Nauru Household Income and Expenditure Survey Report 2006

Prepared By

Ipia Gadabu
Nauru, National Statistics Office

Table of Contents

Acknowledgements

My first and foremost acknowledgement goes to the 49 enumerators who volunteered and were selected to undertake the difficult task of interviewing households during a period of economic hardship, amongst an atmosphere of public and political tension. To Mrs Jessica Raidinen who strived to complete her interviews as an enumerator while hospitalized showed dedication beyond expected, and whom passed away shortly after the completion of the enumeration, for her kind of dedication this survey owes a debt beyond gratitude.

I wish to acknowledge the Australian aid agency AusAid and the Asian Development Bank (ADB) for providing the much needed funds to allow us to undertake this important investigation into private household income and spending patterns, to gain an insight of the wealth and well-being of households throughout Nauru today. Their funding assistance allowed the necessary assessments to allow better planning for the future and addressed key milestones to be achieved from a planner's perspective based on Nauru's National Sustainable Development Strategies.

I'd like to thank the Secretariat of the Pacific Community for their ever presence and prominent role in the region in readily providing experts for technical assistance missions and valuable liaisons, particularly Mr Chris Ryan and Mr Gregory Keeble whose expertise and extra attention for our HIES was much appreciated. Also I am thankful to the CEO of the Rehabilitation Corporation Mr Vinci Clodumar, for lending us his assistance in providing the resources for mapping, and expert Mr Robert Deidenang, whose maps were crucial during the fieldwork.

Lastly I wish to thank the staff of the SPC-Statistics and Demography programme for their patience and friendly assistance in providing support during my attachment for the HIES report analysis, as well as my two staff, Mr Ramrakha Detenamo and Mr Lindsay Thoma, and everyone's efforts in contributing to this final report.

1. Introduction

The following report provides results of the initial analysis from the 2006 Nauru Household Income and Expenditure Survey (HIES). The survey was conducted during December 2006, following an initial mini census listing exercise which was conducted about two months earlier in late September 2006.

The objectives of the HIES were as follows:

a) Provide information on income and expenditure distribution within the population
b) Provide income estimates of the household sector for the national accounts
c) Provide data for the re-base on the consumer price index
d) Provide data for the analysis of poverty and hardship

The report provides information on the methodology adopted for the survey, as well as details on the reliability of results. In the analysis sections of the report (5-7), initial analysis is provided with respect to the demographic profile of Nauru, income patterns for Nauruan households and finally expenditure patterns for Nauruan households.

2. Background

Nauru is made up of one small island around 15 km in circumference. Based on results from the mini census listing and HIES sample survey there was estimated to be between 9,500 and 10,000 people residing in Nauru at the time of the census listing in September. This corresponded to approximately 1,500 households on the island.

There are 14 official districts making up Nauru, which vary significantly both in geographical size and population size. There is also a large housing complex based mainly in the District of Denigomodu (Denig), commonly known as "Location". Further details of the population profile for Nauru can be found in section 5 of this report. It should also be noted that a more complete analysis of the mini census listing (which will provide a better picture of Nauru's population profile) will be conducted in Nauru in September 2007.

The 2006 HIES was the first of its kind conducted in Nauru. There were mixed feelings from respondents throughout both the mini census listing and HIES which can be attributed largely to the lack of understanding of the usefulness of the data being acquired from these two surveys. The current political atmosphere also had a significant impact towards the overall response rate and the success of the survey.

3. Survey Methodology

3.1 Scope and coverage

Due to the geographical nature of Nauru, it was a simple procedure to include the entire island in the coverage of the survey. To facilitate this process, a mini census listing exercise was undertaken approximately two months prior to the HIES, to not only provide basic up-to-date demographic data for the population, but also to provide a frame for sample selection for the HIES.

In constructing the sample frame for the HIES, only those households which were considered to be a private household were included.

When the survey was in the field, interviewers were further required to reduce the scope by removing those household members who had not been residing in Nauru for the last 12 months and did not intend to stay in Nauru for the next 12 months.

3.2 Survey approach

As mentioned above, a mini census was conducted prior to the HIES to provide basic demographic information for the population, and form the frame for the sample selection in the HIES. The information collected in the mini census included the following:

- Relationship to household head
- Current school attendance
- Sex
- Age
- Disability status
- Ethnicity
- Marital status
- Activity status
- Educational attainment
- Internet usage

This information was then linked to the information collected in the HIES for analysis purposes.

3.3 Sample design

The sample size adopted for the survey was 500 households which allowed for expected sample loss, whilst still maintaining a suitable responding sample for the analysis.

Before the sample was selected, the population was stratified by constituency in order to assist with the logistical issues associated with the fieldwork. There were eight constituencies in total, along with "Location" which stretches across the districts of Denigamodu and Aiwo, forming nine strata in total. Although constituency level analysis was not a priority for the survey, sample sizes within each stratum were kept to a minimum of 40 households, to enable some basic forms of analysis at this level if required.

The sample selection procedure within each stratum was then to sort each household on the frame by household size (number of people), and then run a systematic skip through the list in order to achieve the desirable sample size. Household weights for each stratum were then derived by dividing the known population of households from the sample frame for that stratum, by the responding sample for that strata.

The international definition of a "household" was adopted for the purpose of comparisons by international standards, but did not always hold firmly in the case for the Nauru HIES. As a result a household in this report is defined according to the UN definition with additions as follows: "shares the means of subsistence, economic burdens and benefits whether living under the same dwelling, or additions to the main dwelling whether attached or unattached, and other dwellings and additions likewise stated previously".

During the enumeration there were cases that were encountered which tested the previously adopted definition, examples of these cases are;

Case 1
Four previously separated households living under the same dwelling consisting of grand-parents, 3 children with spouses and grandchildren. The 3 children and their spouses don't eat together or share economic means, except every grand-child eats with any of the 3 grown-up pairs, and the grand-parents are owners of the land and dwelling so by insistence of all members are listed as head of household (male) with no economic means (paid regular work) due to retrenchments, but is involved in fishing for subsistence.

Case 2
Seven previously separated households not living under the same dwelling, consisting of 2 grandparents, more than 10 children, more than 50 grandchildren. Where grandparents live in the main family home with 5 children, while 7 children live in attached or unattached additions to main dwelling, and 4 live in other parts of the district. – In this case the main dwelling where the grand-parents live serve as "a common kitchen", subsistence activities are shared and economic burdens to the extent

of food and essentials are also shared. Every grandchild may eat within each of the separate living arrangements whether main-house/local hut/flats/additions (attached or unattached), however respective parents eat separately or together depending on living arrangements. The eldest member of the family is named as head of household.

3.4 Survey schedules

The survey schedules adopted for the HIES included the following:

- Expenditure questionnaire
- Income questionnaire
- Miscellaneous questionnaire
- Diary (x2)

Whilst a Household Control Form collecting basic demographics is also normally included with the survey, this wasn't required for this HIES as this activity took place for all households in the mini census.

Information collected in the four schedules covered the following:

Expenditure questionnaire: basic details about the dwelling structure and its access to water and sanitation, expenditure on major and infrequent expenditures incurred by the household.

Income questionnaire: main types of household income generated by the household, such as wages and salaries, business income and income from subsistence activities.

Miscellaneous questionnaire: topics relating to health access, labour force status, education status and Internet activity.

Diary: all day to day expenditures incurred by the household, consumption of items produced by the household, such as fish and crops, and gifts both received and given by the household.

3.5 Field strategy

The staff involved in the survey comprised the three permanent staff of the NSO, nine field supervisors and 37 field enumerators. Each interviewer was allocated between 10 and 12 households each to enumerate over the two week period. For the expenditure questionnaire, income questionnaire and miscellaneous questionnaire, a face-to-face interview was conducted with the head of household to capture the information. For the two diaries, the diary was left with the household members who were then responsible for recording all their expenditures over the two-week diary keeping period.

4. Reliability of Results

As with any sample survey, results of the survey will be subject to error. These errors can be split into the two following categories:

- Sampling Error: The error associated with conducting a sample survey as opposed to enumerating the full population
- Non-sampling Error: All other errors associated with the survey results

Both issues are discussed in the next two sections

4.1 Sampling Error

To determine the impact of sampling error on the survey results, relative standard errors (RSEs) for key estimates were produced. When interpreting these results, one must remember that these RSEs don't include any of the non-sampling errors discussed in section 4.2.

To also provide a rough guide on how to interpret the RSEs provided below, the following information can be used:

Category	Description
RSE < 5%	Estimate can be regarded as very reliable
5% < RSE < 10%	Estimate can be regarded as good and usable
10% < RSE < 25%	Estimate can be considered usable, with caution
RSE > 25%	Estimate should only be used with extreme caution

RSEs for key income variables

Income Category	Ave HH Income	RSE
Wage & Salary Income	6565	5.0%
Subsistence Income	253	20.3%
Other Business Income	73	56.8%
Previous Jobs Income	141	37.0%
Services to other households Income	9	35.0%
Benefits Income	162	27.5%
Other Income	556	20.1%
Home Produced - Consumed	476	19.6%
Home Produced - Gifts Given	209	35.9%
Gifts Received	590	22.1%
TOTAL INCOME	9554	4.4%

RSEs for key expenditure variables

Expenditure Category	Ave HH Expenditure	RSE
Food	3627	4.8%
Alcohol & Tobacco	243	12.0%
Clothing & Footwear	126	18.6%
Housing	197	45.8%
Household Operations	466	12.7%
Transport & Communication	536	15.3%
Miscellaneous	468	18.8%
Home Produce Gifts Given	614	20.2%
Gifts Received (non-cash)	160	18.4%
TOTAL EXPENDITURE	6957	4.9%

Note: Gift Received (non-cash) include all non-cash gifts

As can be seen from the tables above, the estimates for Total Income and Total Expenditure from the HIES can be considered to be very good, from a sampling error perspective. The same can also be said for the Wage and Salary estimate in income and the Food estimate in expenditure, which make up a high proportion of each respective group.

Many of the other estimates should be used with caution, depending on the magnitude of their RSE. Some of these high RSEs are to be expected, due to the expected degree of variability for how households would report for these items. For example, with Business Income (RSE 56.8%), most households would report no business income as no household members undertook this activity, whereas other households would report large business incomes as it's their main source of income. This is also the case for Housing expenditure where few households paid rent for their dwellings.

4.2 Non-sampling Error

Many factors contribute to the magnitude of the non-sampling errors associated with survey results. Unfortunately, unlike the sampling error, it is difficult to measure the extent of the impact. In order to better understand the reason behind this, one only needs to look at the different types of non-sampling error to appreciate why it is difficult to measure its impact. Some of the more significant non-sampling errors which are discussed in the next few sub-sections include:

- Non-response bias
- Reporting errors
- Data entry errors

4.2.1 Non-response bias

The survey response rates were a lot lower than expected, especially in some districts. As can be seen from the table below, the district of Aiwo, Uaboe and Denigomodu had the lowest response rates with 16.7%, 20.0% and 34.8% respectively. The area of Location was also extremely low with a responses rate of 32.2%. On a more positive note, the districts of Yaren, Ewa, Anabar, Ijuw and Anibare all had response rates at 80.0% or better.

2006 HIES Response Rates by District

Constituency #	District #	District Name	# Households			Response Rate
			On Frame	Selected	Responded	
1	1	Yaren	97	41	33	80.5%
2	2	Boe	107	40	28	70.0%
3	3	Aiwo	204	60	10	16.7%
4	4	Buada	96	40	25	62.5%
5	5	Denigomodu	76	23	8	34.8%
5	6	Nibok	66	19	13	68.4%
5	7	Uaboe	46	15	3	20.0%
5	8	Baitsi	62	23	11	47.8%
6	9	Ewa	58	25	20	80.0%
6	10	Anetan	80	17	13	76.5%
7	11	Anabar	64	22	18	81.8%
7	12	Ijuw	32	14	12	85.7%
7	13	Anibare	23	5	4	80.0%
8	14	Meneng	250	84	54	64.3%
9	15	Location	277	87	28	32.2%
ALL	**ALL**	**ALL**	**1538**	**515**	**280**	**54.4%**

The major contributing factor to the low response rates were households refusing to take part in the survey. The figures for responding households only include fully responding households, and given there were many partial responses, this also brought the response rates down. The other significant contributing factor to the low response rates was the interviewers not being able to make contact with the household during the survey period.

Unfortunately, not only do low response rates often increase the sampling error of the survey estimates, because the final sample is smaller, it will also introduce response bias into the final estimates. Response bias takes place when the households responding to the survey possess different characteristics to the households not responding, thus generating different results to what would have been achieved if all selected households responded. It is extremely difficult to measure the impact of the non-response bias, as little information is generally known about the non-responding households in the survey. For the Nauru 2006 HIES however, it was noted during the fieldwork that a higher proportion of the Chinese population residing in Nauru were more likely to not respond. Given it is expected their income and expenditure patterns would differ from the rest of the population, this would contribute to the magnitude of the non-response bias. In short, this means that the larger the sample, the more accurate our estimate of the average

population or other measures/characteristics. This may have had some impact to the RSE covered in 4.1, since the standard error is dependent upon the size of the sample, and the variability in the variables of the population.

4.2.2 Reporting errors

Some of the different aspects contributing to the reporting errors generated from the survey, with some examples/explanations for each, include the following:

Misinterpretation of survey questions: A common mistake which takes place when conducting a survey is that the person responding to the questionnaire may interpret a question differently to the interviewer, who in turn may have interpreted the question differently to the people who designed the questionnaire. Some examples of this for a HIES can include people providing answers in dollars and cents, instead of just dollars, or the reference/recall period for an "income" or "expenditure" is misunderstood. These errors can often see reported amounts out by a factor of 10 or even 100, which can have major impacts on final results.

Recall problems for the questionnaire information: The majority of questions in both of the income and expenditure questionnaires require the respondent to recall what took place over a 12 month period. As would be expected, people will often forget what took place up to 12 months ago so some information will be forgotten.

Intentional under-reporting for some items: For whatever reasons, a household may still participate in a survey but not be willing to provide accurate responses for some questions. Examples for a HIES include people not fully disclosing their total income, and intentionally under-reporting expenditures on items such as alcohol and tobacco.

Accidental under-reporting in the household diaries: Although the two diaries are left with the household for a period of two weeks and are asked to record all expenditures in the diaries, it is easy for the household to forget to enter all expenditures throughout this period – this problem most likely increases as the two week period progresses. It is also expected that for section 2 in the diary (which collects consumption of home produce by the household), the extent of under-reporting will potentially be even higher.

4.2.3 Data entry errors

Despite best efforts to keep reporting errors to a minimum, errors can also occur during the data entry phase of the survey. Once again amounts reported as dollars and cents can get entered as whole dollars, and accidental keying mistakes can be a common occurrence. Data entry range checks are often used to keep these mistakes to a minimum, and naturally data editing takes place both during and after data entry, but errors still occur which go undetected.

4.3 Nauru's dual economy

A huge challenge faced throughout the conduct of the 2006 Nauru HIES was how to deal with Nauru's dual economy when collecting information on both income and expenditure. A brief background to the situation encountered by the people of Nauru is provided below.

4.3.1 The economic situation confronting households

The economic situation in Nauru is somewhat complicated. Since the start of 2003, government employees have not been receiving their full pay on a regular basis. Around the start of 2003, employees were getting their pay, but it was at irregular intervals when the government had sufficient money in which to make the payments. As the year went on, the payments were still irregular, however back payments weren't being made.

For the first few months of 2004, the situation reached its lowest ebb when government employees weren't being paid at all.

Since July 1, 2004, the government has been paying government employees a cash payment of $70 per week, regardless of what position the employee held – this is generally significantly less than their usual pay. The difference between this actual payment and the employee's nominal pay is put in a "pending" account. Given the 2.5 year gap since government employees were receiving their full pay, it is expected that many government employees would not know what their usual pay entitlement should be.

Another major issue for the people of Nauru is that their savings accounts have been effectively frozen by the government. The result of this is that people are not allowed to make cash withdrawals from these accounts. However, private transactions between households may take place in the form of a cheque, where money from one household's savings account is transferred into the savings account of another household. Electricity bills can also be paid using cheques from savings accounts, although a $5 cash payment must be included each month.

A major problem which needed to be addressed for the Nauru HIES was how to design the questionnaires to account for this given a common household transaction may take place as follows:

> *Household A wish to sell their second hand car. They offer two prices; $700 cash or $5,000 cheque. Household B wish to buy the car, and thus have to decide whether to use the small amount of cash, or the much larger cheque amount , which they may never get access to anyway.*

Some way to distinguish between these two economies when designing the questionnaire was needed.

Another example which complicates things even more is when purchases are made with a combination of cash, cheques and payments-in-kind. For example, someone might buy a diesel car with a $20,000 cheque and a water tank. People also give gifts of cheques as birthday presents and wedding gifts.

4.3.2 How the dual economy was dealt with during the 2006 HIES

In order to address the dual economy confronting households in Nauru for the HIES, the first challenge was to produce a questionnaire which could suitably collect information on both the "cash" and "cheque" economy. This involved both the collection of income and expenditure data. For income, where the dual economy was considered an issue for that type of income, both the income collected in cash (or in-kind) and cheque was collected. For expenditure, when it was considered that the household could pay either with cash or cheque, once again the contribution of both economies was collected for the transaction.

The next step was determining how to deal with the two economies during the HIES analysis. Whilst many different approaches can be adopted to address this issue, for this report the approach adopted was as follows:

> *Firstly determine an approximate measure of what the value of a cheque would be with respect to cash. To simplify the analysis, an average figure which could be applied to all transactions was estimated. For the purpose of this report it was estimated that $1 cash would equate to a $10 cheque amount.*
>
> *Having established this ratio, it was then decided to convert all transactions to a cash equivalent. That is, if a persons annual pay included $3,640 in cash, and $6,740 in a cheque, then that would equate to a cash equivalent of $3,640 + (0.1 * $6,740) = $4,314. On the expenditure side, the same approach was adopted. That is, if a household paid their electricity bill with $5 cash and a $240 cheque, then their cash equivalent payment for electricity would be $5 + (0.1 * $240) = $29.*

Different approaches for tackling this issue may be adopted for subsequent analysis.

The following table provides an indication as to the contribution of both the cash and cheque economies to Nauruan household's income and expenditure. In the case of income, it was only the sections collecting income from "Wage & Salary" and "Other Income" that cheque receipts were recorded. For expenditure, cheque payments were recorded for "Household Operations" (mostly bills), "Transport & Communication", "Miscellaneous" and "Housing".

Income breakdown for cash and cheque economy

Component	Cash contribution	Cheque contribution	Cash equivalent	Total cash ammount
"Wages & Salary"	9,177,545	9,190,633 →	919,063	10,096,608
"Other Income"	854,019	14,876 →	1,488	855,506
Remaining Sources	3,743,532	-	-	3,743,532
Total Income	13,775,096	9,205,509 →	920,551	14,695,646

Expenditure breakdown for cash and cheque economy

Component	Cash contribution	Cheque contribution	Cash equivalent	Total cash ammount
"Household Operations"	622,425	938,979 →	93,898	716,323
"Transport& Communication"	815,614	89,286 →	8,929	824,543
"Miscellaneous"	711,653	77,627 →	7,763	719,416
"Housing"	302,877	204 →	20	302,897
Remaining Sources	8,136,735	-	-	8,136,735
Total Expenditure	10,589,304	1,106,096	110,610	10,699,914

4.4 Logistical issues encountered during the HIES

Also contributing to the difficulties encountered for the field staff during the collection of the data, which should be considered when assessing the quality of the results presented in this report, are the following.

4.4.1 Transportation for field staff

Unfortunately only one car was available for use by the staff of the NSO. Shortages of fuel during the fieldwork phase resulted in an allowance of only $10/day for the monitoring of fieldwork. Given there were over 40 staff involved in the fieldwork, visiting each staff member on a regular basis was extremely difficult.

Supervisors were also required to assist with transport for their interviewers and travel to monitor their progress. The fuel shortage problem also made this task difficult.

4.4.2 Language problems encountered

As anticipated, language problems (especially in the Location settlement), was another challenge field staff encountered. This was especially considered to be a problem for some of the Chinese residents. Numerous Chinese households selected in the survey had difficulty understanding the questions being presented during the survey, and often used it as an excuse to refuse participation. This contributed to the low response rate for the Location settlement noticed in section 4.2.1.

5. Demographic Profile

The estimated population during the HIES survey was 9968 persons living in 1538 households. Table 5.1 shows the estimated number of resident persons and private households by district. The most populated districts are Meneng, Aiwo and the Location settlement.

Table 5.1: Number of Persons and Households by District

District	Population	Households
Yaren	635	97
Boe	825	107
Aiwo	1285	204
Buada	657	96
Denigomodu	429	57
Nibok	671	93
Uaboe	143	21
Baitsi	657	79
Ewa	723	84
Anetan	351	54
Anabar	473	63
Ijuw	347	42
Anibare	116	14
Meneng	1509	250
Location	1148	277
Total	9968	1538

Based on the estimated population and number of households, the average household size in Nauru is 6.5 persons. However the average size of households differs by district (see Figure 5.1). The largest households are in Ijuw, Anibare, Baitsi and Ewa districts with an average of 8.3 persons per households. Meneng has the lowest household size with an average of 6 persons per household. It should be noted that the location settlement has even a lower average household size (4.1 persons) which reflects the smaller physical size of the inhabited dwellings

Figure 5.1: Average Household Size by District

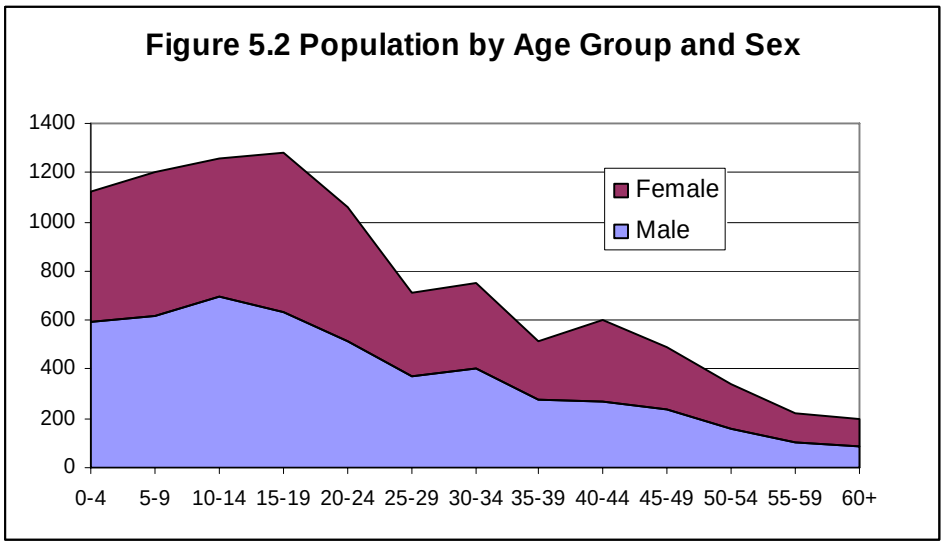
5.1 Age and Sex breakdown

Table 5.2 shows the total population and heads of household by age group and sex. More than 36 percent of the total population was aged less than 15 years. There were more boys (38% of male population) than girls (34% of female population) in the 0-14 age group. More than half of the total population (54%) was aged 15-50 years comprised of slightly more women than men. Less than 8 percent of the population was aged 50 years and over.

Table 5.2: Population by Age Group and Sex

	Total Population			Head of Household		
Age Group	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
0-4	594	531	1126	-	-	-
5-9	617	585	1203	-	-	-
10-14	697	561	1258	-	-	-
15-19	635	649	1284	-	5	5
20-24	513	547	1060	55	20	75
25-29	368	347	716	95	29	125
30-34	404	347	751	187	25	212
35-39	279	235	514	121	80	202
40-44	270	328	598	171	87	258
45-49	235	254	488	133	92	225
50-54	158	178	336	128	69	197
55-59	102	117	219	60	44	104
60+	88	109	198	83	46	129
NS	103	114	218	4	4	7
Total	5065	4903	9968	1038	500	1538

A third of all heads of households were women. Around 70 percent of all heads of household were aged less than 50 years. Overall male heads of households were younger than female household heads, with almost three quarters of males less than 50 years compared to a third of females aged more than 50 years of age.



5.2 Ethnicity breakdown

Table 5.3 shows the total population and heads of household by ethnicity and sex. More than 95 percent of the total population indicated their ethnicity was Nauruan with an equal proportion of males and females. While the same percentage of heads of households indicated they were of Nauruan ethnicity, almost all of the female heads of households reported they were Nauruan. The I-Kiribati population made up 1.5 percent of the rest of the population with all other ethnic groups less than one percent. However more than 3 percent of the heads of households were of Chinese or other Asian ethnicity.

Table 5.3: Population by Ethnicity and Sex

	Total Population			Head of Household		
Ethnicity	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Nauruan	4851	4696	9547	978	490	1468
I-Kiribati	59	87	146	5	10	15
Tuvaluan	5	8	13	5	-	5
Other Pacific	13	5	18	-	-	-
Chinese	35	26	61	26	-	26
Other Asian	39	37	76	25	-	25
Other	10	18	27	-	-	-
Not stated	54	25	79	-	-	-
Total	5065	4903	9968	1038	500	1538

5.3 Labour Force breakdown

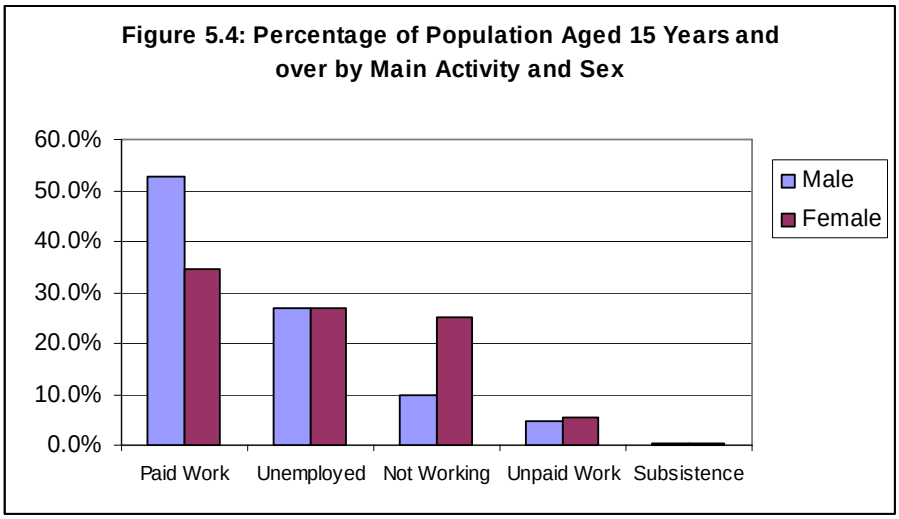
Table 5.4 shows the total population and heads of household aged 15 years and over by main economic activity and sex. More than half of the male population and a third of the female population were engaged in paid work in either the government sector, in private business or self-employment. More than a quarter of both males and females were unemployed, but were available to work if a job was available. A quarter of the women and ten percent of the men were not working because they were either doing home duties, studying, retired, sick or disabled, or not interested in looking for work. Very few persons (less than 0.5%) indicated that their main activity was working for subsistence or unpaid work.

Table 5.4: Population aged 15 years and over by Main Economic Activity and Sex

Main Economic Activity	Total Population			Head of Household		
	Male	Female	Total	Male	Female	Total
Paid Work	1663	1108	2771	710	198	908
Unpaid Work	146	174	320	16	11	27
Unemployed	844	862	1706	191	124	315
Not Working	311	813	1124	115	143	258
Subsistence	13	12	25	-	-	-
Not stated	179	256	435	6	24	30
Total	3156	3225	6381	1038	500	1538

While a third of all households were headed by women, less than a quarter of heads of households engaged in paid work were female. Overall 70 percent of male head of households and 40 percent of female head of households were economically active in either paid or unpaid work. More than half of the female heads of household were currently not working and were either unemployed (25%) or undertaking other activities or were not able to work (29%).

Figure 5.4: Percentage of Population Aged 15 Years and over by Main Activity and Sex



6. Income Analysis

As can be seen from Table 6.1, total annual household income amounted to $14.7 million. On average, each household received more than $9,500 in income from various sources. Wages and salaries accounted for most of the household income, showing an annual total over $10 million. This can be attributed to the high reliance on wages and salary type employment, especially in the government sector. More $900,000 were received by households as gifts, reflecting household activities such as giving away cash or goods as gifts to other households. This may imply that sharing is being practiced between households living under the same dwelling and under the extended family situation preferred by the Nauruan culture. Annual income from businesses amounted to $112,000. This amount was anticipated to be larger, however the large number of non-responses from Chinese households, whom make up a majority of the private commercial sector, may have had some impact on this figure. Income derived from other sources amounted to $856,000 which was the third largest source of income. Seafood sales amounted to $208,000. Although it was expected to be higher, the rise in fuel prices and shortages meant that little fishing activity was undertaken during the reference period.

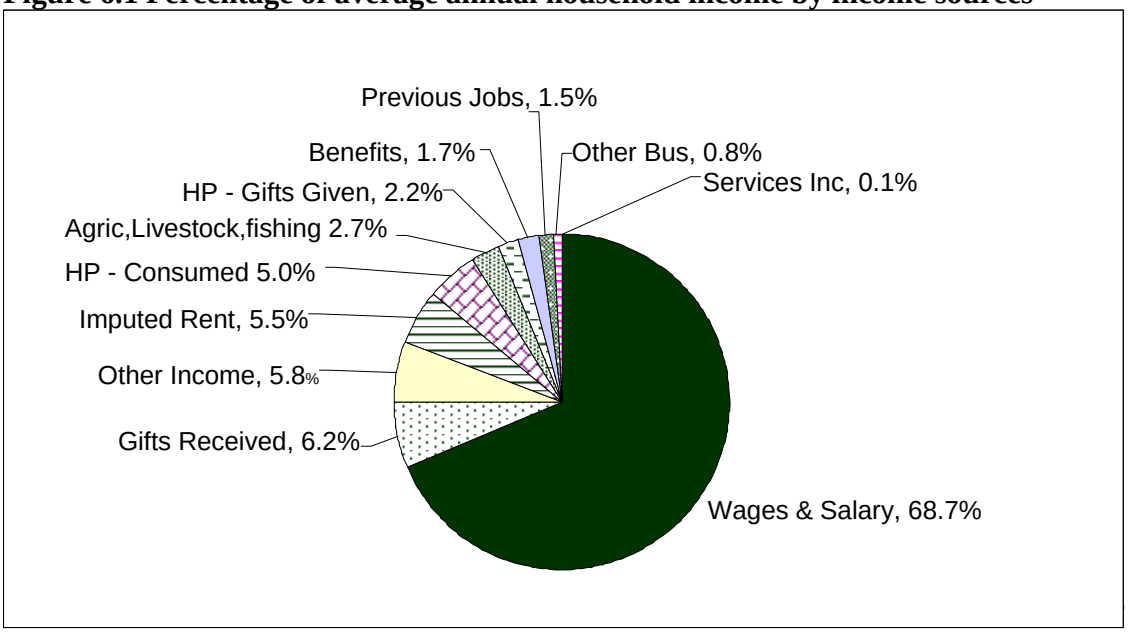
Table 6.1 Annual household income by income sources

Income Source	Total Income	Avg Income
Wages & Salary	$10,097,000	$6,565
Gifts Received	$908,000	$590
Other income	$856,000	$557
Imputed Rent	$800,000	$520
Home Produce - Consumed	$732,000	$476
Home Produce - Gifts Given	$322,000	$209
Benefits	$249,000	$162
Previous Jobs	$217,000	$141
Seafood Sales	$208,000	$135
Other Business	$112,000	$73
Homemade Produce	$100,000	$65
Handicraft	$31,000	$20
Fruit & Vegetables	$25,000	$16
Livestock	$25,000	$16
Services	$14,000	$9
Total Income	**$14,696,000**	**$9,555**

Figure 6.1 shows the percentage of average annual household income by income sources. As can be seen, wages and salary accounts for 69% of average annual income, with the next highest being “gifts received” with 6%. Income from sales of agricultural products, seafood and game, homemade produce and handicrafts, accounted for 2.7%, which may imply that agricultural and fisheries activities undertaken in the country are still at a relatively very small scale. Produce from subsistence activity consumed by households (eg, fish from diving or birds caught) accounted for 5% of total household income while produce from subsistence activity given as gifts accounted for 2.2% of household income.

Both these figures were anticipated to be much greater. Under-reporting for these two sources of income is expected due to recall difficulties and a likely underestimation in the value of subsistence activity.

Figure 6.1 Percentage of average annual household income by income sources



households on Nauru. Total per-capita income was estimated at almost $1500 per person on average. Wages and salary contributes almost 70% of total annual per capita income.

Table 6.2 Total household and Per capita annual income by income source

Income Source	Total Income	Per Capita Income
Wages & Salary	$10,097,000	$1,013
Gifts Received	$908,000	$91
Other income	$856,000	$86
Imputed Rent	$800,000	$80
Home Produce - Consumed	$732,000	$73
Home Produce - Gifts Given	$322,000	$32
Benefits	$249,000	$25
Previous Jobs	$217,000	$22
Seafood	$208,000	$21
Other Business	$112,000	$11
Homemade Produce	$100,000	$10
Handicraft	$31,000	$3
Fruit & Vegetables	$25,000	$3
Livestock	$25,000	$3
Services	$14,000	$1
Total Income	**$14,696,000**	**$1,474**

7. Expenditure Analysis

Table 7.1 below provides the total household annual expenditure, average annual expenditure and average weekly expenditure by sub-groups of expenditure. The annual total household expenditure amounted to $10.7 million, indicating an average household expenditure of almost $7000. On average each household spent $134 per week on food, other goods and services. Given a high proportion of household expenditure in Nauru is spent on food, it is expected that the different types of food groups would feature highly in this table.

Table 7.1 Household expenditure (total annual, average annual and average weekly) by expenditure sub-group

Expenditure Sub-groups	Total Annual Expenditure	Avg annual Expenditure	Avg weekly Expenditure
Cereal Products	$1,910,000	$1,242	$24
Meat & Poultry	$1,305,000	$849	$16
Seafood	$965,000	$628	$12
Gifts Given	$944,000	$614	$12
Transportation	$814,000	$529	$10
Imputed Rent	$800,000	$520	$10
Miscellaneous foods	$576,000	$374	$7
Dairy Products	$318,000	$207	$4
Miscellaneous expenses	$307,000	$200	$4
Tobacco	$285,000	$185	$4
Household Maintenance	$283,000	$184	$4
Household Appliances	$282,000	$183	$4
Household supplies	$272,000	$177	$3
Gifts Received (non-cash)	$246,000	$160	$3
Meals away from home	$223,000	$145	$3
Recreation	$207,000	$134	$3
Fruit & Vegetables	$193,000	$126	$2
Clothing	$181,000	$118	$2
Household Bills	$116,000	$75	$1
Alcoholic beverages	$90,000	$58	$1
Non-alcoholic beverage	$87,000	$57	$1
Personal products	$79,000	$52	$1
Education	$67,000	$43	$1
Health	$60,000	$39	$1
Household Furniture	$46,000	$30	$1
Rent	$20,000	$13	$0
Footwear	$12,000	$8	$0
Communication	$11,000	$7	$0
Total	**$10,700,000**	**$6,957**	**$134**

As can be seen from the table, expenditure on cereal products has the highest annual expenditure with $1.9 million per year. This accounts for nearly 18% of total household expenditure in Nauru for this food sub-group alone. It equates to each household in Nauru spending approximately $24 a week on cereal products on average. This is not surprising given this food sub-group cover items such as rice, noodles and bread, all a big part of the Nauruan people's diet.

The next most prominent sub-group is meat with $1.3 million (12%) expenditure per year, which equates to roughly $16 per week on average for each household. Once again this is to be expected given this group covers items such as chicken pieces, tinned corn beef and other luncheon meat. The next highest sub-group is seafood with total expenditure of $965,000 (9%).

Of the non-food items, "gifts given" ($944,000) and expenditure on transport ($814,000) feature the highest. The prevalence of gift giving from one household to the next was evident in the income analysis so it was no surprise to see it appear prominently here in the expenditure analysis. The main contribution to the transport category was from the different aspects of car maintenance to aging vehicles.

Figure 7.1 below shows the percentage proportions of household expenditure by broad groups. Expectedly food & non-alcoholic beverages accounted for approximately 52% of overall household expenditures. This reflects the normal trend seen in most other Pacific countries, although in Nauru the percentage contribution is higher than normal. Expenditure on housing was the next highest group with 10% of overall expenditure. This is largely because this group covers imputed rent which includes most Nauruan households. Surprisingly, the smallest expenditure groups was clothing & footwear with only 2%. Some of this may be attributable to under-reporting of these items in the survey, but one would expect Nauruan households don't spend a high proportion of their income on these items.

Figure 7.1 Percentage of average annual expenditure by expenditure group

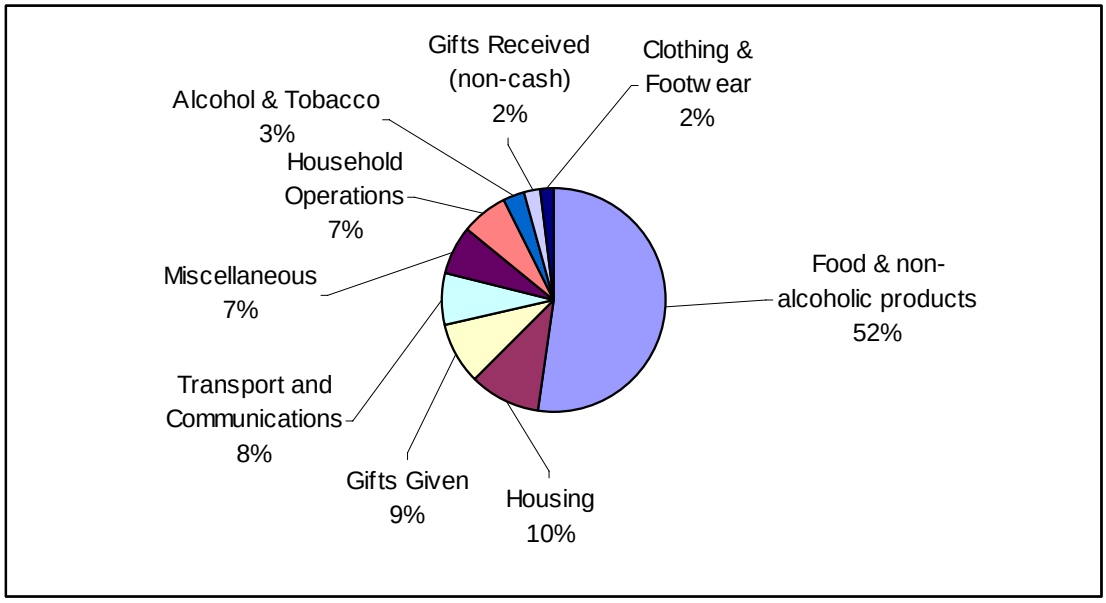


Table 7.2 shows the household annual expenditure, average annual expenditure and average weekly expenditure by household income quintile. The expenditure ratio of the top income quintile and the bottom income quintile is approximately 3:1, suggesting that the top quintile households with respect to income are spending 3 times as much as the

bottom quintile households. That is, on average, the households in the bottom quintile spend $83 per week compared to $223 per week for households in the top quintile.

Table 7.2 Annual expenditure by income quintile

Income Quintile	Annual Exp	Avg Annual Exp	Avg weekly Exp
Quintile 1	$1,326,000	$4,310	$83
Quintile 2	$1,616,000	$5,254	$101
Quintile 3	$1,954,000	$6,354	$122
Quintile 4	$2,239,000	$7,279	$140
Quintile 5	$3,564,000	$11,588	$223

Table 7.3 shows the per capita expenditure by household income quintile which provides a more informative story. This table shows that although households within the top quintile spend on average three times as much on a weekly basis than those in the bottom quintile, when observing the per capita weekly expenditures by income quintile, the ratio of expenditure between the top and bottom quintiles is less than 1.5. This is largely because the household size of the top quintile is significantly higher than the household size of the bottom quintile.

Prevailing assumptions of trends for income versus household sizes, where the usual characteristics for low income households is larger household sizes, this assumption does not hold in the case for Nauru. This can be attributed again to the "extended family" preferences, where previously separated households living in the same dwelling have now begun pooling their resources as one entity. This reverse trend from independence to inter-dependence is likely a result of the current economic climate. It can then be stated that large households within the largest quintile are a conglomerate of small and large households operating for a common purpose as one household.

Table 7.3 Annual expenditure per capita by household income quintile

Income Quintile	population	Annual Exp	per capita weekly expenditure
Quintile 1	1,446	$1,326,000	$18
Quintile 2	1,718	$1,616,000	$18
Quintile 3	1,989	$1,954,000	$19
Quintile 4	2,166	$2,239,000	$20
Quintile 5	2,649	$3,564,000	$26

8. Summary of Results

In summary, the 2006 Nauru HIES estimated that the annual household income was $14.7 million and the annual household expenditure was 10.7 million, a difference of $4 million. The average household income was estimated at more than $9,500 and the average household expenditure was almost $7,000. On a weekly basis, households received on average $184 in income and spent on average $134.

These results show large differences between the incomes and expenditures of households. Annual income showed excesses of more than $4 million suggesting that households on average have more savings than expenses. This cannot be entirely interpreted as an accurate portrayal of the actual situation. It can be viewed as a result of households over stating their income by including components that were not actually received. In particular, payments to government workers, whether paid in cash or credited to their pending salaries, and overvaluing income in-kind or cheque transactions, for sales or other income.

Appendix

Additional Income Tables

A1. Annual Household Income: Total and Average Income by Source

Income Source	Total Income	Avg Income
Wages &Salaries	$10,097,000	$6,565
Fruit & Vegetables	$25,000	$16
Livestock	$25,000	$16
Seafood	$208,000	$135
Homemade Produce	$100,000	$65
Handicraft	$31,000	$20
Other Business	$112,000	$73
Previous Jobs	$217,000	$141
Services Income	$14,000	$9
Benefits	$249,000	$162
Other Income	$856,000	$557
Imputed Rent	$800,000	$520
Home Produce Consumed	$732,000	$476
Home Produce Gifts Given	$322,000	$209
Gifts Received	$908,000	$590
Total Income	**$14,695,000**	**$9,555**

A2. Average Annual Household Income: Income Source by Household Size

Income Source	1-5 Persons	6-10 Persons	11-15 Persons	16-20 Persons	Total
Wages & Salary	$4,401	$7,972	$10,338	$18,146	$6,565
Fruit & Vegetables	$19	$18	$0	$0	$16
Livestock	$8	$21	$39	$0	$16
Seafood	$184	$82	$112	$0	$135
Homemade Produce	$17	$96	$185	$0	$65
Handicraft	$21	$14	$39	$0	$20
Other Business	$17	$41	$0	$4,022	$73
Previous Jobs	$142	$90	$341	$0	$141
Services	$6	$13	$12	$0	$9
Benefits	$34	$250	$451	$90	$162
Other Income	$535	$463	$941	$1,063	$556
Imputed Rent	$472	$568	$567	$600	$520
Home Produce Consumed	$461	$482	$390	$1,629	$476
Home Produce Gifts Given	$106	$383	$79	$71	$209
Gifts Received	$413	$737	$794	$1,428	$590
Population	**766**	**593**	**161**	**19**	**1538**
Total Income	**$6,837**	**$11,232**	**$14,289**	**$27,049**	**$9,555**

A3. Total Household Annual Income: Income Source by Sex of Household Head

Income Source	Male	Female	Total
Wages & Salary	$7,167,000	$2,930,000	$10,096,000
Fruit & Vegetables	$17,000	$8,000	$25,000
Livestock	$18,000	$7,000	$25,000
Seafood	$190,000	$17,000	$208,000
Homemade Produce	$63,000	$37,000	$100,000
Handicraft	$13,000	$18,000	$31,000
Other Business	$35,000	$77,000	$112,000
Previous Jobs	$51,000	$166,000	$218,000
Services	$11,000	$3,000	$14,000
Benefits	$136,000	$114,000	$249,000
Other Income	$691,000	$164,000	$856,000
Imputed Rent	$574,000	$227,000	$800,000
Home Produce Cons.	$617,000	$115,000	$732,000
Home Produce Gifts	$219,000	$103,000	$322,000
Gifts Received	$454,000	$454,000	$908,000
Population	**1077**	**461**	**1538**
Total Income	**$10,255,000**	**$4,440,000**	**$14,695,000**

A4. Average Household Annual Income: Income Source by Sex of Household Head

	Total		
Income Source	Male	Female	Total
Wages & Salary	$6,654	$6,357	$6,565
Fruit & Vegetables	$16	$18	$16
Livestock	$17	$16	$16
Seafood	$177	$38	$135
Homemade Produce	$59	$80	$65
Handicraft	$12	$40	$20
Other Business	$33	$167	$73
Previous Jobs	$48	$360	$141
Services	$10	$7	$9
Benefits	$126	$246	$162
Other Income	$642	$356	$556
Imputed Rent	$532	$492	$520
Home Produce Consumed	$573	$250	$476
Home Produce Gifts Given	$203	$224	$209
Gifts Received	$421	$984	$590
Population	**1077**	**461**	**1538**
Total Income	**$9,521**	**$9,634**	**$9,555**

A5. Total Household Annual Income: Income Source by Ethnicity

Income Source	Nauruan	Non-Nauruan	Total
Wages & Salary	$9,782,000	$314,000	$10,097,000
Fruit & Vegetables	$25,000	$0	$25,000
Livestock	$25,000	$0	$25,000
Seafood	$196,000	$12,000	$208,000
Homemade Produce	$100,000	$0	$100,000
Handicraft	$31,000	$0	$31,000
Other Business	$102,000	$10,000	$112,000
Previous Jobs	$217,000	$0	$217,000
Services	$14,000	$0	$14,000
Benefits	$249,000	$0	$249,000
Other Income	$856,000	$0	$856,000
Imputed Rent	$781,000	$19,000	$800,000
Home Produce Cons.	$702,000	$30,000	$732,000
Home Produce Gifts	$321,000	$1,000	$322,000
Gifts Received	$908,000	$0	$908,000
Population	**1468**	**70**	**1538**
Total Income	**$14,309,000**	**$386,000**	**$14,695,000**

A6. Average Household Annual Income: Income Source by Ethnicity by Sex of Household Head

	Nauruan			Non-Nauruan		
Income Source	Male	Female	Total	Male	Female	Total
Wages & Salary	$6,778	$6,407	$6,664	$20,588	$4,083	$17,464
Fruit & Vegetables	$17	$18	$17	$0	$0	$0
Livestock	$18	$16	$17	$0	$0	$0
Seafood	$176	$39	$134	$226	$0	$226
Homemade Produce	$62	$81	$68	$0	$0	$0
Handicraft	$12	$41	$21	$0	$0	$0
Other Business	$25	$170	$70	$191	$0	$191
Previous Jobs	$51	$368	$148	$0	$0	$0
Services	$11	$7	$10	$0	$0	$0
Benefits	$133	$252	$170	$0	$0	$0
Other Income	$680	$364	$583	$0	$0	$0
Imputed Rent	$548	$497	$532	$1,420	$240	$1,175
Home Produce Consumed	$577	$255	$478	$933	$0	$933
Home Produce Gifts Given	$214	$229	$219	$116	$0	$116
Gifts Received	$446	$1,006	$618	$9	$0	$9
Population	**1,017**	**451**	**1,468**	**60**	**10**	**70**
Total Income+	**$9,747**	**$9,751**	**$9,748**	**$23,484**	**$4,323**	**$20,115**

Additional Expenditure Tables

A7. Total Household Annual expenditure by expenditure broad groups

Expenditure Broad-groups	Total Annual Expenditure	Avg annual Expenditure
Food & non-alcoholic products	$5,578,000	$3,627
Gifts Given	$944,000	$614
Transport and Communications	$824,000	$536
Imputed Rent	$800,000	$520
Miscellaneous	$719,000	$468
Household Operations	$716,000	$466
Alcohol & Tobacco	$374,000	$243
Housing	$303,000	$197
Gifts Received (non-cash)	$246,000	$160
Clothing & Footwear	$193,000	$126
Population	**1,538**	
Total	**$10,700,000**	**$6,957**

A8. Household expenditure by expenditure sub-group

Groups	sub-groups	Ann Exp	Av Ann Exp	Av weekly Exp
Food & non-alcoholic products	Cereal Products	$1,910,000	$1,242	$24
	Meat & Poultry	$1,305,000	$849	$16
	Seafood	$965,000	$628	$12
	Miscellaneous	$575,000	$374	$7
	Dairy Products	$318,000	$207	$4
	Meals away from home	$223,000	$145	$3
	Fruit & Vegetables	$194,000	$126	$2
	Non-alcoholic beverage	$87,000	$57	$1
Alcohol & Tobacco	Tobacco	$284,000	$185	$4
	Alcoholic beverages	$90,000	$58	$1
Clothing & Footwear	Clothing	$181,000	$118	$2
	Footwear	$12,000	$8	$0
Housing	Household Maintenance	$283,000	$184	$4
	Rent	$20,000	$13	$0
Household Operations	Household Appliances	$282,000	$183	$4
	Household supplies	$272,000	$177	$3
	Household Bills	$116,000	$75	$1
	Household Furntiture	$46,000	$30	$1
Transport and Communications	Transportation	$814,000	$529	$10
	Communication	$11,000	$7	$0
Miscellaneous	Miscellaneous	$307,000	$200	$4
	Recreation	$207,000	$134	$3
	Personal products	$79,000	$52	$1
	Education	$67,000	$43	$1
	Health	$59,000	$39	$1
Imputed Rent	Imputed Rent	$800,000	$520	$10
Gifts Given	Gifts Given	$944,000	$614	$12
Gifts Received (non-cash)	Gifts Received (non-cash)	$246,000	$160	$3
Grand Total		**$10,700,000**	**$6,957**	**$134**

A9. Total Annual and Average Weekly household expenditure by household size

Household Size	No. Households	Annual Expenditure	Avg Weekly Expenditure
1-5 persons	766	$4,445,000	$56
6-10 persons	593	$4,639,000	$58
11+ persons	180	$1,616,000	$20
Total	**1538**	**$10,700,000**	**$134**

A10. Average annual and weekly household expenditure by sex of household head by household size

Household Size	Avg Annual Expenditure			Avg Weekly Expenditure		
	Male	Female	Total	Male	Female	Total
1-5 persons	$5,792	$5,841	$5,807	$111	$112	$112
6-10 persons	$7,674	$8,193	$7,823	$148	$158	$150
11+ persons	$9,963	$7,217	$9,001	$192	$139	$173
Total	**$6,981**	**$6,900**	**$6,957**	**$134**	**$133**	**$134**

A11. Average weekly household expenditure by income quintile by sex of household head

Income Quintile	Average weekly Expenditure		
	Male	Female	Total
Quintile 1	$71	$103	$84
Quintile 2	$98	$111	$101
Quintile 3	$122	$121	$122
Quintile 4	$142	$139	$141
Quintile 5	$235	$187	$220

A12. Average weekly household expenditure by income quintile by ethnicity of household head

Income Quintile	Average weekly Expenditure		
	Nauruan	Non-Nauruan	Total
Quintile 1	$83	$84	$84
Quintile 2	$102	$74	$101
Quintile 3	$122	$115	$122
Quintile 4	$146	$54	$141
Quintile 5	$220	$0	$220