⁵

The Cook Islands has had very high fertility in the past with the TFR reaching 7.9 children per woman on average in 1961. In the southern Pa Enua (excluding Rarotonga) the TFR was even higher: 9.2 children per woman on average in that year. 1966 marked the turning point when fertility started to decline. Twenty years later the TFR had dropped to 4 and 10 years after that it had dropped below 3. Over the 10 years from around 2000 to 2010, the TFR levelled off at 2.8 or 2.9. The latest available estimates based on Ministry of Health records indicate that the TFR has declined to 2.5, although there is considerable fluctuation from year to year. Between 2007 and 2016 the TFR was as high as 3.0 and as low as 2.1. These fluctuations are partly the result of the small populations of the Cook Islands and an age structure that is seriously affected by out-migration—especially in the Pa Enua. The TFR trend since 1966 is shown in five-year periods in Figure 14.

⁵ The Total Fertility rate measures the average number of children that a woman would have in her lifetime if she experienced the age-specific birth rates that are presently observed.

Figure 14: Trend in the Total Fertility Rate, 1966-2016



Source: ESCAP (1983); Cook Islands Ministry of Health (Te Marae Ora) (2017 and 2021).

The data shown in Figure 14 exclude births to women who although resident in the Cook Islands went to New Zealand to give birth and then returned to the Cook Islands with the baby. If significant numbers of women were doing this then the TFRs in Figure 14 may be understated. Data from the 2016 census shows that by age 49, women on average had given birth to 2.8 children.

A TFR of 2.4-2.8 is not in itself a policy concern in the Cook Islands. In the Pacific Islands context, a TFR at this level is considered “moderate” and well below the “high” or “very high” fertility countries of Melanesia or Micronesia. It is possible that the TFR will eventually decline to “replacement” level (2.1) or below—as has occurred in French Polynesia and Palau—other high-income Pacific countries.

The main policy issue with regard to fertility levels is whether there is “unwanted fertility” in the population, or an “unmet need” for family planning. Neither of these indicators have been measured in the Cook Islands as they require specialized surveys such as a Demographic and Health Survey (DHS)⁶. A related indicator is the Contraceptive Prevalence Rate (CPR). Accurate figures on the CPR are difficult to obtain in the absence of a reproductive health survey. Service statistics collected by the Ministry of Health refer only to contraceptives supplied by health clinics and do not account for other sources, such as pharmacies, NGOs and private doctors. Service statistics indicate that the percentage of reproductive age women using some form of contraception has declined from 37 percent in 2001 to 27 percent in 2016. But this decline almost certainly reflects greater use of private sources. There is no information on the use of abortion as a means of family planning, although this procedure is legal in New Zealand and Cook Islanders are able to obtain legal abortions if they travel there.

⁶ DHS have been conducted in several Pacific Island countries.

Teenage fertility rate (also known as the adolescent birth rate)

The Cook Islands has historically had one of the highest teenage (15-19) birth rates in the Pacific Islands region. In 1961 the rate was 126 per 1,000 but this had dropped to 83 per 1,000 by 1981, and to 51 per 1,000 by 2011. The latest available estimate is for 2016 (40 per 1,000) is derived from Ministry of Health statistics. Thus, teenage fertility in the Cook Islands is no longer among the highest in the region but similar to that reported in French Polynesia (43) and American Samoa (31). The highest teenage fertility rates are now to be found in Melanesia.

A full picture of teenage fertility in the Cook Islands would require a further breakdown by island groups, but it is difficult to make comparisons given that less than 10 percent of all births in the Cook Islands occur in the Pa Enea (i.e., 90 percent occur in Rarotonga) and an unknown number occur in New Zealand.

MORTALITY PATTERNS AND TRENDS

As already noted (see Figure 13), the crude death rate has been relatively stable since the 1960s, indicating that the mortality transition (from high to low death rates) was completed some decades ago. The declining trend has occurred in the context of considerable annual fluctuations in the number of deaths and the overall death rate. By 2008, annual deaths had dropped to 60 and the CDR to 4.2 per 1,000, representing a historical low for the Cook Islands and one of the lowest in the Pacific. Since then, the number of deaths and the crude death rate have started to increase again. The main reason for this is the ageing of the population. An older population will have more deaths than a younger one and a higher death rate.

Other mortality indicators, including the Infant mortality rate (IMR), have declined to low levels. The IMR averaged 4.0 per 1,000 in the five-year period 2012-16, about the same as in New Zealand. The under-5 mortality rate (U5MR) is reported by MOH as 5.7 in the 2009-13 period and is not much higher than in New Zealand or Canada. The gap between the IMR and U5MR is very small, indicating that deaths in the age group 1-4 are extremely low.

The Maternal Mortality Ratio (Maternal deaths per 100,000 live births) is generally reported as zero, but that is not exactly correct. There have been 3 maternal deaths over the period 1987-2016, during which time the number of births was 10,611, which gives an MMR of 28 per 100,000. While this is low, New Zealand's MMR is lower (9 per 100,000 live births). However, the lifetime risk of experiencing a maternal death in the Cook Islands is extremely low and for all intents and purposes maternal mortality is not a public health issue.

The main mortality and/or public health issue in the Cook Islands at present is the wide gap between male and female life expectancy at birth. As of 2016, the gap is 8 years (Females 77.6, males 69.6). The gap is less at age 40 (5.5 years) which suggests that death rates are higher for males below the age of 40 as well as over. In fact, the divergence between the survivorship of males and females begins around age 20 and increases with increasing age. The gap between male and female life expectancy is not new. It was already observed in the 1970s but it has increased over time.

The Cook Islands has also passed through the “epidemiological transition”—that is, the systematic shift from a situation in which the main causes of death shift from infectious and parasitic diseases to “Non-communicable diseases” (NCDs). Comparing the main causes of death in the mid-1970s and today it is apparent that while infectious and parasitic disease were the fourth most common cause of death around 1975. Respiratory disease, which includes pneumonia and asthma, has declined from the second most important cause of death in 1975 to the 5th in 2016. There have been other shifts as well. Perinatal conditions have almost disappeared as a cause of death. On the other hand, NCDs and other causes have risen in importance, particularly cancer, diabetes and accidents. While there have been shifts in the main causes of death over recent decades, circulatory diseases (particularly ischaemic heart disease, hypertension and stroke) has remained the primary cause of death. Circulatory disease accounted for 31 percent of all deaths in 1975 and this rose to 33 percent in 2016.

While the ranking of causes of death are similar for males and females, females are more likely than males to die of diabetes, while males are more likely to die of cancer, accidents and external sources, including suicide. In broad terms, the main causes of mortality in the Cook Islands are similar to those prevailing in New Zealand and other developed countries.

THE “DEMOGRAPHIC TRANSITION” IN THE COOK ISLANDS

The “demographic transition” refers to the long-term changes in the relationship between the birth rate and death rate. As countries become developed and modernized, they normally pass through a series of stages defined by the gap between the birth rate and the death rate. The number of stages can range from three to five, depending on the country or the perceptions of the researcher.

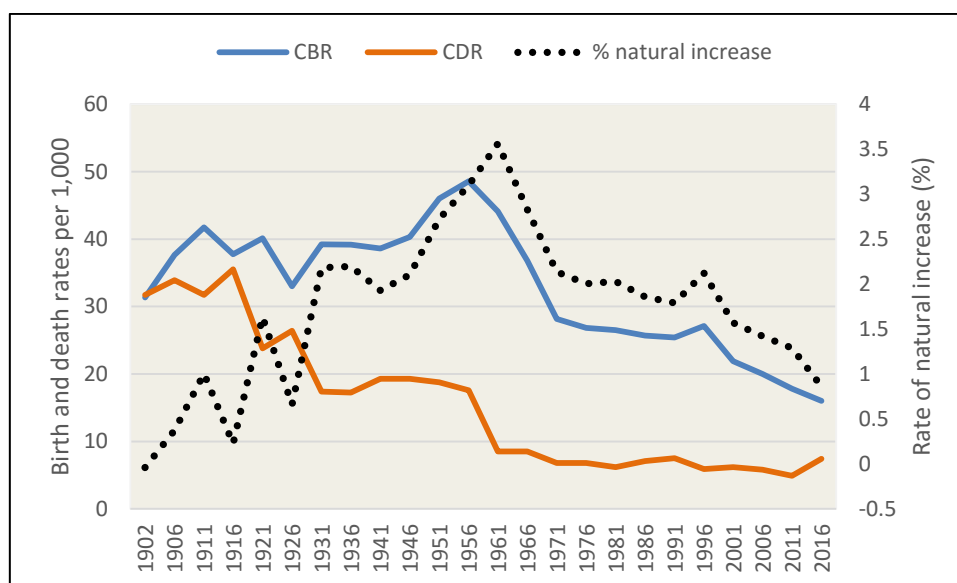
In the first stage, the birth and death rates are both high and more or less offset one another. During this stage, the rate of population growth is low or even negative and may fluctuate from year to year. This stage corresponds to a time when most people lived a subsistence lifestyle and had little or no access to modern medicine. The second stage of the transition is when the death rate begins to drop as a result of public health measures, particularly those that prevent and treat infectious disease. During this stage the birth rate either remains high or possibly increases while the death rate begins to drop. As a result of the falling death rate and a stable or increasing birth rate, the rate of population growth increases.

The third stage occurs after a delay of a few years or as long as a century. In this stage the birth rate begins to decline as people begin to control the number of children they have and start to prefer smaller families. The fourth stage is when the birth rate has dropped to just about equal the death rate. In this stage, population growth once again drops to a low level, often 1 percent or less.

Some countries, in particular Japan, South Korea, Singapore and Taiwan (as well as some European countries), have entered a fifth stage of the transition. This stage is characterized by “ultra low” fertility, a situation in which the average number of births per woman falls below the number required to maintain population growth. At the same time, the ageing of the population results in a rise in the death rate. In this stage, the rate of natural increase turns negative (more deaths than births).

Figure 15 shows the demographic transition in the Cook Islands. Below the graph is an explanation of the stages that the Cook Islands has passed through.

Figure 15: The demographic transition in the Cook Islands



Sources: ESCAP (1983); Cook Islands Statistics Office (2022b) and various years.

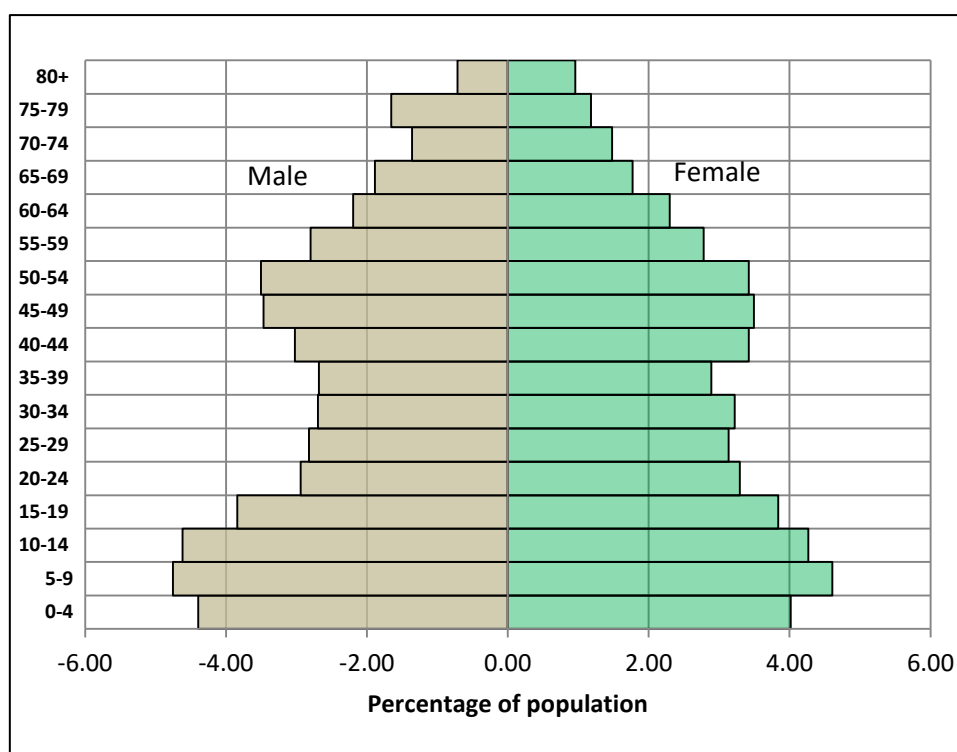
Stage 1 of the transition in the Cook Islands was evident around 1902, when the birth and death rate were similar. In fact, the death rate was a little higher than the birth rate so population growth was negative (-0.04%) at that time (excluding the effects of migration). Both the birth rate and death rate fluctuated for a few years until the death rate started to decline steadily from 1916 onwards. This year marked the beginning of stage 2, when the death rate declines steadily and continuously. Stage 3 commenced around 1961, when the birth rate starts to fall from its peak and declines continuously from then on. Stage 4 commenced very recently (2011-2016) and is ongoing. The birth rate continues to decline while the death rate has started to increase as a result of ageing. During stage 4, the rate of natural increase is once again low (0.9%) but remains positive in the Cook Islands case. At this point in time the demographic transition is considered to be complete, but some countries proceed to Stage 5. Whether the Cook Islands proceeds to Stage 5, during which the rate of natural increase falls below zero, is yet to be seen.

AGE-SEX DISTRIBUTION

A population pyramid showing the age and sex distribution of the 2016 population is presented in Figure 16. Several features are apparent. First, all age groups from 15-19 up to 45-49 are truncated, which shows the impact of age-selective emigration. Second, the narrowing of the 0-4 age-group shows the effects of declining fertility. Third, the pyramid is expanding at the top (age 50 and over) indicating that the population is ageing. Another feature of the age-sex distribution that was also evident in the 2011 distribution is the higher proportion of females in the 15-19 to 45-49 age groups. As result of changing patterns of emigration and fertility, the median age of the resident population has been steadily increasing. In 1991, the population could be considered still “young” as the median

age was 21 years. By 2016 the median age had increased to 32 years and could no longer be considered young. Similarly, the aged “dependency ratio (the number of elderly relative to the working age groups) has doubled over the same period.⁷

Figure 16: Population pyramid for resident population, 2016 census (%)



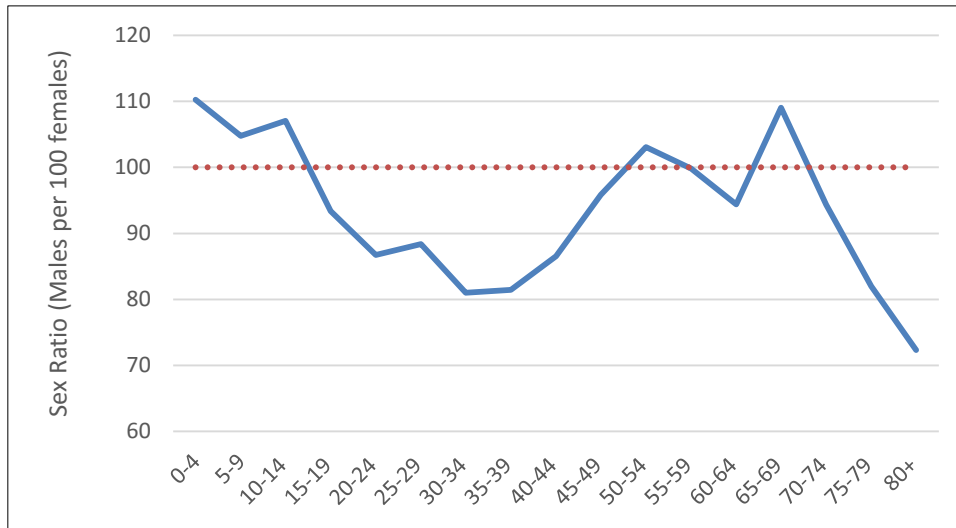
Source: Cook Islands Statistics Office (2018).

Another way of expressing the balance between the sexes in various age groups is the sex ratio⁸ by age, which is displayed in Figure 17. (the dotted line in the graph shows a sex balance—equal number of males and females). Age groups 04 and 5-9 are male dominant (more males than females) while all age groups from 15-19 up to 45-49 are female dominant. In the key age group of 30-34, the sex ratio is only 81, indicating severe female dominance. All age groups from 70 and over are also heavily female-dominant. There are two ways that can extremely low sex ratios can come about: 1) sex selective mortality (one sex has a higher death rate than the other); 2) sex-selective emigration (one sex has a higher emigration rate than the other. It is highly likely that in the Cook Islands case, the low sex ratios in the population aged 15-49 are caused by age-selective emigration. That is, more males than females emigrate, leaving a deficit of males in that age range. The increasingly low sex ratios above the age of 70 is unlikely to be caused by sex-selective migration because older people tend not to emigrate. In this age group it is more likely that sex-selective mortality is the cause. This is typical of most societies; older males have higher death rates than females. This means that there are more widows in the population than widowers.

⁷ Demmke, (nd).

⁸ The sex ratio is the number of males per 100 females (using the formula $M/F*100$). If the ratio is above 100 then there are more males in the population than females. Below 100 means that there are more females than males.

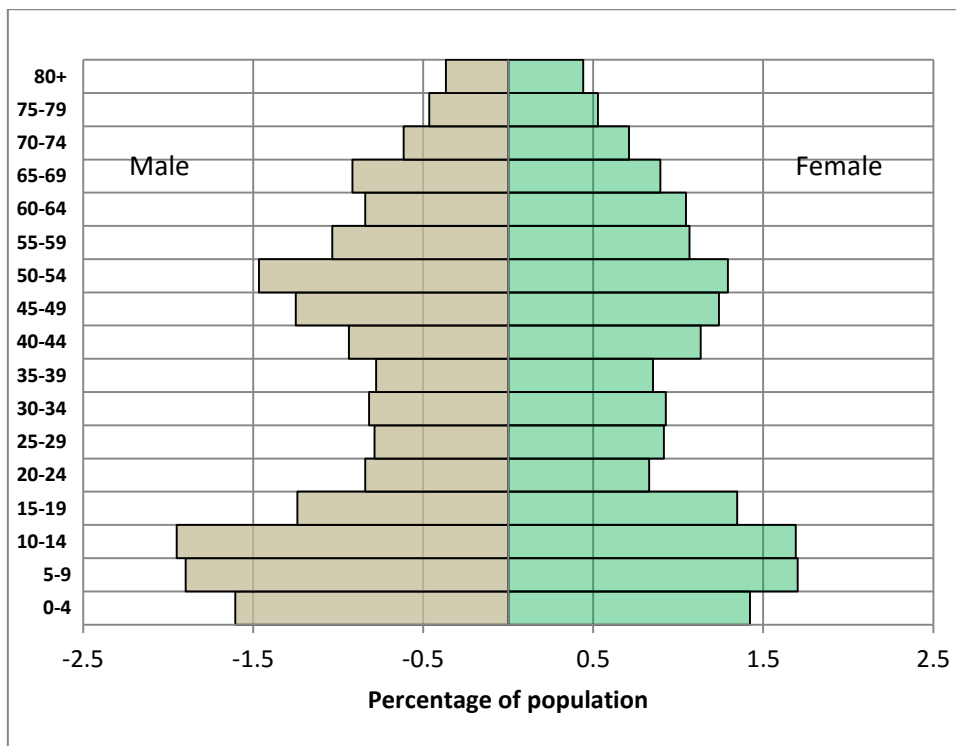
Figure 17: Sex ratio by age-group, 2016 census (males per 100 females)



Source: Cook Islands Statistics Office (2018).

The Pa Enua also show similar age-sex distribution features to the national population only generally more extreme. The population pyramid for the Southern Pa Enua is shown in Figure 18. The deficit in the age groups 15-44 is evident, as in the total population, but it is more accentuated. On the other hand, the differences by sex are not quite so marked. The apparent shrinkage at the base (0-4 age group) indicates falling fertility.

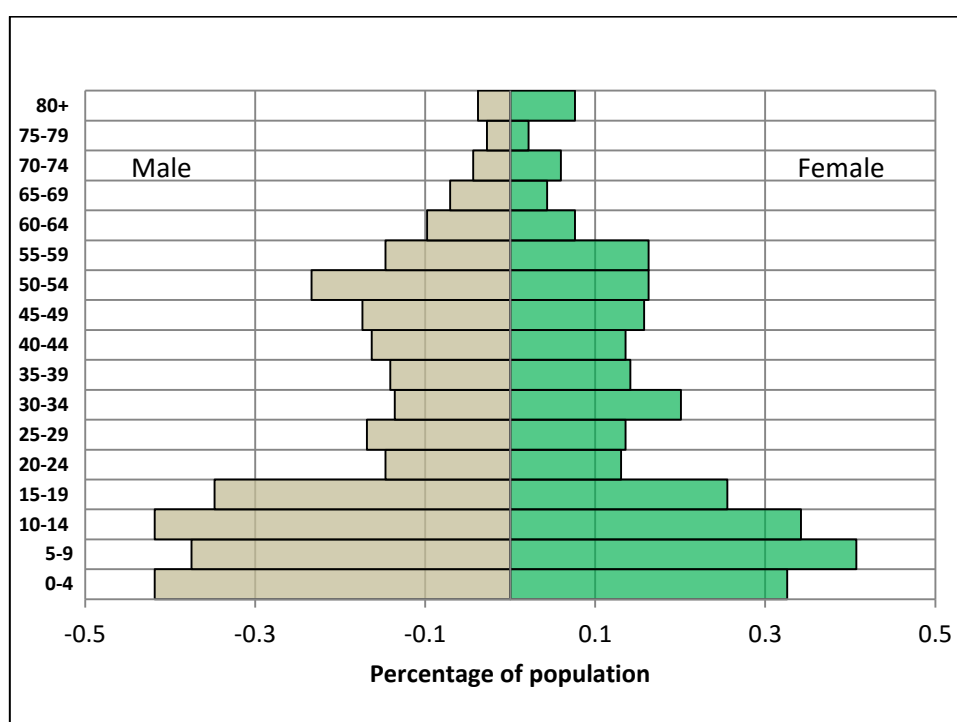
Figure 18: Age-sex distribution, Southern Pa Enua, 2016 (%)



Source: Cook Islands Statistics Office (2018).

The age-sex distribution for the Northern Pa Enea shows similar distortions only more severe again (Figure 19). Fertility decline is not so obvious and the key deficit age group starts at age 20 rather than age 15 as in the Southern outer islands. The deficit in the 20-49 age group (the working age range) are quite severe. It should be noted that the age-sex distribution of the Northern group population has had essentially the same shape for the past 35 years. The age pyramid in 2016 was almost an exact match to that of 1981, with an extreme deficit in the ages 20-44 (ESCAP, 1983, p.45). This type of distribution is caused by a steady stream of out-migrants from age 20 and above, accompanied by a constant, or slowly declining, birth rate. The impression is of a population that stays at home until the end of high school and then migrates in the early labour force ages—either internally to Rarotonga or overseas to New Zealand or Australia. There is little sign of ageing in the Northern group with the population over 60 years of age still a small proportion of the total.

Figure 19: Age-sex distribution, Northern Pa Enea, 2016



Source: Cook Islands Statistics Office (2018).

PROJECTING FUTURE POPULATION GROWTH

Predicting future population change is difficult because of the uncertainty attached to the determinants of population change. This is especially the case in the Cook Islands given the volatility of international migration patterns and the fact that migration has for some time been the principal determinant of population change in the country. As was clear from Figure 12, natural increase has fallen to a low level and is now insufficient to offset net emigration, as happened in the 1970s. It is unlikely that this situation will change because the birth rate will probably decline further given that the current Total Fertility Rate of 2.4 is still above the replacement level of 2.1. The TFR is more likely

to decline further than increase, given past trends. Similarly, the ageing of the population will tend to raise the death rate.

Although population trends are uncertain, it is possible to show the effects of various assumptions about future change in the key demographic determinants of births, deaths, and migration. A simple method of doing this is to assume that population growth trends from the recent past will continue into the future. In other words, if nothing happens to change the trends then the results are predictable. This is the logic of Table 2, which shows the effects of assuming that the population growth trends of the 2011-16 intercensal period for each individual island continue for another 20 years. There is no certainty that these trends will continue, but if they do then the results for the resident population will be as shown.

Of course, the 2016 base population assumed in these projections is already out of date; but an age distribution of the 2021 census population is not yet available.

In the meantime, we present the projections shown in Table 2 as an indication of trends based on the pre-Covid-19 situation. The most obvious result is that the resident population of the Cook Islands (residents only) would continue to decline but at a relatively slow rate to 14,548 by 2036, a drop of 1.7 percent relative to 2016. The population of Rarotonga would continue to increase but also at a slow rate, increasing to 10,936 by 2036 (an increase of about 300 over 2016). The total outer islands population would decrease to 3,585, by 2036, a drop of about 570 or 14 percent relative to 2016. In the Southern group of outer islands, the population is projected to drop to 2,554 by 2036, a decline of about 17 percent. By contrast, the population of the Northern group is projected to remain quite stable within the range 1,037-1,031. This is a result of some Northern group islands (Nassau, Rakahanga and Penrhyn) actually experiencing population growth during the 2011-2016 intercensal period. This is a significant turn-around by comparison with the 2006-2011 period when these same islands experienced population decline.

Now that the provisional results of the 2021 census are available, we can see that the projections shown in Table 2 are quite close to the observed population. The projected population for 2021 was only 1.3 percent lower than the actual population in 2021. In the event, the populations of Pukapuka, Aitutaki and Mangaia were somewhat higher than projected. The main reason would be that net emigration had dropped relative to the previous five-year period.

Assuming that the growth rates of individual islands remained the same as during the 2011-2016 period, there would not be much change in the regional distribution, although Rarotonga would continue to gain population share while other regions would lose share. As shown in Table 3 and Figure 20, Rarotonga would eventually comprise 75 percent of the total population and the Pa Enea 25 percent. While the Southern Pa Enea islands would decline to 18 percent of the total from 21 percent in 2016, the Northern group would remain stable at 7 percent of the total population.

Table 2: Projected resident population 2016-2036 by island and region using mathematical method

Island/region	2016	2021	2026	2031	2036	Change 2016-2036
Cook Islands	14,802	14,658	14,539	14,442	14,548	-254
Rarotonga	10,649	10,727	10,805	10,883	10,963	314
Outer islands	4,153	3,931	3,734	3,559	3,585	-568
Southern Pa Enea	3,072	2,875	2,697	2,536	2,554	-518
Aitutaki	1,712	1,655	1,600	1,577	1,558	-154
Mangaia	493	432	379	333	335	-158
Atiu	423	382	346	312	315	-108
Mauke	289	278	268	258	260	-29
Mitiaro	155	127	127	104	85	-69
Northern Pa Enea	1,081	1,056	1,037	1,023	1,031	-50
Palmerston	57	54	51	49	49	-8
Pukapuka	425	400	377	356	358	-67
Nassau	78	83	89	95	96	18
Manihiki	212	189	168	150	151	-61
Rakahanga	83	89	96	104	105	22
Penrhyn	226	240	254	270	272	46
Suvarrow	0	0	0	0	0	--

Source: Author's estimates.

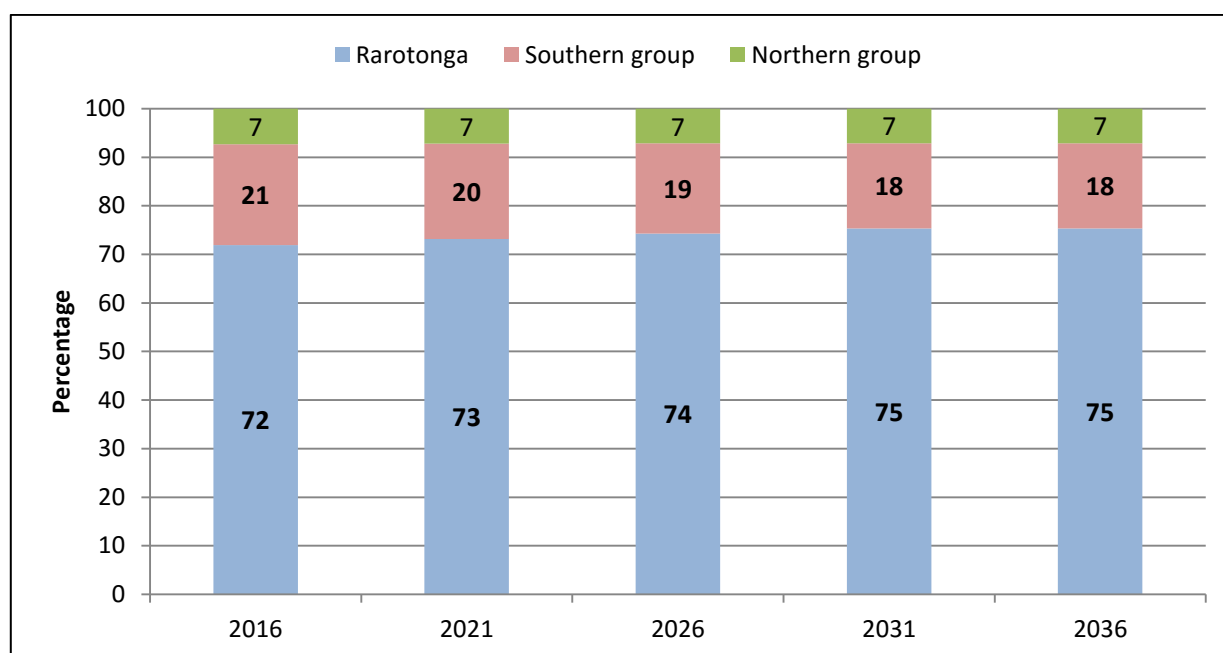
The main reason for this is the turn-around in the growth rate in Penrhyn, Rakahanga and Nassau—from negative in the 2006-11 period to positive in 2011-2016 period. If the most recent rate continues then population decline will cease in the Northern group, although some individual islands may continue to decline.

Table 3: Projected population distribution (%) 2016-2036

Region	Percentage distribution				
	2016	2021	2026	2031	2036
Cook Islands	100	100	100	100	100
Rarotonga	72	73	74	75	75
Southern group	21	20	19	18	18
Northern group	7	7	7	7	7
Outer islands	29	28	27	26	25

Source: Author's estimates

Figure 20: Projected distribution of population by the three main regions of Cook Islands, 2016-2036



Source: Author's estimates. @016 figures from Cook Islands Statistics Office (2018).

Projecting future population change: cohort-component methods

An alternative method of population projections is one that takes separate account of the components of change, namely births, deaths and migration and their effects on specific age groups. The Cook Islands Statistical Office has published projections using this method based on three different "scenarios" and a base population of 2011. The "medium" scenario, which assumes some further decline in fertility and a decline in net emigration gives results that are about 2 percent higher in 2016 compared to the enumerated population in that year. Compared to the mathematical method described above, the projected 2031 population was 7.2 percent higher than the projection using mathematical methods (15,485 compared with 14,442). Thus, the cohort-component method was more "optimistic" than the mathematical method. The most likely reason for this is that the rate of emigration was lower in the "medium" projection.

Revised Cohort component projections based on the 2016 census.

An updated set of cohort-component projections has been prepared for this background paper in order to help assess the likely demographic future of the country.⁹ Four possible "scenarios" have been developed, which are described briefly as follows:

Scenario 1 (Zero migration)

Net emigration would be zero while fertility and mortality would continue to evolve as per recent trends (the number of lifetime births per women would slowly decline from 2.4 to 2.1 and life expectancy would slowly increase to 80 years for females and 75 years for males).

⁹ A full description is available in the report "A note on population projections for the Cook Islands" (01 May 2021)

Scenario 2 (High emigration)

Net emigration is -190 per year (-100 males and -90 females). Fertility and mortality trends would follow the same pattern as in Scenario 1.

Scenario 3 (low emigration)

Net emigration would be lower than in scenario 2 (-50 males and -50 females). Mortality and fertility would follow the same trends as in scenario 1.

Scenario 4 (High fertility)

Net emigration would be the same as in scenario 3 but fertility would increase from a TFR of 2.4 in 2016 to 3.0 in 2046. Mortality would remain the same as in projection 1.

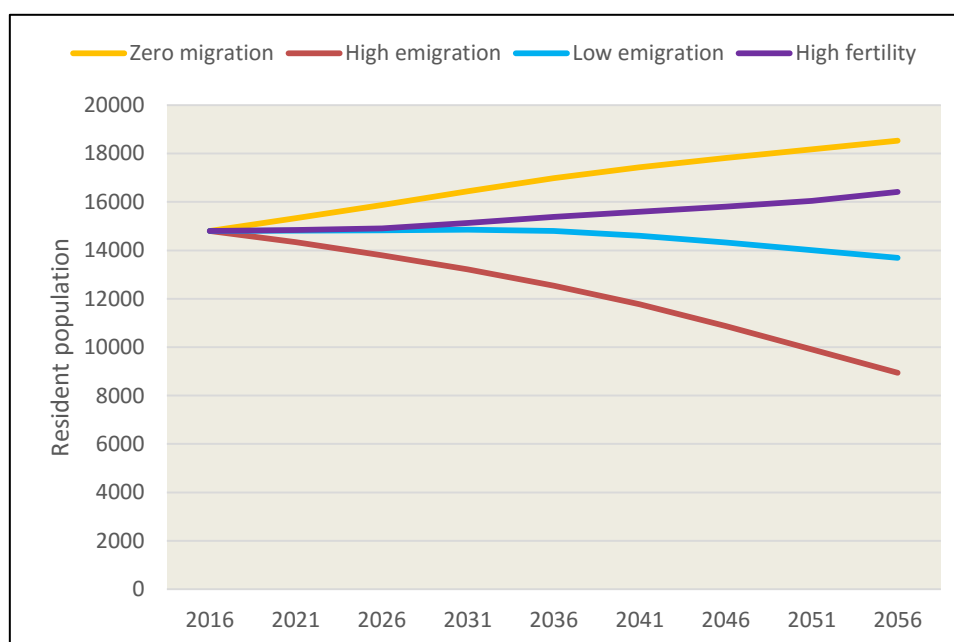
The results of these projections are shown in Table 4 and figure 21.

Table 4: Projected population 2016-2056, Cook Islands residents, cohort-component method

Scenarios	2016	2021	2026	2031	2036	2041	2046	2051	2056
Scenario 1: Zero migration	14,803	15,333	15,879	16,446	16,980	17,440	17,822	18,169	18,528
Scenario 2: High migration	14,803	14,335	13,797	13,211	12,546	11,766	10,869	9,908	8,945
Scenario 3: Low migration	14,803	14,820	14,830	14,849	14,806	14,609	14,324	14,003	13,690
Scenario 4: High fertility	14,803	14,842	14,911	15,136	15380	15,602	15,802	16,048	16,415

Source: Output tables from projections programme DEMPROJ.

Figure 21: Four future population scenarios, 2016-2056



Source: author's projections using computer programme SPECTRUM (Demproj module)

Two of the four scenarios (scenario 1 and scenario 4) show steady growth at an average rate of 0.6-0.7 percent, respectively. With zero emigration, the resident population would increase to 18,500 by 2056. With lower net migration and increased fertility, the population would reach 16,415 in 2056.

The two middle projections (scenario 2 and scenario 3), both of which assume the same mortality and fertility trends as in scenario 1 but either “high” net emigration (-190 per year) or “low” emigration (-100 per year) result in a declining population. The most rapid decline is the “high” emigration scenario (scenario 2), which would result in the population declining to just under 9,000 by 2056. This rate of decline is equivalent to an average decrease of -1.3 percent per year.

The “low” emigration projection results in a population of 13,700 by 2056 or an annual growth rate of -0.2 percent per year. While the “low” migration scenario would produce a declining population, the rate of decline would be very slow with the population in 2041 (20 years from now) still over 14,600, less than 2 percent below the 2021 population.

To achieve positive population growth, either emigration would have to decline to zero or to drop to a low level while fertility increases. To achieve sufficient births to ensure population growth given net emigration of -100 per year, the average number of births per woman (the total fertility rate) would need to steadily increase to reach 3.0 in 2056. The Cook Islands has not had a TFR of 3.0 since the mid-1990s, more than 20 years ago. It is unlikely that fertility would rise to this level again given the economic and socio-cultural changes that have occurred over this period.

In summary, an increase in births sufficient to offset continued net emigration of -190 per year could occur—is not very likely, even if supported by pro-natalist policies. Furthermore, even if an increase in fertility could be induced, the initial impact would be on the youngest age group (0-4) and not on the working age groups where an increase in population is possibly most needed. Increased births would increase the dependency ratio, which could cause more women to withdraw from the labour market, thus exacerbating the problem of a shrinking (Cook Islands Maori) labour force. Migration is a very powerful demographic variable which has instant effects, unlike fertility and mortality whose effects are evident over longer periods of time.

From a policy perspective, scenario 3 is to be preferred over the other scenarios because it results in a relatively stable population over time. The challenge lies in how to keep net emigration to -100 per year or less.

AGEING UNDER DIFFERENT PROJECTION SCENARIOS

The simplest measure of ageing is the proportion of the population aged 65 and over. As life expectancy increases, the number and proportion of even older age groups will also increase. Tables 5 to 8 show both the numbers and proportions aged 65 and over as well as 80 and over (the oldest old) that can be expected in the future. The 65 and over population is projected to increase in all the scenarios but the high emigration scenario shows the number declining from 2041. In the zero-migration scenario, the 65 and over population would increase by 1,150 people between 2016 and 2041, or 75 percent. This implies a growth rate of 3.0 percent per year. Other scenarios indicate lower

rates of increase, but the 65 and over population would increase under all scenarios. The high emigration scenario would result in the 65 and over population reaching 19.5 percent of the total in 2041.

Table 5: Projected resident population aged 65 and over, 2016-2056

Scenario	2016	2021	2026	2031	2036	2041	2046	2051	2056
Zero emigration	1,544	1,726	1,973	2,315	2,576	2,695	2,642	2,615	2,603
High emigration	1,544	1,677	1,869	2,137	2,299	2,289	2,077	1,861	1,621
High fertility	1,544	1,700	1,918	2,226	2,440	2,499	2,373	2,259	2,144
Low emigration	1,544	1,700	1,918	2,221	2,429	2,480	2,343	2,216	2,083

Source: Output tables from DEMPROJ.

Table 6: Projected percentage of resident population aged 65 and over, 2016-2056

Scenario	2016	2021	2026	2031	2036	2041	2046	2051	2056
Zero emigration	10.4	11.3	12.4	14.1	15.2	15.5	14.8	14.4	14.1
High emigration	10.4	11.7	13.5	16.2	18.3	19.5	19.1	18.8	18.1
High fertility	10.4	11.5	12.9	14.7	15.9	16.0	15.0	14.1	13.1
Low emigration	10.4	11.1	12.2	13.7	14.6	14.5	13.3	12.2	11.1

Source: Output tables from DEMPROJ.

As is apparent from Tables 7 and 8, the “oldest old” population (80 and over) is also projected to increase. In the zero-migration scenario, the oldest old would increase at an average annual rate of 2.6 percent, which implies a doubling in 27 years.

Table 7: Projected resident population aged 80 and over, 2016-2056

Scenario	2016	2021	2026	2031	2036	2041	2046	2051	2056
Zero migration	251	308	347	391	451	525	647	706	718
High emigration	251	298	327	361	408	476	565	593	565
Low emigration	251	302	336	376	430	507	608	652	645
High fertility	251	302	336	376	430	507	608	652	645

Source: Output tables from DEMPROJ.

Similarly, the proportion of very old people in the population could increase from less than 2 percent in 2016 to up to 6.3 percent (Zero emigration scenario) or at the least 3.3 percent with a low emigration scenario.

Table 8: Percentage of population aged 80 and over, 2016-2056

Scenario	2016	2021	2026	2031	2036	2041	2046	2051	2056
Zero migration	1.7	2.0	2.2	2.4	2.7	3.0	3.6	3.9	3.9
High emigration	1.7	2.1	2.4	2.7	3.3	4.0	5.2	6.0	6.3
Low emigration	1.7	2.0	2.1	2.3	2.6	2.9	3.4	3.5	3.3
High fertility	1.7	2.0	2.3	2.5	2.8	3.2	3.8	4.1	3.9

Source: Output tables from DEMPROJ.

The Cook Islands population will continue to age for at least the next 25 years. This will create a challenge for both families and the government to ensure that the elderly are maintained at a reasonable level of living and do not suffer from hardship or poverty.

THE YOUTH POPULATION

Youth are normally defined as the population aged from 15 to 24. In any society this is an extremely important group because it experiences not only the transition from school to work but also from single to married life. In the Cook Islands, 38 percent of total fertility occurs in this age group. Furthermore, emigration rates tend to be high among youth, particularly the 20-24 age group. As can be seen from Table 9, the future population of youth is significantly affected by emigration levels. The “high emigration” scenario would result in the youth population declining to 1,337 by 2056 (a 36 percent drop relative to 2016). On the other hand, the “low emigration” scenario would produce a relatively stable population of youth. The “high fertility” scenario would see a steady increase in the youth population—reaching 3,172 in 2056.

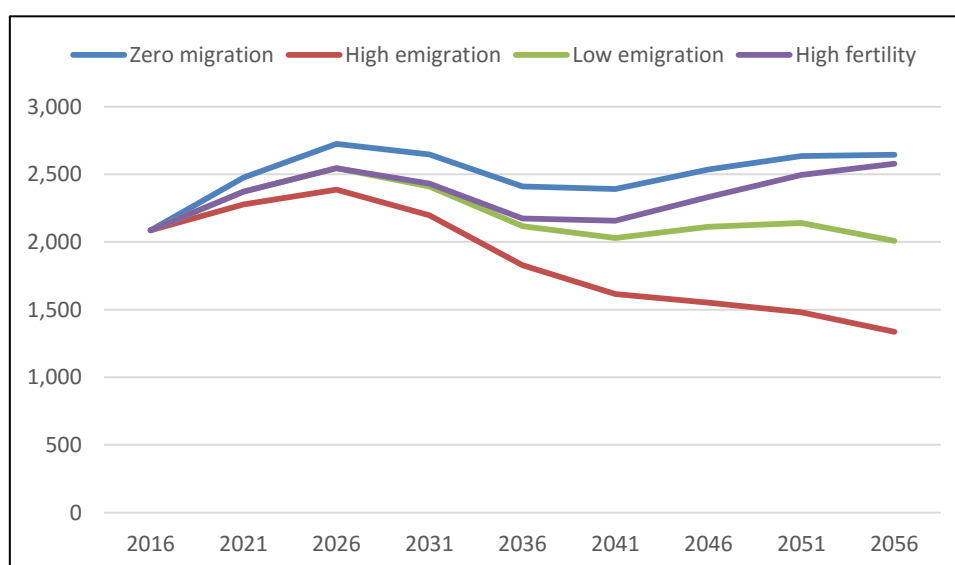
Table 9: Projected youth population aged 15-24, 2016-2056

Scenario	2016	2021	2026	2031	2036	2041	2046	2051	2056
Zero migration	2,087	2,477	2,724	2,647	2,410	2,391	2,535	2,634	2,644
High emigration	2,087	2,277	2,386	2,197	1,827	1,614	1,552	1,480	1,337
Low emigration	2,087	2,372	2,546	2,410	2,116	2,029	2,111	2,140	2,007
High fertility	2,087	2,372	2,546	2,431	2,173	2,157	2,332	2,495	2,578

Source: Output tables from DEMPROJ.

These projections can be seen graphically in Figure 22. Although all projections show an initial increase in the population of youth up to 2026, only two scenarios (high fertility and zero migration) project an increasing population of youth after that year. Perhaps the most realistic scenario is the “low emigration” one, but the economic impact of the Covid-19 pandemic may cause emigration to increase to reach the “high emigration” assumptions, or possibly even higher.

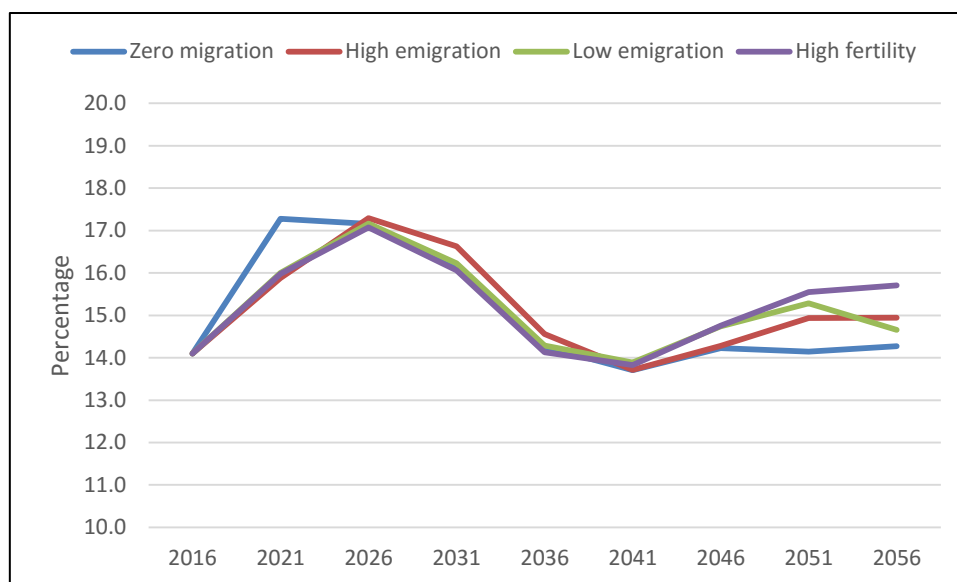
Figure 22: Projected population aged 15-24, 2016-2056



Source: Output tables from DEMPROJ.

As a proportion of the population, the projection results show that there is little difference between the four scenarios, although the highest proportion of youth by 2056 would result from higher fertility (Figure 23). In this case youth would increase from 14 percent in 2016 to 15.7 percent by 2056.

Figure 23: Projected percentage of population aged 15-24, 2016-2056



Source: Output tables from DEMPROJ.

COOK ISLANDERS ABROAD: THE DIASPORA

A population study of the Cook Islands would be incomplete if it did not take account of the overseas population. Cook Islanders who emigrate remain part of the broader community of nationals to a greater or lesser degree. The economist, Geoff Bertram (2018) has argued that the proper unit of analysis when considering the sustainable development of countries that have a high proportion of their ethnic population abroad is the national community, not only those living on the geographical territory of the homeland. This may well be true, but living outside the territory of one's national origin does not guarantee that a person identifies with that territory or the people occupying it. The strength of the ties between the diaspora population and the home population depends on a range of factors that need special investigation.

The ethnic population of Cook Islanders in New Zealand was 80,532 at the time of the 2018 census. However, of these, 83 percent were born in New Zealand. Of those born overseas, 67.6 percent arrived in New Zealand 20 or more years ago. Only 8.1 percent had arrived in New Zealand less than 5 years ago. In other words, the period of mass immigration to New Zealand is well in the past and the main source of growth is natural increase in the ethnic population of Cook Islanders. For this reason, it is likely that identification with the home country will have weakened compared with a generation ago.

In the case of Australia, 22,228 Cook Islanders by "ancestry" were counted in the 2016 census, a 67 percent increase since the 2011 census. The ethnic Cook Islands population of Australia has been

increasing at three times the rate of increase in New Zealand (9.5% annually in Australia compared to 3.2% in New Zealand). No doubt movement from New Zealand as well as Cook Islands has contributed to this rapid growth.

With a combined population of 102,580 Cook Islanders in Australia and New Zealand, and an ethnic population of 12,703 Cook Islands Maori in the Cook Islands (see Table 1), the total population of Cook Islanders in the three main countries of residence is 115,283 around the period 2016-2018. Of course, there are Cook Islanders in other countries as well. Bertram's graph¹⁰ suggests another 20,000 back in 2006, but the number could be higher now. Recent estimates are not available. In any case, even including only the two main countries of immigration, the proportion of all ethnic Cook Islanders residing in the Cook islands is only 11 percent and just under 10 percent if the overseas population is as high as 135,000.

The key question for development policy, as well as for national survival and viability, is how the wider "transnational" community interacts with the home-based population and economy and vice versa. These issues will be taken up in Part B of this paper.

SUMMARY AND CONCLUSIONS: DEMOGRAPHIC

a) Population dynamics

Up to the end of 2021, the population situation in the Cook Islands was a reflection of long-term trends, punctuated by occasional shocks that temporarily boosted net emigration. For example, the rate of natural increase (the balance of births and deaths) has continued the steady decline that commenced in the mid-1960s, notwithstanding a period of about one decade in the 1990s when the decline stalled because of a rise in the birth rate. The birth rate declined to a historically low level in 2019 while the death rate has continued to fluctuate within a quite narrow range. As a result, the rate of natural increase in 2019 (0.7%) is not much higher than the rate of natural increase in New Zealand (0.5%). In other words, the Cook Islands has reached the final stage of the "demographic transition". In this demographic aspect, the Cook Islands has become a "modern" country with population dynamics comparable to other developed countries.

This conclusion needs to be qualified, however. Cook Islanders have become highly mobile and it is very likely that expectant mothers travel to New Zealand or Australia to give birth so that their babies are recorded as "resident arrivals" on their return rather than as registered births. This would reduce the Cook Islands birth rate, at least statistically. It is also likely that deaths that might otherwise occur in the Cook Islands occur in New Zealand because a seriously ill Cook Islander has the option of seeking medical treatment there and, if they ultimately die in New Zealand the death may not make it into the civil registry of the Cook Islands. The scale of these offshore vital events is difficult to assess, however. It is possible that the number of offshore births and deaths cancel each other out leaving the rate of natural increase within the geographical area of the Cook Islands the same as that recorded in the vital register of the Cook Islands.

¹⁰ Bertram (2018).

Leaving aside the dramatic downturn in the non-resident population in the first quarter of 2020 resulting from the Covid-19 crisis, population movement has continued to follow trends that date back to the mid-1970s when mass tourism commenced. The flow of “visitors” (some of whom will be Cook Islanders normally resident abroad) has increased steadily at a rate of 6.1 percent per year. In 2019, the number of visitor arrivals (171,550) was ten times the estimated resident population of 17,100. From an economic perspective, visitors are much more important than residents by a very large margin. Even if visitors only stay a few days, the “person-years” of consumption of these persons vastly exceeds the consumption of the total resident population of the Cook Islands.

At the same time, it is clear that population movement on the part of resident Cook Islanders has also increased significantly. Resident departures and arrivals have increased at a rate of 2.6 percent annually since 1976. By 2019, gross movement (arrivals plus departures) had reached nearly 40,000 compared with 8,800 in 1976. The consequences of these patterns of movement by visitors and residents are highly important from both a demographic and economic perspective. Demographically they present a challenge in measuring the population “at risk” of experiencing a vital event. Economically, relentless population movement makes it difficult to identify the relevant population contributing to GDP and therefore the population whose welfare development plans and other government policies are aimed to improve.

b) Population structure and regional distribution

Given that demographic change in recent years has continued along the line of long-term trends, it is not surprising that the geographical distribution has also continued to shift, although possibly at a slower rate than in the past. The residential population of Rarotonga has returned to what it was in 1996 after some years of decline and is now only about 8 percent below its peak population in 1971 (11,478). On the other hand, the Pa Enua have maintained their downward trend, except for some Northern group islands that experienced some population growth between 2011 and 2021. Population decline in the Pa Enua is driven by net outward migration. The end result is that 72 percent of the total resident population lives on Rarotonga and 28 percent in the Pa Enua. Given recent (2011-16) rates of growth, the Northern group may remain stable at 7 percent of the total over the coming decades, while the Southern outer islands are projected to decline further to 18 percent of the total resident population. By 2036, projections suggest that the population of the outer islands could decrease further to 3,600 and make up only 25 percent of the total residential population.

The age structure of all the Cook Islands displays the effects of emigration, with serious deficits in the working age range of 20-49. Despite the continuation of emigration, some islands (and the Northern group) have an age profile that hasn’t changed much over the last two decades. It is as if the dynamics of population change have worked in such a way that the age structure remains roughly stable even though the population may be declining in size.

However, the overall population of the Cook Islands is ageing as indicated by the rising median age. The proportion of elderly (65 and over) in the population is increasing while the proportion of children is decreasing. This phenomenon is known as “structural ageing”: declining fertility reduces the proportion of children while increasing the proportion of elderly. On the other hand, rising life expectancy adds more elderly people to the population. As was indicated previously, fertility has

been declining for many years, while life expectancy has been increasing. The most recent estimates¹¹ suggest that life expectancy at birth has reached 78 years for females and 71 years for males. At age 65, females in the Cook Islands can expect to live on average for another 18 years and males 15 years. These figures have important implications for the maintenance of pension obligations and the increasing demands for health services tailored specifically toward an older population.

ISSUES ARISING FROM DEMOGRAPHIC SITUATION

1. Population statistics

- There is a need to review the definition of a Cook Islands “resident”. Current border statistics overstate resident departures thus exaggerating net emigration. The definition of “resident” needs to be consistent for arrivals and departures. Census definitions and border-crossing definitions should be compatible.
- There is also a need to review other definitions of “resident”, such as in immigration law to ensure that different definitions are not confused.
- Censuses and surveys should identify foreign migrant workers (e.g., in labour force surveys) and allow for their characteristics to be described.

2. “Depopulation” trends in the Pa Enea.

- Better information is needed on the impact of depopulation (negative growth) on communities. In what sense is depopulation a problem for the communities experiencing it? Does it affect the “quality of life”?
- How should (or can) communities adjust to a declining population;
- Would a pronatalist policy aimed at increasing the birth rate have sufficient effect to offset emigration? (Not likely)
- Can depopulation trends be reversed by policies to reduce emigration or encourage return migration? Is there sufficient knowledge to address this question?
- Is there scope for economic development to keep people in the Pa Enea?
- If emigration continues, how many people are likely to be living in the Pa Enea in, say, 20 years?

3. Reducing proportion of migrant workers in the labour force

- Can foreign migrant workers be “replaced” by Cook Islanders currently living abroad?
- What policy measures could the government introduce to address this issue?

4. Population ageing

- The population will continue ageing for the next several decades
- Should government provide more support for the care of an increasing population of older persons and very old persons

5. Youth population

- If emigration remains high or increases, the youth population could decline significantly and this could be damaging economically and culturally.

¹¹ Cook Islands Statistics Office (nd), Cook Islands Demographic Profile 2006-2011.

6. Life expectancy gap

- Male life expectancy is significantly lower than female
- How can male health be improved?
- Is further study needed to understand this issue?

7. NCDs and adult health

- It is normal for deaths due to NCDs to increase as infectious diseases are no longer life threatening (you have to die of something)
- Death rates due to NCDs may nevertheless be higher than “normal” in the Cook Islands
- Should more be done to prevent the onset of NCDs? E.G., “sugar tax”.

8. Other population issues

- Fertility and the birth rate. The fertility transition is almost over so no policy action is needed. Women and families are able to achieve the number of children they want.
- Teenage (adolescent) fertility has been declining steadily and is no longer the highest in the Pacific. But further decline would be positive.
- What would be the effects of introducing more paid parental leave?

PART B: SOCIOECONOMIC STATUS AND TRENDS

Introduction to Part B

Population trends and dynamics do not occur independently from their social and economic context. In other words, if a demographic variable (such as the birth rate or the death rate) is changing, then normally something is also changing in the socioeconomic or cultural context. A partial exception to this principle is when the age structure of a population has an impact on demographic trends even though the socioeconomic context remains stable. An example is when the number of births increases even though the fertility rate of different age groups of women does not change. This can occur simply because the number of women of child-bearing age is increasing. The reverse is also true.

The key factors in the socioeconomic context that can potentially have an effect on population are numerous and may be complex in themselves. The core variables include income, education and occupation. Other variables that may be important in certain contexts include the availability of and access to social services, such as health care, education and social protection. Many of the socioeconomic variables that can determine population change may be viewed from different “altitudes”. For example, the growth of total economic output (usually measured by Gross Domestic Product (GDP) or Gross National Income (GNI)), is a “macro” variable, meaning that it takes in the whole economy. Individual or household income is a “micro” variable that reflects how GDP or GNI is actually distributed to people and families. When expressed as a simple average (mean or median), such as a per-capita measure, it is still a macro variable. But when individuals or households having different incomes are compared with each other, then we are speaking of a “micro-level” analysis.

In this section of the background paper, the focus is mainly on “macro-level” variables, but including in some cases averages. This is mainly because official statistics are focussed at this level. For example, census data tabulate income by island and district as well as by age and sex, but it is not possible to link income with demographic factors. Only specifically designed customized tables can

do that and these are not available. Much the same is true for survey data such as Household Income and Expenditure surveys or Labour force surveys.

The causal connections between socioeconomic change and demographic trends can be difficult to prove. This paper therefore suggests some hypothetical directions rather than scientifically verified propositions.

ECONOMIC OUTPUT AND STRUCTURE OF THE ECONOMY

The Cook Islands' economy is the eighth largest in the Pacific when the French and US territories are excluded. The ADB reported that the total GDP of the Cook Islands was \$US380m in 2019, less than Samoa, Tonga and FSM but more than Palau, Marshall Islands and Kiribati. In per capita terms, however, the Cook Islands ranks number one in the Pacific, with a GNI¹² per capita of \$US19,300 in 2019¹³ (again, excluding the US and French territories). This GNI per capita places the Cook Islands well inside the category of a "high income" country as defined by the World Bank. The threshold income of \$US12,535 was already achieved between 2010 and 2014, so the Cook Islands has been in the high-income category for more than 5 years. As a result, the Cook Islands is no longer eligible for "Official Development Aid" (ODA), and this may result in a reduction in foreign aid over the coming years.¹⁴

The fact that the Cook Islands is now classified as a "high income" country goes at least part of the way toward explaining its passage through the demographic transition. Figure 24 shows, for example the relationship between an economic variable (per capita GDP) and fertility (as measured by the Total Fertility Rate) for 87 countries. The Cook Islands TFR falls approximately where it would be expected to be on the basis of its per capita income. It is important to note that there is a reasonably close (negative) relationship between GDP per capita and the TFR but it is not perfect. In general, higher per capita GDP is associated with lower TFR. Put another way, no country with a per capita income of \$1,000 or less has a TFR below 3. At the other end of the scale, very few countries with a per capita income above \$10,000 have a TFR over 2.5. Although the Cook Islands TFR of 2.4 is similar to that of other countries in its income group, there are several countries in that group with lower TFRs—even as low as 1.1.

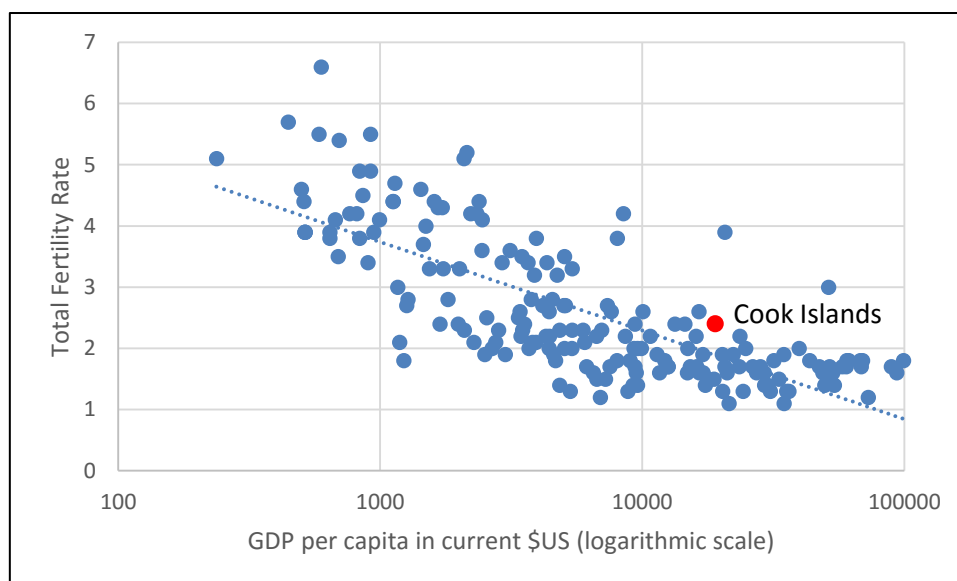
This particular example shows the difficulty of linking an economic variable with a demographic one. While income is clearly important, it is not the only factor at work. If the association between income and fertility were perfect then the dots (representing countries) in Figure 24 would be clustered much closer to the "regression line". As it is, they are quite widely dispersed above and below that line, showing that factors other than income are having an effect on the relationship.

¹² Some international agencies report GNI for the Cook Islands, agencies report GNI as identical with GDP, which is not likely to be correct given the financial flows in and out of the country. See: <https://data.un.org/Data.aspx?d=SNAAMA&f=grID%3A101%3BcurrID%3AUSD%3BpcFlag%3A1>

¹³ Using the World Bank's "Atlas method". See: <https://kidb.adb.org/kidb/>.

¹⁴ A reduction in New Zealand aid is unlikely. See: Bertram, G. (2016). "Implications of the Cook Islands' Graduation from Development Assistance Committee Eligibility". The Cook Islands can receive foreign aid but the donor country cannot include such aid as Official Development Aid for the purposes of determining its aid percentage of GDP.

Figure 24: Relationship between per capita income and total fertility, 2021



Source: World Bank (2022); UN Population Division (2022).

The impact of Covid

The advent of the Covid-19 pandemic caused a serious economic downturn in the Cook Islands. The MFEM quote the ADB’s estimate of a 32 percent contraction in GDP from its peak in 2019.¹⁵ UN national account statistics indicate that per capita GDP declined by 21 percent between 2019 and 2020 (from \$US20,333 to \$US16,135).¹⁶ These figures imply that GDP dropped by \$US75 million (\$NZ115 million) between 2019 and 2020. However, the impact of Covid-19 extended into 2021 and 2022, so the total contraction of GDP over the period during which tourist arrivals either ceased or were much reduced would be greater than this. It should be noted that the recorded decline in GDP reflects the financial support to households and businesses provided by the Cook Islands Government using borrowed funds and grants-in-aid from the New Zealand Government and some other “donors”. In the absence of this support, it must be assumed that the effects on unemployment and poverty (or hardship) would have been greater.

Although the economic downturn following the closing of the borders could be described as a “recession”, or even a “depression”, neither of these terms are appropriate. In terms of GDP, a drop of over 10 percent usually characterizes a depression, which is a more severe downturn than a recession. However, the term depression usually implies a significant increase in the rate of unemployment accompanied by low inflation or deflation in prices, a decline in the availability of credit, bankruptcies, and an increase in poverty. At this juncture, however, data on unemployment, poverty, business failures, loan defaults, and so forth are not available for the Cook Islands, so the full impact of the Covid-19-related economic downturn cannot be assessed.

¹⁵ MFEM, Economic Recovery Roadmap: Programme Note (March, 2022).

¹⁶ <https://data.un.org/Data.aspx?d=SNAAMA&f=grlID%3A101%3BcurrID%3AUSD%3BpcFlag%3A1>

The concept of a “recession” is probably a more appropriate term to describe the impact of Covid-19 on the Cook Islands economy, but in terms of GDP the economic contraction is more severe than a recession, which usually refers to temporary fluctuations in the business cycle.

The impact of the economic downturn of 2020-2021 on population factors (births, deaths and migration) cannot be fully assessed until the full results of the 2021 census are available. As shown in Part A of this report, the resident population of the Cook Islands remained stable at 15,000 through to December 2021. The drop in the resident population that many observers anticipated did not in fact occur. The expectation that the population would decline was based on anecdotal information about Cook Islanders seeking employment in New Zealand as well as on departure statistics. But as has been mentioned, departure statistics are not a reliable basis for making population estimates. The primary impact of the Covid-19 economic downturn appears to have been on the “non-resident” (“visitor”) population, which dropped to under 100 at the time of the census from a peak of 2,621 in the previous census (2016). The terms “visitor” or “non-resident” are misleading in the sense that an unknown proportion of such persons are temporary workers. Insofar as the labour force contracted during the Covid-19 crisis. It was in this category of “non-residents”.

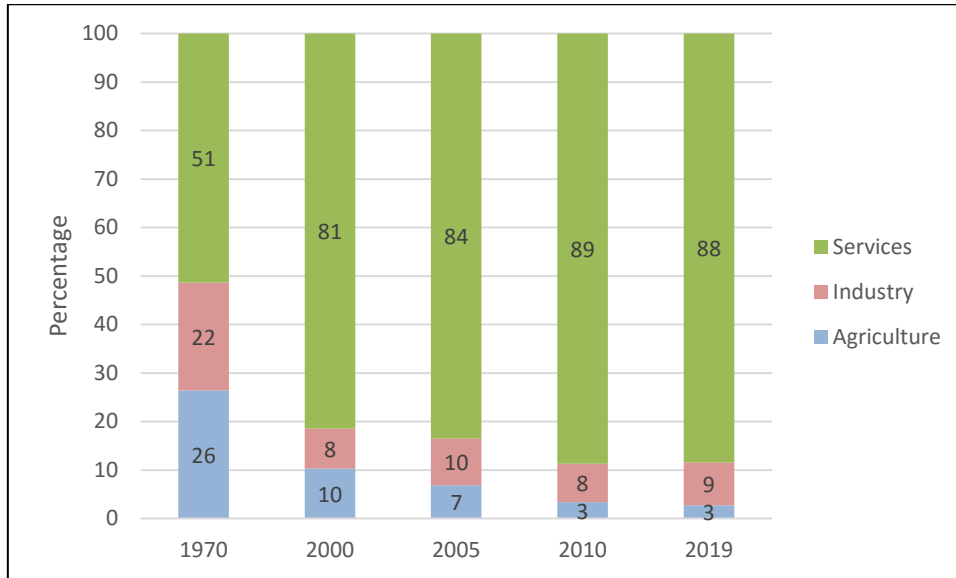
In the meantime, as shown in Part A of this paper, the Pa Enua population continued to decline but as a very slow pace. It is not clear if the population trend in the Pa Enua is related in any way to the economic contraction caused by the closure of the border to tourists.

The Government’s Economic Recovery Roadmap (ERR) refers to an aim to “stem population loss and stimulate population attraction and retention”. This includes “immediate steps to recruit migrant labour to replace the migrant workforce that departed during border closures.” These measures are not included in the present population policy.

The structure of the economy

From the perspective of the structure of the economy, the Cook Islands shares some features found in “post-industrial” countries, in particular an economy dominated by the “service” sector with agriculture and industry generating a much smaller and ever-decreasing proportion of GDP. This feature has been evolving for some decades. The services sector was already 51 percent of the economy in 1970 (Figure 25) and the proportion of GDP generated by services has steadily increased since—reaching 88 percent in 2019. Conversely, agriculture has dropped to 3 percent of GDP compared to 26 percent in 1970. After dropping from 22 percent of the economy in 1970 to 8 percent in 2000, the manufacturing sector has remained in the range 8-10 percent for essentially the past two decades.

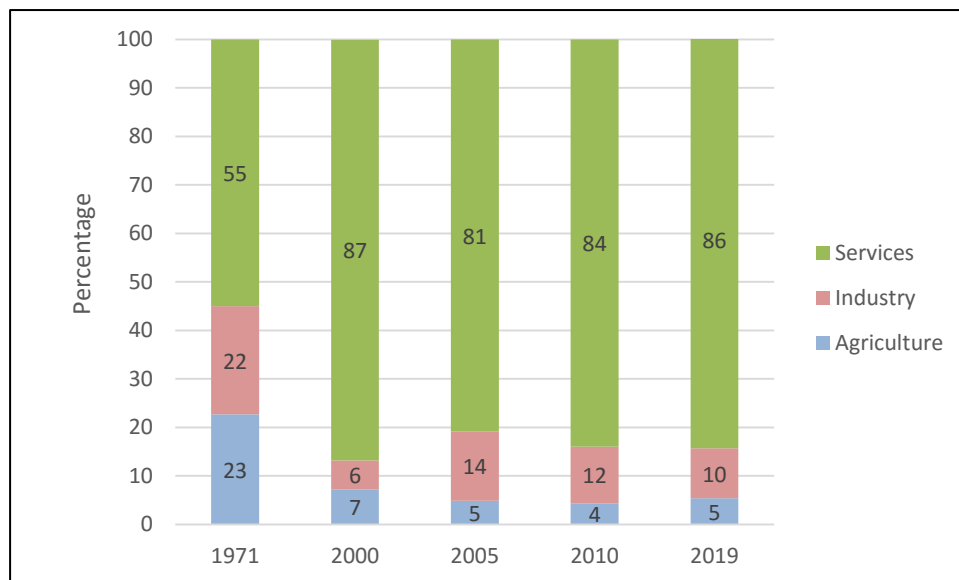
Figure 25: Distribution of GDP by industrial sector 1970-2019



Source: 1970 figure from Hayes (1982); other years from Asian Development Bank, Key Development Indicators, 2019.

Surprisingly, the distribution of the labour force has closely matched the distribution of GDP in most years (Figure 26). This implies that per capita output is approximately the same across all three sectors or, in other words, about the same as average output. This means that unlike developing countries the Cook Islands does not have a low productivity agricultural labour force producing less than average per capita GDP.¹⁷

Figure 26: Distribution of the Labour Force by industrial sector, 1971-2019



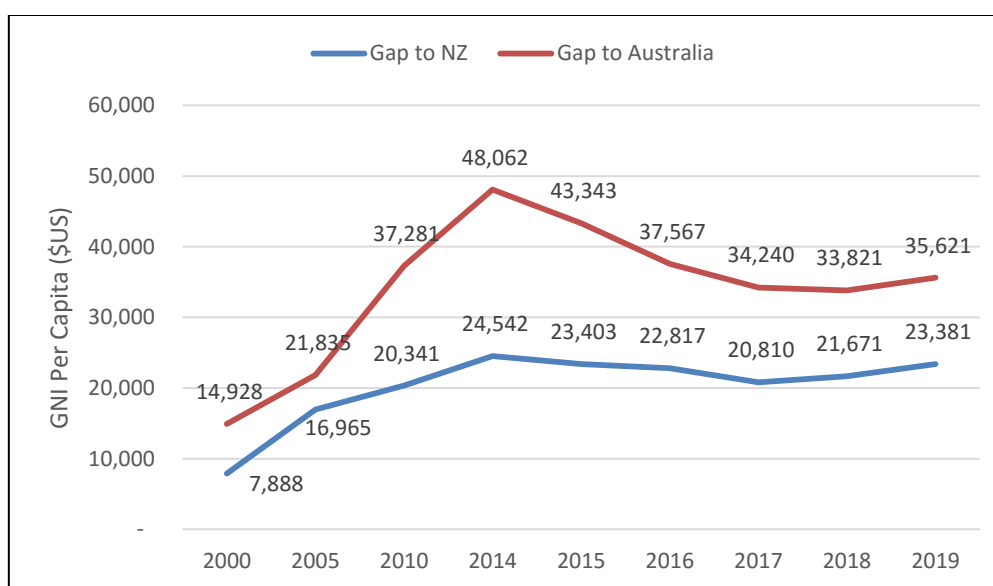
Source: 1971 figure from Hayes (1982); other years from Asian Development Bank, Key Development Indicators, 2019.

¹⁷ The contrast with Vanuatu is striking. In 2008, agriculture in Vanuatu comprised 21 percent of GDP, but 64 percent of the labour force worked in agriculture. The value-added in agriculture per worker was only 13 percent of the value-added per worker in the services sector.

Although the per capita GNI for the Cook Islands is amongst the highest in the Pacific,¹⁸ and the highest outside the territories of France and the United States, it remains the case that New Zealand and Australia, often used as a reference point for Cook Islanders, have much higher per capita incomes (Figure 27). In 2019 Australia’s GNI per capita was \$US55,100 and New Zealand’s was \$US42,750, 2.8 and 2.2 times, respectively, per capita GNI in the Cook Islands. Despite rapid economic growth in the Cook Islands, the gap between GNI per capita in New Zealand and Australia, the two main destinations countries for migrants remains wide and up to about 2014 was increasing. The gap to Australia reached a peak of \$US48,062 in 2014. It was still wide in 2019 (\$US35,621) but well below the peak of 2010.

The relativity of income between Cook Islands, New Zealand and Australia is relevant because income differentials between economies across which the factors of production move relatively freely, has an impact on migration flows. In general, labour tends to move from places of lower income to those with higher income—everything else being equal. In the mid-1970s, New Zealand wages were approximately four times those of the Cook Islands and this differential provided an important “pull” factor, especially for outer islands workers whose wages were probably below those in Rarotonga.

Figure 27: Gap between Cook Islands GNI per capita and that of New Zealand and Australia (USD)



Source: ADB (2022).

ECONOMIC GROWTH TRENDS

The growth of GDP in the Cook Islands has tended to be more erratic than in other Pacific economies, with both negative and positive growth rates being more extreme than in other countries (Figure 28). By contrast, economic growth in New Zealand has been relatively stable, although on a declining

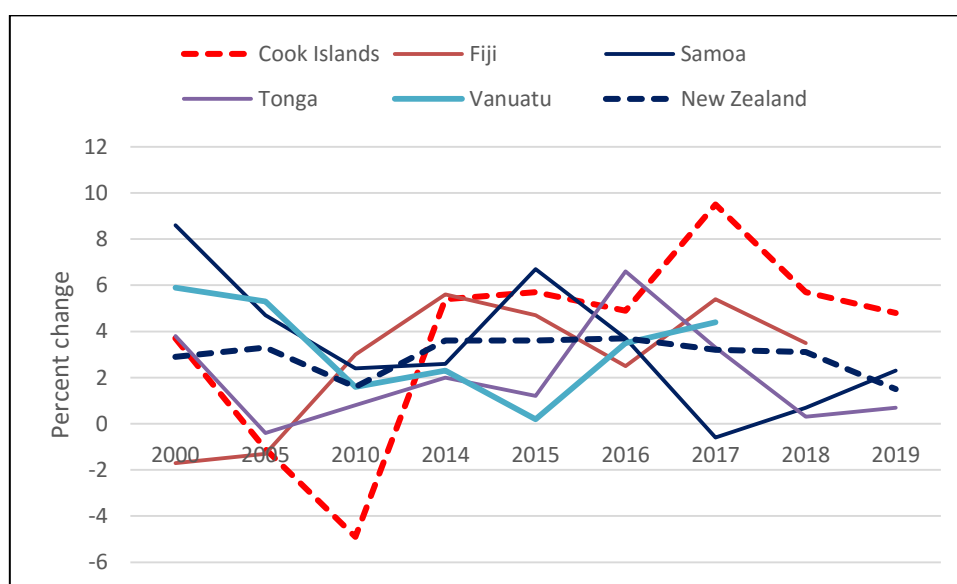
¹⁸ The UN appears to assume that assume that GNI and GDP are the same. (see: <https://unstats.un.org/unsd/snaama/CountryProfile?ccode=184>). This is not likely to be true. The Government’s Information Paper “Cook Islands Gross National Income” of 11 June 2019 estimates per capita GNI at \$16,860 as of 2017. According to national accounts data reported by the UN, per capita GDP in 2017 was \$US19,830. In theory, the difference of \$US2,970 reflects transfers out of the country (repatriated profits, etc.).

trend since 2014. All countries show the effects of the Global Financial crisis of 2008-09, but Cook Islands was impacted more and then recovered more rapidly.

Change in real per capita GDP in the Cook Islands has been even more erratic over recent years, with an increase of 10.8 percent in 2018 followed by a negative 3.5 percent in 2019. These fluctuations are primarily a function of the small size of the economy. Small changes in the economic conditions in the region and globally can have a large impact by the time the effects are felt in the Cook Islands.

The specific occupational groups affected by these economic fluctuations are difficult to identify, but since services make up 88 percent of the economy it can be assumed that businesses and workers in this sector are the most affected.

Figure 28: Growth in real GDP 2000-2019, selected Pacific economies



Source: ADB (2022)

A TOURISM BASED ECONOMY

Since the establishment of self-government in 1965, the political-economy of the Cook Islands has evolved from what economists (Bertram and Watters, 1985) labelled a “MIRAB” structure (i.e., one in which external **M**igration, migrant **R**emittances, foreign **A**id and public sector employment (**B**ureaucracy) were the main factors maintaining consumption) to a **SITE** structure—or a **S**mall Island **T**ourist Economy (Oberst and McElroy, 2007). The MIRAB economy differs from the economies of the larger Pacific Island countries in that certain features found elsewhere to some extent are elevated to a position of major importance. Emigration, for example, is large in scale and has a major impact on the local labour force. The inflow of migrant remittances helps to maintain consumption as domestic production opportunities (such as fruit export) declined due to the increasing diseconomies of scale and trade conditions. Per capita foreign aid is also much higher than elsewhere in the Pacific and this helped to maintain public sector employment.

Debate between economists on the merits of the MIRAB system largely focussed on its sustainability. The system depended upon a continued flow of emigrants and a willingness and ability on their part to send part of their earnings home to their relatives. The flow of development aid that helps support public sector employment also needed to be maintained.

However, the sustainability of the main components of the MIRAB model was not guaranteed. The flow of new emigrants depends on the rate of natural increase, which has been declining over several decades. If emigration exceeds natural increase for more than a few years, the population must decline. Migrant remittances (in cash and goods) can also be expected to drop as fewer family members remain at home and emigrants become less emotionally attached to their home communities. Similarly, foreign aid flows are impermanent and are supposed to be phased out as an economy becomes more self-reliant and self-sustaining.

While MIRAB was an accurate description of the main economic processes at work in the Cook Islands and similar countries, the model could not be used as a prescriptive basis for development policy and planning because not all the elements of MIRAB are amenable to direct control by economic planners. Migration is a right that cannot be constrained at either end of the migration chain. The flow of remittances is largely a private matter within families; neither the sending of remittances nor the use to which remittances are put at home can be controlled or easily influenced by the government. Monetary policy that could change the value of overseas payments received at home is also not available as the Cook Islands does not have its own currency, a reserve bank or membership in the IMF. Appeals to foreign aid donors to maintain aid for the purpose of facilitating public service employment are unlikely to be made or happily received because both aid receivers and donors conceptualize aid as temporary. Aid “dependency” is not a policy that can be promoted or encouraged. Aid is intended to be investment for the purpose of achieving self-sustaining economic growth, not a permanent subsidy to the economy.

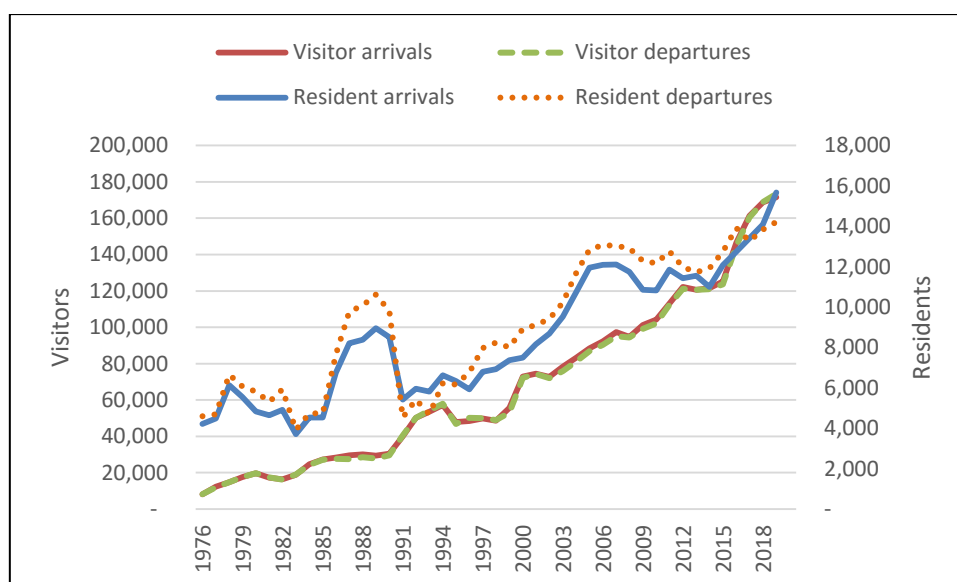
According to its main proponent,¹⁹ by 2005 the MIRAB economy had evolved into a different structure. In other words, the system had evolved over the four decades following self-government. Although the main elements of MIRAB remained, their importance to the economy diminished and other economic processes expanded to fill the gaps. One process is the economic returns to international finance operations, but by far the larger process is the returns to the visitor “industry”. There are two main components in the flow of arrivals and departures: resident and non-resident (visitors). Figure 28 shows that both flows have followed a similar trend from 1976, although on very different scales. From 1971, prior to mass tourism, up to 2019, the gross movement of visitors (the sum of arrivals and departures) has increased by 158 times (from 2,181 to 344,932), while the gross movement of residents has increased by 135 times (from 2,213 in 1971 to 29,890 in 2019). The ratio between the cross-border movement of visitors and residents has been climbing since 1971 when it was essentially 1:1. By 2018, visitor (non-resident) movements had reached 12.1 times the movement of residents. Conversely, the flow of Cook Islands residents in 2018 made up only 8

¹⁹ Bertram (2016).

percent of the total gross movement. Visitors, which includes include Cook Islanders living abroad, made up 92 percent of the total gross movement of population.²⁰

The impact of visitor movement on the effective population of the Cook Islands has to be measured in terms of the average length of stay. The average (intended) length of stay among visitor arrivals was 10 days in 2018, the latest year available. Gross visitor movement (not counting residents) was 344,932 in 2019 so net visitors was 50 percent of that or 172,466. Multiplied by 10 gives the “person-days” of 1,724,666 or 4,725 person-years. Added to the residential population of Rarotonga (10,649 at the time of the 2016 census) provides an effective population of 15,374, or 18,880 if the total residential population of the Cook Islands is included (14,082+4,725). Based on the 2016 resident population and the number of visitors in the country at the time of the census, the ratio of residents to visitors is 5.6:1. Using a “person-years” calculation based on the number of days visitors stay in the country, that ratio drops to about 4.0. Some tourist experts have argued that a ratio of residents to tourists below 5 risks undermining the industry.

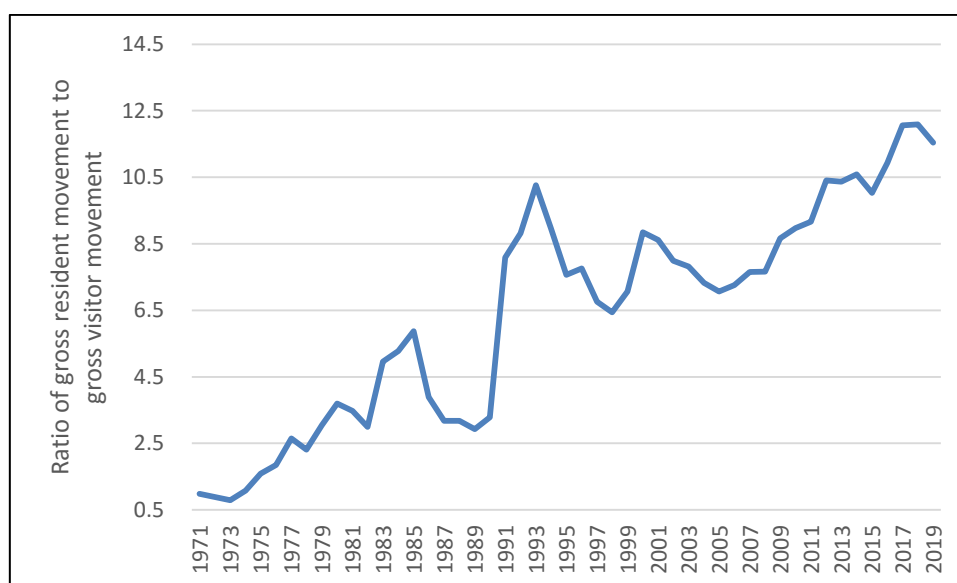
Figure 29: Cross-border flows of visitors and residents, 1976-2019



Source: Cook Islands Statistics Office (2022a).

²⁰ In 2018, about 7 percent of gross visitor movement was made up of persons “visiting friends and relatives”.

Figure 30: Ratio of gross visitor movements and gross movement of residents



Source: Cook Islands Statistics Office, Statistical Bulletins on tourism and migration. Current bulletin available at:

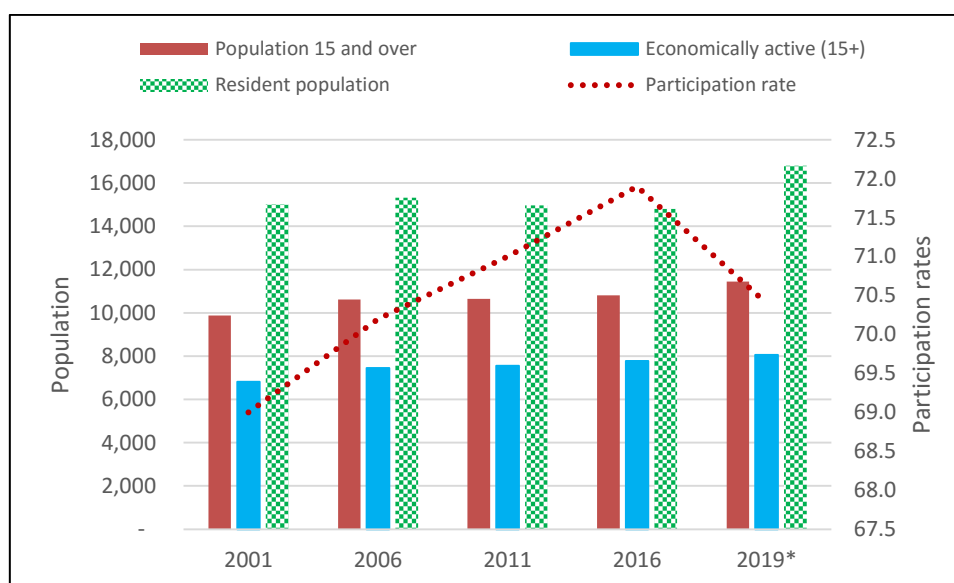
http://www.mfem.gov.ck/images/documents/Statistics_Docs/4.Tourism/2022/March_2022/Mig_Statistics_Report_202203.pdf.

A full assessment of the macro-economic aspects of a tourism-based economy is beyond the scope of this paper. The estimated contribution of tourism to GDP ranges from 60 percent to 70 percent, which constitutes a high level of “dependency” on tourism. As has been argued by many observers, in SITE economies that still include some MIRAB elements (remittances and aid), Gross National Income (GNI) is a more appropriate measure of economic performance. However, the economic output of the Cook Islands is normally measured by GDP alone, and this is the basis of development planning. The latest HIES (2015-16) showed that 18 percent of all households and 27.2 percent of rural households received remittances from relatives abroad. The average amount per household was \$2,540 for a total of \$2.2 million. Given that total GDP in 2019 was \$575.4 million, the contribution of remittances would probably be under 0.5 percent of GDP, a relatively negligible proportion. The impact on rural households would be somewhat greater, given the lower average income of rural households.

THE LABOUR FORCE

The labour force is conventionally defined as the population aged 15 and over, excluding students, the retired, unpaid household (domestic) workers, and those unable to work due to illness or disability. Persons within this age range who are not employed but are available for work and actively looking for employment are included in the labour force as defined. A more restricted definition confines the labour force to the age range 15-64 on the assumption that retirement begins at age 65 and labour force participation drops away rapidly after this age. Figure 31 shows that over the period 2001-19, the total resident population, the population aged 15 and over (the working age population) and the economically active population have all been trending upwards, despite net emigration of residents in every year over the same time period.

Figure 31: Total and economically active resident population 2001-2019



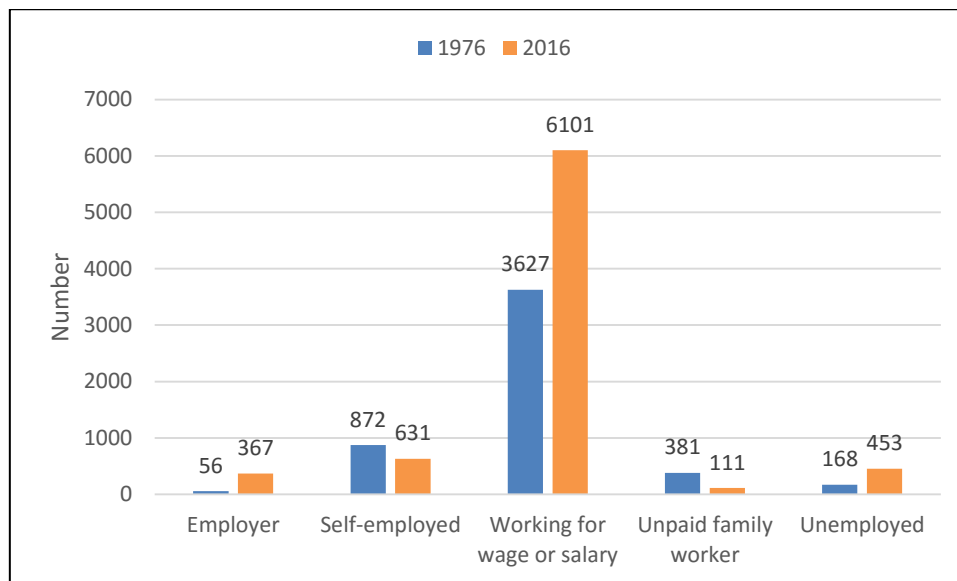
Source: Cook Islands Statistics Office (2003, 2012, 2018, 2020).

The explanation of how the labour force has continued to increase in the context of a stable or slightly increasing resident population and large-scale out-migration can be found in the rising proportion of foreign, work-permit holders in the country. Unofficial figures reported in the media in 2018 indicated that a total of 3,658 work permits had been issued in the period 2016-18. Assuming that this number remained stable through 2019, it would constitute 46 percent of the total Cook Islands labour force, and 59 percent of the Rarotonga labour force. Despite the large proportion of foreign workers in the labour force, the 2019 Labour Force Survey did not collect information specifically on this group. It is therefore difficult to assess the quality of human resources among Cook Islanders from this survey. It needs to be noted that foreign “contract workers” are not a new phenomenon in the Cook Islands. The 1976 census report noted that there were 381 contract workers in the country, 92 percent of whom were in Rarotonga. By contrast, there were 124 “visitors” in the same year.

Major changes in the structure of the labour force are evident since the 1980s, as is evident in Figure 32. Between 1976 and 2016, the number of employers has increased by almost 7 times, and the number of persons working for a wage has increased by 97 percent, an almost doubling. Over the same period, the number of people in self-employment has declined from 872 to 631 and unpaid family workers have decreased by about 71 percent. According to these census-based figures, the unemployed increased to 453 in 2016 compared to 168 in 1981. ²¹

²¹ The 2019 Labour Force Survey (LFS) reports unemployment of 1.6 percent compared with 5.9 percent in the 2016 census. However, the LFS uses a more complex method of measuring labour underutilization than the population census. When the Potential labour force and the under-employed are added to the unemployed, the differences between the 2016 census unemployment rate and the 2019 LFS rate is much reduced. The use of 1976 as a comparative reference is purely arbitrary: the census report was available in the author’s library. However, 1976 reflects the early stages of tourism development in the country.

Figure 32: Employment status in 1976 and 2016

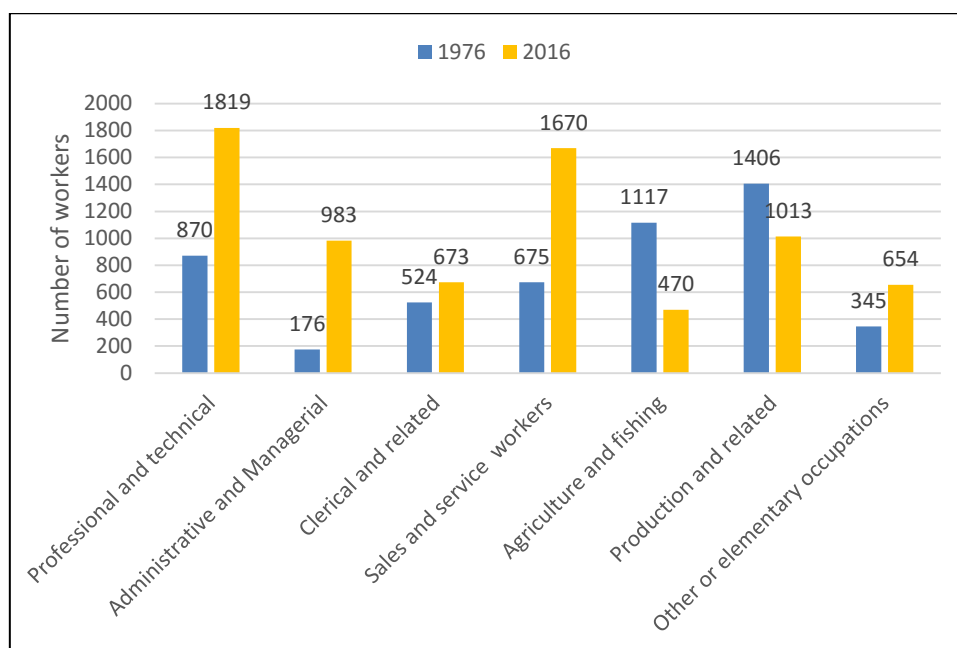


Source: Cook Islands Statistics Office (1977 and 2018).

The occupational distribution of the labour has also changed significantly over recent decades, as is evident in Figures 33 and 34 (next page). In general, service, administration, and management occupations have increased significantly while primary sector jobs in agriculture, fishing and other forms of production have declined. The conclusion to be drawn from these comparisons is that the types of occupations that characterize the labour force today are very different to those in the labour force of a generation ago. The labour force today is made up predominantly of “white collar” occupations carried out indoors, compared to the predominantly “blue collar” occupations of the previous generation. It could be argued that this reflects the transition from a “working class” economy to a “middle class” one. This transition has been driven by the advent of a tourism-based economy, accompanied by the disappearance of export agriculture.

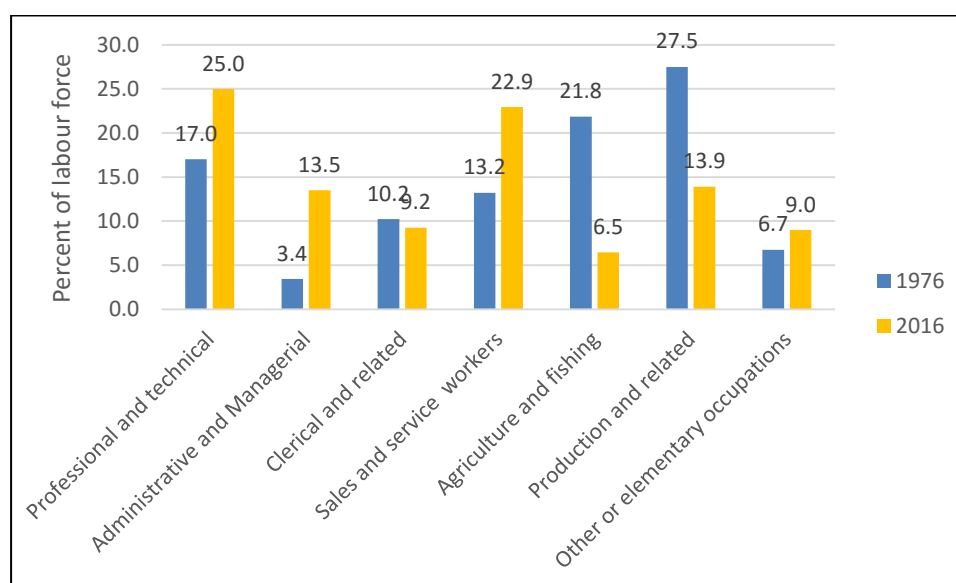
In summary, the available data show that the Cook Islands has maintained its labour force in terms of numbers for many years, even under conditions of emigration and overall population decline. What is less clear is the extent to which the quality of the labour force has been maintained or improved. By quality we refer to the education and skills of economically active persons. The higher the quality and skills, other things being equal, the higher productivity per worker will be, and assuming that higher productivity is appropriately rewarded, worker incomes will be that much higher. Given the occupational shift in recent decades, it can be speculated that the educational and technical qualifications of the current labour force are well above those of the previous generation of workers.

Figure 33: Distribution of the labour force by occupational group, 1976 and 2016



Source: Cook Islands Statistics Office (1977 and 2018).

Figure 34: Distribution of the labour force by occupational group (%)



Source: Cook Islands Statistics Office (1977 and 2018).

However, measuring trends in general education and vocational qualifications in the Cook Islands is challenging. This arises due to the inconsistency between censuses and surveys in the educational and vocational qualifications categories. The 2019 Labour Force Survey (LFS), for example does not collect information on trade qualifications, whereas the Cook Islands census has been collecting such data since the 1970s, but not consistently. In terms of general education, the 2019 LFS shows that 73 percent of the labour force has completed secondary education, 5.2 percent have primary or less, and 21.8 percent have completed some form of tertiary education.

As for vocational qualifications, the comparative data presented in Table 10 suggest that there has not been a significant upgrade in the qualifications held by the population and labour force since 2001. Comparison is made difficult because some categories have changed over the years. One category that has remained consistent is the number and proportion of the 15 and over population that has no vocational qualifications at all. This has remained in the range 7,235-7,999 and between 68 and 78 percent of the population aged 15 and over with no apparent trend. The other constant is the category “Trade and business certificate”. In this case the trend is downwards, but some movement between categories cannot be ruled out.

Furthermore, some figures do not look particularly credible. It is reported in the 2016 census that 197 people hold Masters degrees or Doctorates, while another 583 persons have first degrees or have done post-graduate study. In 2006, all degrees from bachelor to doctorate are placed in one category, and the combined figure is 577. If we combine these categories in 2011 and 2016, we get a total of 632 and 780, respectively, or 3.0 percent and 4.8 percent of the over 15 population. Comparison with 2001 is made difficult by the fact that degree-holders are tabulated according to “highest educational qualification obtained” rather than, as in later years, under the heading ‘Trade and vocational qualification’. Accordingly, the number of higher degree holders in 2001 totalled 31, compared to 577 only 5 years later.²² If we look only at the trend from 2006 to 2016, there is little evidence of a general improvement of the quality of the labour force, at least in terms of formal qualifications.

HUMAN DEVELOPMENT

Human development refers mainly to the standards of health and education achieved by a country as well as other dimensions of social well-being and quality of life that are not captured by measures of economic output or national income. One of the most important indicators of well-being is the extent to which the rewards of development are distributed fairly across social groups. Inequality and inequity (unfairness) can increase even as average incomes are rising. The proportion of the population experiencing hardship or “poverty” is an important indicator of equality in consumption and access to services. Gender inequality is another dimension of human development, which can also be taken to include the presence of groups (defined by ethnicity or other characteristics) that face social exclusion from the benefits of development.

Human development indicators

Human development is typically measured using statistical indexes that have been developed for the purpose of revealing the extent to which economic development has been translated into welfare and well-being. However, these indicators (the Human Development Index (HDI); the inequality adjusted HDI (IHDI), and the Gender Development Index, (GDI) are not generally available for the

²² There is no doubt that the 2001 approach to classification was correct. Higher degrees are not necessarily “trade and vocational qualifications”. There are exceptions, such as BBS and LLB, which are part of the required qualifications to practice medicine and law, respectively; but in each case a further “license” is required to undertake professional practice. Masters and Doctoral degrees do not normally lead to any specific profession, although there are exceptions here as well. Some institutions now award, for example, a Masters degree in nursing. But as with medicine and law, further certification by a professional body is required.

Cook Islands. One reason is that these indexes require Gross National Income (GNI) as a measure of economic output but GNI has not been calculated (or not published) in the Cook Islands until very recently.²³ Given the unavailability these composite indicators, it is necessary to look at some selected components of social well-being, as shown in Table 5.

²³ Government of the Cook Islands (2019) Cook Islands Gross National Income, Information Paper, 11 June.

Table 10: Resident population aged 15 and over by trade vocational qualifications

	2001	2006	2011	2016	2001	2006	2011	2016
Type of qualification	N	N	N	N	%	%	%	%
Trade and business certificate	708	784	359	369	7.2	7.4	3.4	3.5
Professional and higher certificate	101	16	37	8	1.0	0.2	0.3	0.1
Teachers and members of professional societies	278	129	--	--	2.8	1.2	--	--
Fellows and members of professional societies	12	64	75	11	0.1	0.6	0.7	0.1
Certificates and diplomas	--	1,122	1,160	851	--	10.6	10.9	8.1
Degrees and post graduates	--	--	461	583	--	--	4.3	5.6
Masters and Doctorates	--	577	171	197	--	5.4	1.6	1.9
Other vocational qualification	1,020	--	148	302	10.3	--	1.4	2.9
None	7,726	7,235	8,183	7,999	78.2	68.1	76.9	76.5
Not stated	37	695	48	131	0.4	6.5	0.5	1.3
TOTAL	9,882	10,622	10,642	10,451	100.0	100.0	100.0	100.0

Source: Cook Islands Statistics Office (2003, 2012, 2018).

Table 11: Human development Indicators: Cook Islands

Indicator	Around 2015	Latest available	Data source
Life Expectancy at Birth (both sexes)	75.7 (2009-13)	73.6 (2012-16)	(1)
Life Expectancy at Birth (Male)	71.7 (2009-13)	69.6 (2012-16)	(1)
Life Expectancy at Birth (Female)	79.6 (2009-13)	77.6 (2012-16)	(1)
Infant mortality rate (IMR)*	4.6 (2015)	6.7 (2015-19)	(2)
Under-five mortality rate (U5MR)*	na	4.0	(1)
Percent of births attended by trained personnel	100.0	100.0	--
Crude birth rate (per 1,000 population)	16.4 (2014)	13.2 (2019)	(1) & (2)
Adolescent birth rate (15-19)*	66 (2011-13)	41 (2016-18)	(1)&(4)
Total fertility rate (TFR)	2.8 (2007-11)	2.4 (2012-16)	(1)
Maternal deaths in previous 5 years	0	0	--
Contraceptive prevalence rate (Modern methods) %	35.5 (2013)	27.1 (2016)	(1)
Human Development Index (HDI)	na	na	--
IHDI (Inequality adjusted HDI)	na	na	--
Gender Inequality Index (GII)	na	na	--
Gender Development Index (GDI)	na	na	--
Lifetime experiencing of physical/sexual violence (%)	33 (2014)	na	(5)
Net enrolment rate in primary education (M/F) (%)	100/97(2014)	100/100 (2019)	(3)
Net enrolment rate in secondary education (M/F) %	59/74 (2014)	72/76 (2019)	(3)
Gender Parity Index (GPI) Primary	0.97 (2014)	1.00 (2019)	(3)
Gender Parity Index (GPI) Secondary	1.2 (2014)	1.05 (2019)	(3)
English literacy at NCEA level 1	87 (2013)	96 (2018)	(3)
Adult literacy rate (M/F)	na	na	--
Proportion of the population below the national poverty line (or other hardship measure)	na	na	

- (1) Te Marae Ora, Ministry of Health (2017).
- (2) Cook Islands Statistics Office (2020b).
- (3) Ministry of Education (2019).
- (4) Te Marae Ora, Ministry of Health (2021).
- (5) Te Marae Ora (2014).

*3-year average centred on specified year

An overall indicator of health is life expectancy at birth. At the close of WW2 (1945) life expectancy was low—41 years for males and 43 years for females—but increased rapidly up until the early 1960s. From the 1960s to the 1990s, male life expectancy barely changed, increasing by only two years (from 63 to 65) between 1971 and 1996. Female life expectancy improved at a much faster rate, reaching 70 years by 1981 but remaining at the level up until 1996. Both male and female life expectancy jumped in 2001 by 4 and 5 years, to 69 and 75, respectively. As shown in Table 11, life expectancy reached a historical peak in the 2009-13 period, but declined in the following 5 years. As of the period 2016-19, the Cook Islands has one of the highest female life expectancy figures in the Pacific Islands region (only New Caledonia and Guam are higher at 80 and 79 years, respectively). Among males the situation is somewhat different, with several countries reporting higher life expectancy than in the Cook Islands.

Furthermore, the gap between male and female life expectancy in the Cook Islands is the widest in the region (8 years). Although life expectancy at birth is generally higher for females than males in most countries the gap typically ranges from 3 to 5 years. A gap of 8 years between male and female life expectancy usually indicates that males face higher lifetime risks of death, often due to their higher rates of NCDs and accidents. Often “lifestyle” factors cause higher male mortality (such as smoking, alcohol consumption, poor diet, and risk-taking behaviour). However, the Cook Islands is far from unique in this regard and similar patterns can be observed elsewhere in the region.

In the Cook Islands case, however, life expectancy may be overstated because an unknown proportion of deaths occur overseas (mainly in New Zealand). Seriously ill persons are frequently transferred to New Zealand for medical treatment (there were 120 such referrals in 2016). If some of these patients die overseas, their deaths will not be recorded in the Cook Islands where they may have spent most of their lives. No statistics are maintained on the number of deaths overseas of persons referred for treatment. Until an analysis is conducted of overseas deaths, we have little choice but to accept the life expectancy estimates provided by the Ministry of Health, bearing in mind that the true figures may be lower.

Other mortality indicators such as infant and under-5 mortality have also declined to historically low levels that are similar to those found in other developed Pacific Island countries (French Polynesia, Guam and New Caledonia). Maternal mortality is extremely rare and is not a public health issue.

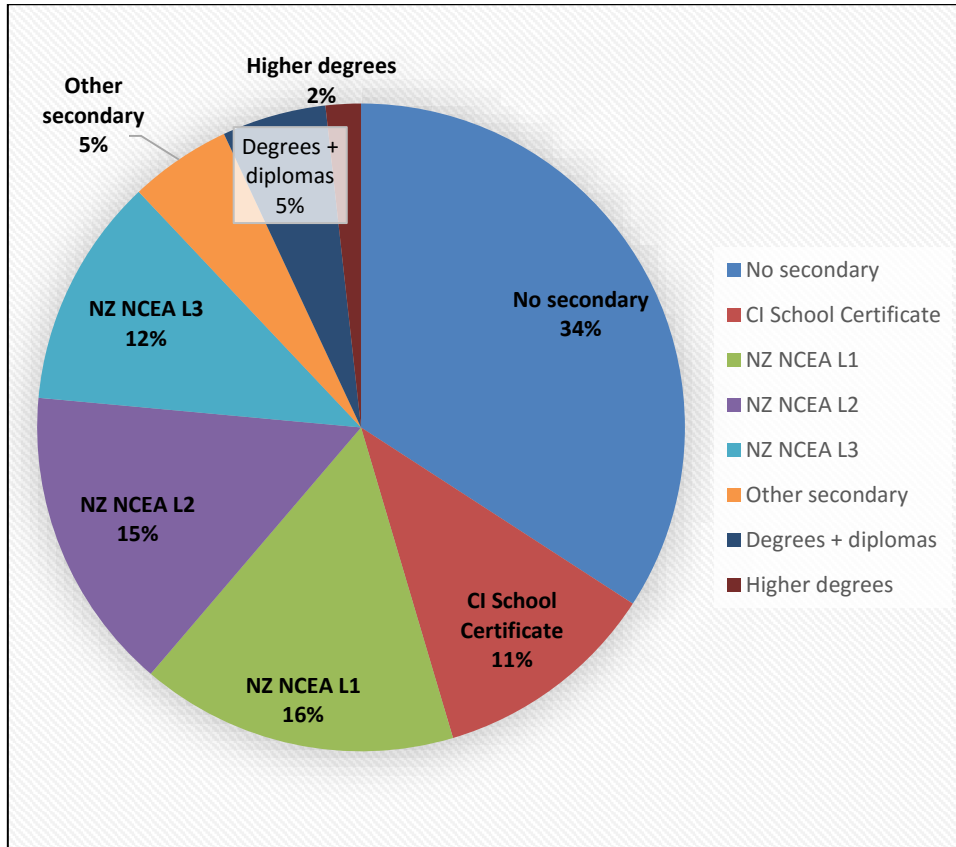
Fertility has already been discussed but it is worth noting here that the TFR has declined to 2.4 and is the lowest in Polynesia outside the French territories, which have fallen below the “replacement” level (2.1 children per woman on average). On the other hand, the teenage fertility rate remains high relative to other countries in Polynesia—despite some decline in recent years. Further studies of teenage fertility are needed.

In the context of fertility change, it is also relevant to point out that the official contraceptive prevalence rate of 27.1 percent is almost certainly an understatement. The rate is too low to produce a TFR of 2.4 and a crude birth rate of 13.2 per 1,000. It can be assumed that official figures do not capture the supplies provided by private doctors and pharmacies. Other indicators relevant to fertility rates, such as the “unmet need for family planning” are not available for the Cook Islands as the demographic surveys required to measure it have not been conducted.

Education

Education statistics show that the Cook Islands has achieved universal primary education but not universal secondary education. Net secondary enrolment in 2019 was 72 percent for males and 76 percent for females. As of 2016, 34 percent of the population aged 15 and over (the labour force age group) had not completed secondary school (Figure 35). Almost 60 percent of the population of labour force age had completed some level of secondary schooling, and another 7 percent had completed some level of tertiary education (either a diploma, degree or a higher degree). By way of comparison, 35 percent of the New Zealand population aged 15-64 has completed a university degree.

Figure 35: Highest level of education completed, 2016 census (residents)



Source: Cook Islands Statistics Office (2018).

Measuring change in completed education is difficult because education categories have changed over time and the format of census tables has also changed, making trends difficult to measure. However, it is clear that the number of persons holding university diplomas or degree has increased dramatically since 2001. In that year, 26 persons were reported as having a university diploma or degree, compared with 583 persons in 2016. In terms of higher degrees, the number increased from only 5 in 2001 to 197 in 2016. These figures suggest that there has been a significant upgrade in completed education. On the other hand, the data for 2016 show a considerable proportion of the population (34 percent) having no secondary education at all. It is important to acknowledge that census data do not distinguish between native Cook Islanders and migrant workers. It is therefore possible that some of the increase in persons with higher education may have been caused by the influx of migrant workers.

Gender parity in primary and secondary education has been achieved, but more females than males have achieved tertiary education (degrees, diplomas and higher degrees). Of degree-holders, 62 percent are female and 60 percent of higher degree-holders are also female.

Disability

People who have a disability form a distinct socio-demographic group and therefore disability has a place in a population policy. However, data on the nature and scale of disability in the Cook Islands is scarce. Questions on disability have been included in the population census since 2001 but the questions asked and the eligible age group have been inconsistent. The 2001 census report include a brief paragraph on disability, noting that 351 persons reported having a disability—about 2 percent of the population but presenting no further data.

The 2006 census collected disability data but only in the age range 15 years and over. Thus, it is not possible to compare the 2001 census figures with 2006. Furthermore, the types of disability identified include asthma, heart disease and hypertension, which are not normally included in the definition of “disability”. This helps to explain why the 2006 census found twice as many people with a disability as the 2001 census, even though only persons 15 and over were asked the disability questions.

In the 2011 census, the disability questions were revised again and the same format was also employed in the 2016 census. However, the text of the 2011 census report does not include any reference to disability. On the other hand, three tables were included among the detailed tables, but the table headings refer to “health problems lasting six months or more” rather than disability as such. Although such “health problems” as hypertension and asthma no longer appear (as in 2006) ciguatera is included. According to these data, 77 percent of the resident population (11,486 people) had ciguatera for six months or more. The inclusion of ciguatera in the disability question is unusual and is irrelevant to an assessment of the extent of disability in the country. But if 77 percent of the population is suffering from the effects of fish-poisoning, then this is a significant health problem in the country.²⁴

Leaving aside ciguatera, the 2011 census reports that 2,065 persons indicated that they experienced some form of disability. This number constituted 14 percent of the resident population, which suggests a very large increase in disability since 2006, when 5 percent of the resident population were reported as having a disability or since 2001, when 2 percent of the population reported having a disability.

The 2016 census questionnaire does not refer to disability but to the concept of being “physically challenged”.²⁵ However, “physical disability” is included in the detailed table headings. Unlike previous censuses, however, the 2016 census only reports data on persons aged 10 years and over, introducing another difficulty in the effort to compare disability rates over time.

The 2016 census also introduces the concept of a scale of disability in which the specific “difficulty” that a person may experience is graded according to whether the person has “some difficulty, lots of difficulty, cannot do at all”. This grading system is also adopted from the SPC “model” questionnaire. Using the broadest category (i.e., summing all the gradations of difficulty), 42 percent of the resident

²⁴ Ciguatera was not included as a form of disability in any census prior to 2011 or after. The effects of ciguatera can be long-lasting but most people recover within a few days or weeks.

²⁵ This is the terminology suggested in the SPC “model” census questionnaire; however, the response categories used in the Cook Islands census are not identical, although there is some overlap.

population are “physically challenged”. As the data are only provided on persons aged 10 and over, the percentage of this age group who are physically challenged (a physical disability lasting six months or more) was 51 percent. Obviously, this proportion is too high to be of practical relevance to any programme or policy aimed at addressing disability in the population. Furthermore, the data from 2016 cannot be compared with earlier years to provide an indication of trends.

The possibility of classifying degrees of disability presents the possibility of a deeper analysis into disability variations and severity. By only including persons who either have a “lot of difficulty” or “cannot do at all”, the rate of disability in the Cook Islands drops severely from 51 percent when the broadest category of disability is used to only 10 percent when a narrower definition is used.

This is clear from Table 6, which gives a much more realistic picture of disability in the Cook Islands than previous censuses. Taking the data at face value, it appears that mobility (walking) is the most common disability and that this is somewhat more prevalent in the Pa Enea. In terms of numbers, there are more persons with mobility difficulties in Rarotonga, but this is mainly because over 70 percent of the population is resident in Rarotonga. The Southern Pa Enea stands out as having 24 percent of all persons with a disability but only 20 percent of the population aged 10 and over. This suggests that disability is a relatively larger problem in the Southern Pa Enea than in other regions but the disproportion is not extreme.

In summary, census data on disability has received very little attention in census reports. Analysis has been minimal to non-existent. Also, comparability has been impaired due to changing definitions and the use of different age ranges.

Further analysis of census data may provide a more detailed picture of the nature of disability in the Cook Islands. Indeed, Improving the supply of information on disability through the analysis of census questions, as well as promoting other research is one of the priority areas of the Cook Islands Disability Inclusive Development Policy 2020-2025. Given that the disability questions in the 2021 census are the same as in 2016, there is a possibility of comparability at two points in time. Comparison with earlier censuses is not possible.

However, from a research and analysis perspective, it is important to review the analytical framework on disability developed by the World Health Organization (WHO 2010). The WHODAS 2.0 assessment schedule provides a more effective measurement of the nature and scale of disability in a country than can be provided by census data. The WHODAS 2.0 schedule provides the option of a 12-item or 36-item questionnaire that can be employed in a social survey or adapted for use in a census. The WHODAS 2.0 framework should be assessed for its suitability for use in the Cook Islands as part of the population policy.

Table 12: Disability rates: Persons with moderate or severe disability aged 10 and over, by region, 2016

Region	Population 10 and over (both sexes)	Seeing	Hearing	Walking	Using hands	Learning	Communicating	Self-care	Total with disability
Rarotonga	8,860	81	83	225	95	150	98	92	824
Southern Pa Eua	2,470	32	53	70	25	48	31	39	298
Northern Pa Eua	807	13	13	23	8	15	13	13	98
Total	12,137	126	149	318	128	213	142	144	1,220
Disability rates (%)									
Rarotonga	9.3	0.9	0.9	2.5	1.1	1.7	1.1	1.0	9.3
Southern Pa Eua	12.1	1.3	2.1	2.8	1.0	1.9	1.3	1.6	12.1
Northern Pa Eua	12.1	1.6	1.6	2.9	1.0	1.9	1.6	1.6	12.1
Total	10.1	1.0	1.2	2.6	1.1	1.8	1.2	1.2	10.1

Source: Cook Islands Statistics Office (2018).

CONCLUSIONS AND IMPLICATIONS OF THE SOCIOECONOMIC CONTEXT

1. Economic status

- As of January 2020, the Cook Islands is officially classified as a “high income” country on account of its GDP/GNI per capita of \$US19,300, which is one of the highest in the Pacific.
- The graduation of the Cook Islands to the status of a high-income country may result in a decline in the amount of foreign aid flowing into the country, although this is uncertain.
- The Covid-19 global pandemic has resulted in the shut-down of the tourism industry for various periods during 2020, 2021 and 2022. This triggered an economic downturn that is forecast to continue for some years to come.
- The economic downturn caused by Covid-19 could result in the further outflow of population, but so far the resident population has remained stable and the out-flows have been restricted to non-residents.
- Despite the recently achieved high income status of the Cook Islands, the gap to New Zealand’s or Australia’s average income remains wide. This gap is likely to further encourage emigration, especially from the Pa Enua.

2. The structure of the economy

- The Cook Islands economy is now dominated by services, with other sectors making up a small proportion of economic output.
- The services sector makes up 88 percent of the economy and 86 percent of the labour force are engaged in this sector.
- Agriculture and industry make up a very small component of the Cook Islands economy.
- In this respect the Cook Islands economy is “post-industrial” with a small agriculture sector. This has implications for the type of occupational skills required in the labour force.

3. Economic volatility

- Although economic growth has been positive in recent years, and this has increased average per capita income significantly, in the longer run the Cook Islands economy has exhibited considerable volatility. The current recession is a further demonstration of economic instability.
- Stabilizing the economy is a major challenge for an economy that is vulnerable to external shocks.
- Economic instability is a significant cause of emigration.

4. From MIRAB to SITE

- Over the last 15 years the Cook Islands economy has evolved from a MIRAB structure (one in which migration, remittances, foreign aid and public service employment are the dominant economic processes) to a SITE (Small Island Tourist Economy) structure. Both MIRAB and SITE are adaptations to the limited possibilities for conventional economic development such as industrialization or export-oriented agriculture.
- A SITE economy is vulnerable to disruptions in the flow of tourists arising from natural disasters, economic recessions abroad, currency fluctuations, or competition from other tourist destinations.
- Post-Covid-19, the issue of economic vulnerability will need to be addressed as has occurred in other SITE locations (e.g., Bali).

5. Labour force growth, quality and composition

- Although the resident population has been stable since 2001, the economically active population (aged 15 and over) has been increasing and the labour force participation rate has also increased between 2001 and 2016.
- The size of the total (resident and non-resident) labour force has been maintained in the context of net emigration by foreign migrant workers. Unfortunately, published data on the labour force does not distinguish between domestic and foreign workers. This is an impediment to developing policies on return migration.
- Assessments of labour force quality are thus impaired because the focus of education and training should be on replacing foreign workers with Cook Islanders.
- Some indicators suggest that there has been little improvement in the skill level of the labour force in recent years. On the other hand, the proportion of working age persons with university degrees has increased considerably.

6. Human Development

- Life expectancy at birth has reached a high level, but there is a wide gap between males and females, which needs to be addressed.
- General mortality (IMR, U5MR, neonatal MR and MMR) have declined to low levels, indicating that the “mortality transition” is almost complete.
- Infectious disease has ceased to be an important cause of death in the Cook Islands, so most deaths are caused by Non-communicative Diseases (NCDs) or accidents. This means that the “epidemiological transition” is also nearly complete.
- Potentially the mortality situation is not accurately recorded in the Cook Islands statistics because the deaths of Cook Islands residents that occur in New Zealand are not included.
- The “fertility transition” is also close to complete (fertility is low but above “replacement”).
- The teenage birth rate remains one of the highest in Polynesia but has dropped in recent years.

- Cook Islands women appear to be protected from unwanted pregnancy, but data on family planning are incomplete.
- Universal Primary Education (UPE) has been achieved but Universal secondary has lagged.
- Gender parity has been achieved in primary education but secondary and tertiary education shows higher achievement by females (1.4 females to 1 males in 2016).
- Gender-based violence is at the lower end of the scale in the Pacific, although high enough to be a concern: 33 percent of ever-partnered women have experienced physical and/or sexual violence in their lifetime and 9.1 percent in the past 12 months.
- Disability is covered by policy but the supply, quality and analysis of data on the nature and scale of disability is inadequate. A review of the WHODAS 2.0 framework would be useful.

REFERENCES

1 Sector policies, plans and strategies

Cook Islands, Ministry of Internal Affairs (nd) Cook Islands Policy on Ageing 2012-2017 (Unpublished draft), Rarotonga: Ministry of Internal Affairs.

_____ (2019) Cook Islands Disability Inclusive Development Policy 2020-2025. Rarotonga: Ministry of Internal Affairs.

_____ (2021) Cook Islands National Youth Policy 2021-2026 (Te Mana o te Mapu), Rarotonga: Ministry of Internal Affairs.

Te Marae Ora (Cook Islands Ministry of Health) (2016a) Cook Islands Health Workforce Plan 2016-2025. Rarotonga: Ministry of Health.

_____ (2016b) Cook Islands National Health Road Map 2017-2036 (Te Papa Tutara A Te Marae Ora) Rarotonga: Ministry of Health.

_____ (nd) Cook Islands Integrated National Strategic Plan for Sexual and Reproductive Health, 2014-2018, Rarotonga: Ministry of Health.

_____ (2021) The Cook Islands Strategic Action Plan to prevent and control Non-communicable diseases 2021-2025 (Ngaki'anga Kapiti Ora'anga Meitaki), Rarotonga: Te Marae Ora, Ministry of Health.

_____ (2021a) Primary Healthcare Development Strategy, 2021, Rarotonga: Te Marae Ora, Ministry of Health.

_____ (2021b) National Health Strategic Plan 2017-2021 (Takai'anga Angaanga Tutara A Te Marae Ora), Rarotonga: Ministry of Health.

Cook Islands, National Planning Division (nd) Cook Islands National Sustainable Development Plan 2006-2010, Rarotonga: Office of the Prime Minister.

Cook Islands, Central Policy and Planning Office (2016) Cook Islands National Sustainable Development Plan 2016-2020 (Te Kaveinga Nui). Rarotonga: Central Policy and Planning Office.

_____ (2021a) Cook Islands National Sustainable Development Agenda (NSDA) 2020+ (Te Akapapa'anga Nui), Rarotonga: Central Policy and Planning Office.

_____ (2021b) Te Ara Akapapa'anga Nui NSDA 2020+ Te Kaveinga Iti 5 Year Score Card, Rarotonga: Central Policy and Planning Office.

Cook Islands, Ministry of Finance and Economic Management (2021) Cook Islands Economic Development Strategy 2030, Rarotonga: Ministry of Finance and Economic Management.

_____ (2022) Revival, Budget Breakfast Presentation, Budget 2021-22, Rarotonga: Ministry of Finance and Economic Management.

Ministry of Education (Maraurau o te Pae Api'i) (2014) Workforce plan 2014-2024, Rarotonga: Ministry of Education.

_____ (2008) Learning for Life: Cook Islands Education Master Plan 2008-2023, Rarotonga: Ministry of Education.

United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) (2019) Cook Islands National Policy on Ageing 2019-2023 (Unpublished Draft), Ministry of Internal Affairs.

2. Technical and support documents

Te Marae Ora, Ministry of Health (2011) Cook Islands NCD Risk Factors, Steps Report, Rarotonga: Ministry of Health.

_____ (2014) The Cook Islands Family Health and Safety Study, Te Ata O Te Ngakau, Shadows of the Heart. Rarotonga: Te Marae Ora/ Ministry of Health, National Council of Women and UNFPA.

_____ (2015) Cook Islands NCD Risk Factors, Steps Report 2013-2015, Rarotonga: Te Marae Ora, Ministry of Health and WHO.

_____ (2017) National Health Information Bulletin 2016, Rarotonga: Te Marae Ora, Ministry of Health.

_____ (2021) National Health Information Bulletin 2021, Rarotonga: Te Marae Ora, Ministry of Health.

Pacific Community (2021) Civil Registration and Vital Statistics in the Cook Islands, Noumea: SPC and UNICEF.

Cook Islands Statistics Office (1977) Cook Islands Census of Population and Housing, 1976. Rarotonga: Statistics Office, Central Planning Bureau.

_____ (1997) Cook Islands Census of Population and Dwellings, 1998, Main Report, Rarotonga: Statistics Office, Ministry of Finance and Economic Management.

_____ (2003) Cook Islands Census of Population and Dwellings, 2001, Main Report, Rarotonga: Statistics Office, Ministry of Finance and Economic Management.

_____ (2012) Cook Islands Census of Population and Dwellings, 2011, Main Report, Rarotonga: Statistics Office, Ministry of Finance and Economic Management.

_____ (2015) Cook Islands Vital Statistics Report 1999-2013, Rarotonga: Statistics Office, Te Marae Ora, the Pacific Community.

_____ (2018) Cook Islands Census of Population and Dwellings, 2016: Report. Rarotonga: Cook Islands Statistics Office.

_____ (2019) Migration Statistics, April, 2019. Accessed at: <http://www.mfem.gov.ck/population-and-social-statistics/tourism-migration-stats>.

_____ (2020a) Report on the Cook Islands Labour Force Survey, 2019, Rarotonga: Cook Islands Statistics Office and Ministry of Internal Affairs.

_____ (2020b) Vital Statistics Report, June Quarter, 2020.

_____ (2022a) Tourism and Migration Statistics, February 2022. Accessed at: <http://www.mfem.gov.ck/statistics/social-statistics/tourism-and-migration>.

_____ (2022b) Vital Statistics and Population Estimates, June Quarter, 2020. Accessed at <http://www.mfem.gov.ck/statistics/social-statistics/vital-stats-pop-est>.

_____ (nd) Cook Islands, 2006 Census of Population and Housing, Final Report. Rarotonga: Statistics Office.

Cook Islands, Ministry of Internal Affairs (2015) Young People of the Cook Islands: Analysis of the 2011 Population and Housing Census. Rarotonga: United Nations Population Fund (UNFPA) and the Cook Islands Statistics Office.

Cook Islands, Ministry of Education (2019) Education Statistics Report, 2018-2019. Rarotonga.

Cook Island, Ministry of Finance and Economic Management (2019) Cook Islands Gross National Income, Information Paper Ministry of Finance and Economic Management.

_____ (2021) 2020/21 Half-Year Economic and Fiscal Update. Accessed at http://www.mfem.gov.ck/images/MFEM_Documents/Budget_Books/2021-22/2021-22_HYEFU_v.2.pdf

Central Policy and Planning Office (nd) Cook Islands National Report for the 2014 Small Islands Developing States (SIDS) Conference and post 2015 Sustainable Development Goals: Navigating Stormy Seas through Changing Winds. Rarotonga: Central Policy and Planning Office, Office of the Prime Minister.

Ministry of Foreign Affairs and Immigration (2021) 2020 Report – Permits Issued to Foreign Nations, Rarotonga: Ministry of Foreign Affairs and Immigration (Te Kauono Tutara e te Mana Tiaki).

Secretariat of the Pacific Community (2005) Demographic Profile of the Cook Islands, 1996-2002. Noumea: Secretariat of the Pacific Community.

United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and the South Pacific Commission (1983) Population of the Cook Islands, Country Monograph Series No 7.3, New York and Noumea: United Nations and SPC.

3. Other documents

Asian Development Bank (2022) Asian Development Outlook 2022: Mobilizing Taxes for Development. Manila: ADB. Accessed at <https://www.adb.org/publications/asian-development-outlook-2022>

_____ (2022) Key Development Indicators. Accessed at: <https://kidb.adb.org/themes/regional-tables/rt-2-economy-and-output>

Bertram, G. (2016) Implications of the Cook Islands Graduation from Development Assistance Committee (DAC) Eligibility. Unpublished report.

_____ (2018) Why Does the Cook Islands Still Need Overseas Aid? *Journal of Pacific History*, Vol. 53, No. 1, pp. 44-63.

Bertram, G. and R Watters (1985) The MIRAB Economy in South Pacific Microstates. *Pacific Viewpoint*, 26:498-519.

Hayes, G. (1982) Migration, Population and Development in the Cook Islands. Unpublished PhD Dissertation. University of British Columbia.

Oberst, A. and J.L. McElroy (2007) Contrasting Socio-Economic and Demographic Profiles of Two, Small Island, Economic Species. *Islands Studies Journal*, Vol. 2, No. 2, pp.163-176.

World Health Organization (2010) Measuring Health and Disability: Manual for WHO Disability Assessment Schedule (WHODAS 2.0). Geneva: WHO.

World Bank (2022) World Development Indicators. Located at <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD> Accessed 11 September 2022.

United Nations Population Division (2022) UNDATA. Accessed at: <http://data.un.org/Data.aspx?d=PopDiv&f=variableID:54>