Additional information on expenditure assumptions in Box A

***Financial Stability Report* May 2017**

Estimation of essential expenditure for existing borrowers

The analysis of existing borrowers was based on data in the Household Economic Survey. Each household's minimum essential expenditure was modelled by combining:

- an estimate of minimum spending on essential items (excluding rates and house insurance) based on the household's composition and income quartile; and
- the household's reported spending on rates and house insurance (or an estimate if this was unavailable).

Minimum expenditure estimate (excluding rates and house insurance)

The first component was calculated as follows:

- Households were grouped into 32 groups depending on their composition (the number of adults and children) and income quartile (based on gross income from regular sources).
- Within each group, the 25th percentile of total spending on regular and recurring items was taken as the estimate of minimum required expenditure on essential items for that group.
- Regular items of expenditure included food, clothing, health, transport, communication, energy, insurance (excluding house insurance), personal care, household supplies & services, and recreation (excluding holiday accommodation).
- Income quartiles were calculated separately for each household type.

Table 1 contains the estimates used for borrowers surveyed in the 2015/2016 HES.

Table 1: Annual minimum essential expenditure estimates from the 2015/2016 HES

	Income quartiles			
Composition	**1**	**2**	**3**	**4**
Single person + 0 children	$5,715	$9,755	$12,309	$18,862
Single person + 1 child	$7,358	$11,602	$11,490	$18,789
Single person + 2+ children	$10,283	$10,726	$13,977	$25,357
Couple + 0 children	$15,588	$21,247	$28,810	$37,452
Couple + 1 child	$16,650	$20,574	$28,157	$43,402
Couple + 2 children	$17,343	$26,397	$37,568	$50,031
Couple + 3+ children	$17,076	$29,758	$32,491	$52,370
Complex (e.g. multifamily)	$14,428	$20,129	$29,094	$42,627

Table 2: Income quartile boundaries (25th, 50th and 75th percentiles) used to construct the categories above (annual)

	Income quartiles		
Composition	**P25**	**P50**	**P75**
Single person + 0 children	$23,083	$35,908	$67,000
Single person + 1 child	$29,081	$42,960	$60,691
Single person + 2+ children	$35,856	$52,157	$80,917
Couple + 0 children	$48,017	$84,810	$128,978
Couple + 1 child	$71,393	$100,138	$156,872
Couple + 2 children	$75,023	$111,398	$150,170
Couple + 3+ children	$73,772	$104,946	$148,021
Complex (e.g. multifamily)	$59,964	$92,295	$132,271

The analysis in the Box also included borrowers surveyed in 2013/2014 and 2014/2015. For these years of the HES detailed expense information is unavailable. To produce expense estimates for these households, we interpolated between Table 1 and the equivalent table based on the 2012/2013 HES (for which detailed data on expenditure was available).

Rates and house insurance

Spending on rates and house insurance was not estimated as above, but was instead taken directly from each household's response to the HES. Where this information was unavailable, it was estimated by applying a ratio to the household's property value. The ratio was estimated using the data for households that did report rates and house insurance expenses. Table 3 summarises the rates and insurance expenditure in the HES data.

Table 3: Average expenditure on house insurance and rates (2015/2016 HES)

Income quartile				
1	**2**	**3**	**4**	**Total**
$2,558	$2,876	$3,134	$3,904	$3,351

Note: the income quartiles in the above table are separate to those presented in Tables 1 and 2. They are based on all home-owning mortgage borrowers in the HES sample.

Estimation of essential expenditure for recent borrowers

For the analysis of recent borrowers, the minimum essential expenditure of households in the pseudo dataset was estimated based on the estimated household income. The relationship between income and essential expenditure was estimated by applying a linear regression model to the households in the HES dataset used for the analysis of existing borrowers. In this regression, the dependent variable was the household's total estimated minimum expenditure on essential items (as described above) and the regressor was the household's gross income.

Stats NZ Disclaimer: Access to the Household Economic Survey data used in Box A was provided by Statistics New Zealand under conditions designed to give effect to the security and confidentiality provisions of the Statistics Act 1975. The results presented in this study are the work of the author, not statistics New Zealand.