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. not available for any reference period
.. not available for a specific reference period
... not applicable
0 true zero or a value rounded to zero
0^s value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
^{p} preliminary
^{r} revised
x suppressed to meet the confidentiality requirements of the *Statistics Act*
^{E} use with caution
F too unreliable to be published
* significantly different from reference category ($p < 0.05$)

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Latest Developments in the Canadian Economic Accounts

Reconciling Canadian-U.S. measures of household disposable income and household debt: Update

The Canadian System of National Accounts was recently revised to better reflect the new international System of National Accounts 2008 accounting standard. In many cases, Canada has chosen to adopt international definitions and presentations. In some cases, this has resulted in a divergence between Canadian measures of national account information and the United States (U.S.) measures. One difference concerns the measurement of household disposable income and credit market debt. There are two main reasons for the difference—the first involves the institutional units that are included in the household sector in each country, the second involves the definition of disposable income. This note provides users with a reconciliation between Canadian and U.S. measures of household disposable income, debt and the household credit market debt to disposable income ratio. It should be noted that while this note provides a closer alignment between the Canadian and U.S. measures there are differences that cannot be reconciled and therefore the results presented below represent a best effort in making the estimates as compatible as possible.

Differences due to institutional composition

In Canada, for both the measure of disposable income and credit market debt, the household sector excludes non-profit institutions serving households (NPISH) such as religious organizations, social welfare organizations and community recreation associations [1], and includes unincorporated businesses.

In the U.S., the household income data is published by the Bureau of Economic Analysis (BEA) and the household debt information is published by the U.S. Federal Reserve Board (FRB). For U.S. disposable income measure, the household sector includes both unincorporated businesses and non-profit institutions serving households whereas for U.S. measures of household credit market debt the debt of unincorporated businesses is excluded.

As a result, when comparing Canadian household disposable income and credit market debt to corresponding measures for the U.S., the disposable income and credit market debt of non-profit institutions should be added to the Canadian household measures and the credit market debt of unincorporated businesses should be added to U.S. household debt measures.

While this does align the sectors on a conceptual level it should be noted that on a practical level the NPISH sector in the U.S. is quite different than the NPISH sector in Canada. The U.S. has many private non-profit schools and hospitals and these institutions are included in the NPISH sector. In Canada there are very few private schools and hospitals and therefore the NPISH sector in Canada is much smaller, relative to the size of the household sector, than the NPISH sector in the U.S. Given the nature of the NPISHs in the U.S., their relative ability to generate income and accumulate debt is greater than that in Canada. Similarly, the relative share of the unincorporated businesses accounts in the U.S. overall production is greater than in the Canadian context.

Differences due to definition

A second difference involves the definition of disposable income in the two countries. In Canada, household disposable income is defined, as recommended by the international standard, as the sum of all incomes received by households residing in Canada, whether factor earnings from current production or net current transfers with other sectors. Factor earnings include compensation of employees, net mixed income, and net property income [2]. Net current transfers are current transfers

received from, less current transfers paid to, other sectors including the government sector, non-resident sector and NPISH sector. Transfers paid to the government sector include income tax and payments related to social security while transfers from government include employment insurance and social security benefits. This is illustrated in the following table:

Table 1
Canadian household disposable income

	2009	2010	2011
	millions of dollars		
Compensation of employees	811,425	837,706	877,318
Add: Net mixed income	139,526	145,416	152,208
Add: Property income received	149,951	150,551	157,280
Add: Current transfers received from government	154,307	160887	163130
Add: Current transfers received from NPISH	3,716	3,812	3,991
Add: Current transfers received from non-residents	2,159	2,102	2,077
Equals: Total household income	1,261,084	1,300,474	1,356,004
Subtract: Property income paid	56,144	56,086	56,430
Subtract: Current transfers to government	265,031	269,289	287,781
Subtract: Current transfers to NPISH	13,501	13,937	14,590
Subtract: Current transfers to non-residents	3,481	3,289	3,393
Equals: Household disposable income	922,927	957,873	993,810
Source: Statistics Canada			

In Canada, transactions related to pension funds are consistent with the SNA 2008 manual, while in the United States this is not the case. Currently in the U.S., pension transactions are consolidated with the household sector, and as such, the employer and employee contributions and property incomes are part of household disposable income while pension benefits are not accounted for. According to the SNA, pension contributions and property incomes earned on pensions constitute funds that are not available for current expenditure and therefore should not be included in the measurement of disposable income. In Canada, employees are shown to have received and subsequently pay their pension contributions, while retirees receive pension benefits in the form of current transfers.

In the U.S., interest on non-mortgage loan liabilities (a component of property income paid), net transfers to non-residents and government transfers other than income tax and social security payments are not subtracted before calculating household disposable income. As an aside, the U.S. does publish an annual alternative measure of U.S. household disposable income that is compatible with the Canadian (and SNA) definition, as part of a special submission it provides to the Organization for Economic Cooperation and Development (OECD). Given that this alternative measure is only available on an annual basis, this paper has taken the approach of adjusting the quarterly Canadian measure to match the quarterly U.S. measure.

Reconciling Canadian and U.S. measures of household disposable income

In order to put the Canadian measure of household disposable income on the same definitional and compositional basis as the U.S. measure the following adjustments to the Canadian measure are required:

Household disposable income
Add: Household interest paid on non-mortgage loan liabilities
Add: Household current transfers paid to non-residents, net of transfers received
from non-residents
Add: Household other current transfers paid to general governments, excluding contributions to social insurance plans
Add: NPISH disposable income
Add: NPISH interest paid on non-mortgage loan liabilities

Add: NPISH current transfers paid to non-residents, net of transfers received from non-residents
Add: NPISH current transfers paid to general governments
Equals: Canadian household disposable income adjusted to the U.S. definition

The following table shows Canadian household disposable income adjusted to the U.S. definition and composition for the years 2009-2011.

Table 2
Canadian household disposable income adjusted to the U.S. definition and composition

	2009	2010	2011
	millions of dollars		
Canadian household disposable income	922,927	957,873	993,810
Add: Household interest paid on non-mortgage loans	20,875	20,892	20,888
Add: Household current transfers paid to non-residents (net)	1,322	1,187	1,316
Add: Household other current transfers paid to general governments, excluding contributions to social insurance plans	13,937	14,417	14,822
Add: NPISH disposable income	23,730	24,735	25,122
Add: NPISH interest paid on non-mortgage loans	1,376	1,491	1,577
Add: NPISH net current transfers paid to non-residents (net)	2,023	2,198	2,217
Add: NPISH current transfers paid to general governments	2,590	2,439	2,439
Equals: Canadian household disposable income adjusted to the U.S. definition and composition	988,780	1,025,232	1,062,191
Source: Statistics Canada			

Reconciling Canada-U.S. household credit market debt

As mentioned above, the U.S. household sector balance sheet, unlike the Canadian one, includes non-profit organizations. Therefore, for consistency purposes, the Canadian NPISH credit market debt should be added to the credit market debt of Canadian households.

As noted earlier, the FRB has separate sectors for households and unincorporated enterprises (noncorporate businesses) with the balance sheet for the household sector recording the net equity position in the unincorporated enterprises they own. In order for the household credit market debt for the U.S. to have the same coverage as the BEA household measure of disposable income, the credit market debt of U.S. noncorporate businesses must be added to the U.S. household credit market debt.

The table below places the Canadian household credit market debt measure on the same compositional basis as the combined household and noncorporate business measure for U.S. household credit market debt.

Table 3
Canadian household credit market debt adjusted to the U.S. definition and composition

	2009	2010	2011
	millions of dollars		
Canadian household credit market debt	1,430,550	1,520,399	1,607,321
Add: NPISH credit market debt	7,645	8,127	8,690
Equals: Canadian household credit market debt adjusted to the U.S. definition and composition	1,438,195	1,528,526	1,616,011
Source: Statistics Canada			

As an aside, questions often arise as to the differences between total debt and credit market debt and which should be used when analyzing the household sector. The difference between total debt and credit market debt is trade credit. Trade credit, or trade payables, do not constitute marketable or negotiable instruments, as they represent short-term credit received in the ordinary course of business by buyers of goods and services – they are typically liabilities of businesses, and while there may be costs related to extending the term of payment on these short term payables, this would be an unusual method of financing and as such these costs are minimal. Since the household sector includes unincorporated businesses total debt includes trade payables but it is the general practice across countries to exclude these in defining credit market debt. Credit market debt, which for households includes consumer credit, mortgage debt, and non-mortgage loan liabilities, is a more representative measure of the debt burden which households are required to service. In both Canada and the U.S., this is the most widely used measure of debt for the household sector.

Reconciling the Canada-U.S. debt to income ratio

As a measure of leverage and debt burden relative to annual disposable income, the ratio of debt to disposable income remains a useful and closely followed indicator of households' financial strength. To fully benefit from its analytical content, the debt to disposable income ratio should be used in conjunction with additional leverage and debt servicing indicators, such as the debt service ratio. In addition, comparisons across countries are informative provided there is consistency in definitions, concepts and methodologies used.

Given that it is possible to reconcile Canadian and U.S. household disposable income and household credit market debt, it is therefore possible to construct compatible credit market debt to income ratios for the household sectors in the two countries.

While neither the BEA nor the FRB publish a U.S. credit market debt to income ratio, the formulation below corresponds to that used by most analysts:

$$\left| \frac{U.S.\ household\ credit\ market\ debt}{U.S.\ household\ disposable\ income\ (seasonally\ adjusted\ at\ annual\ rates)} \right|$$

[3]

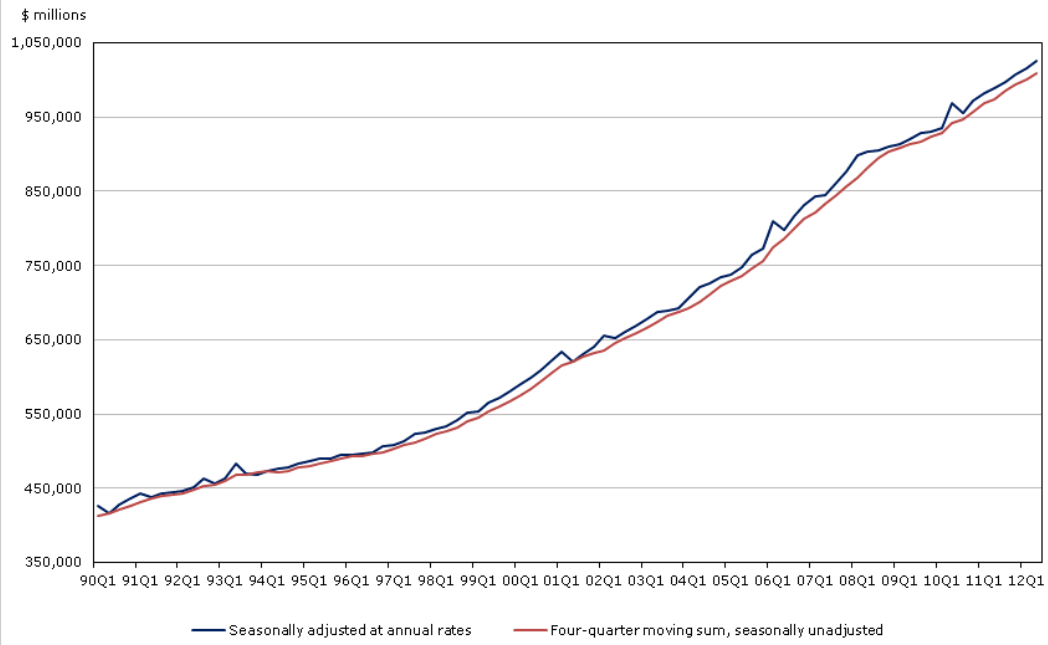
The ratio compares a flow incurred over a given time period (income) to a stock at a given point in time (debt). A monthly, quarterly or annual income measure can be chosen when constructing this ratio – as a general convention, an annual income measure is most often used. The Canadian measure uses a four-quarter cumulative sum of quarterly household disposable income to derive the annual income measure to be compared to the quarterly stock of household credit market debt.

While the Canadian measure uses the four-quarter cumulation of quarterly seasonally unadjusted household income, in the U.S. the BEA does not publish seasonally unadjusted estimates of disposable income. The measure that is most often used by analysts is the U.S. seasonally adjusted household disposable income at annual rates.

Given that household disposable income generally increases from one quarter to the next the annualized seasonally adjusted measure will generally be higher than the four-quarter moving sum of unadjusted data as it is used in the Canadian measure. As a result, the value of annualized household disposable income that enters the Canadian ratio versus the value of annualized household disposable income that enters the U.S. ratio will tend to be lower due to the difference in the annualization procedure.

This effect is clearly demonstrated in the following chart which compares the Canadian household disposable income seasonally adjusted at annual rates with the four-quarter cumulation of quarterly seasonally unadjusted Canadian household disposable income. The seasonally adjusted at annual rates series is higher than the four-quarter cumulation of the quarterly seasonally unadjusted series for most of the 1990 to 2012 period.

Chart 1
Canadian household disposable income, quarterly estimates



In order to make the Canadian household credit market debt to household disposable income ratio consistent with the way the U.S. measure is frequently constructed, the seasonally adjusted at annual rates measure of Canadian household disposable income should be used when computing the ratio.

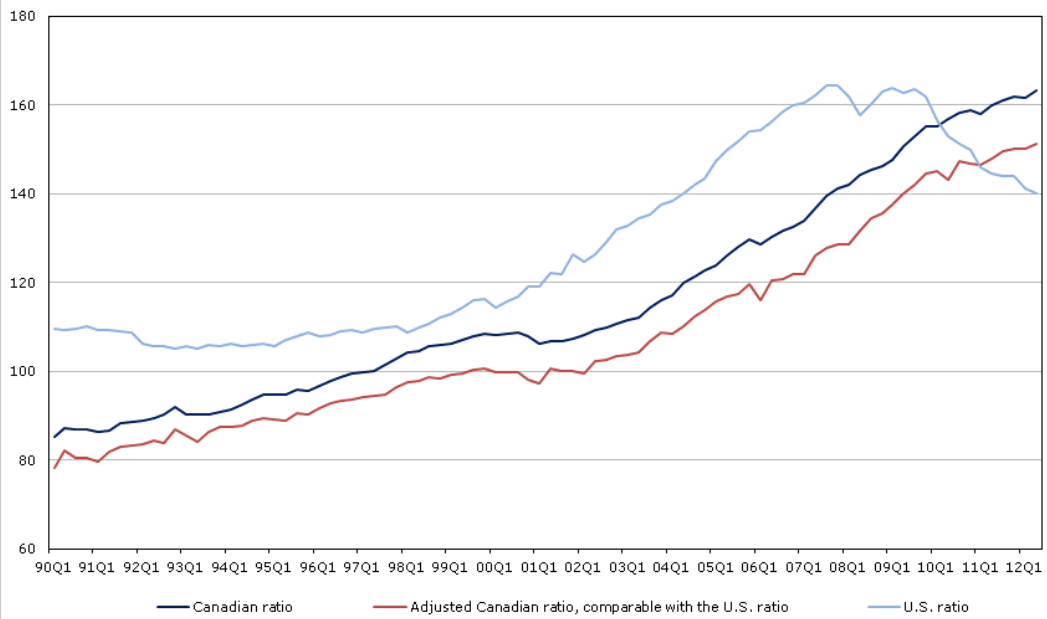
The following table and chart take the quarterly seasonally adjusted Canadian household disposable income adjusted for U.S. definitions and composition above and annualize the values, and recalculate the Canada household debt to disposable income ratio using this new adjusted measure.

Table 4
Canadian and U.S. household credit market debt to disposable income ratios

	Canadian household credit market debt adjusted to the U.S. definition and composition	Canadian household disposable income adjusted to the U.S. definition and composition (seasonally adjusted at annual rates)	Canadian household credit market debt to disposable income ratio comparable with the U.S. measure
	millions of dollars		
2009Q1	1,347,884	981,028	137.40
2009Q2	1,381,927	986,312	140.11
2009Q3	1,410,349	993,280	141.99
2009Q4	1,438,195	994,500	144.61
2010Q1	1,450,610	1,000,824	144.94
2010Q2	1,483,517	1,035,604	143.25
2010Q3	1,506,004	1,023,148	147.19
2010Q4	1,528,526	1,041,352	146.78
2011Q1	1,538,091	1,049,136	146.61
2011Q2	1,565,423	1,058,412	147.90
2011Q3	1,593,824	1,065,528	149.58
2011Q4	1,616,011	1,075,688	150.23
2012Q1	1,627,270	1,083,884	150.13
2012Q2	1,657,070	1,095,800	151.22

Source: Statistics Canada

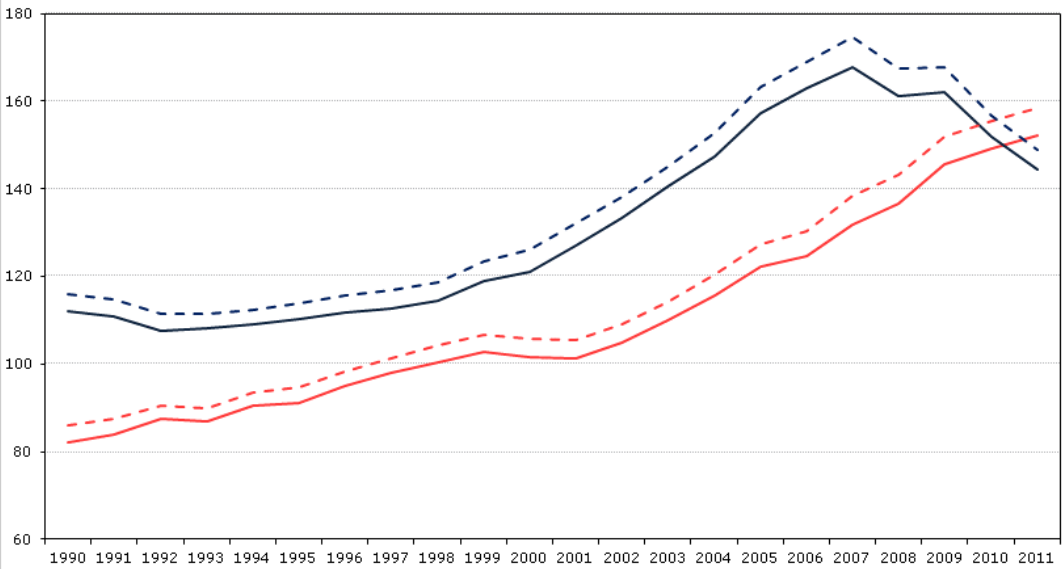
Chart 2
Household credit market debt to disposable income
– comparing Canadian and U.S. ratios



While this paper has dealt with adjusting the Canadian measures of disposable income and debt to better match the U.S. concepts and definitions, as noted earlier, the BEA does publish an alternate annual measure of U.S. disposable income consistent with the SNA definition (and new Canadian definition)[4]. Therefore it is possible to align the U.S. measure to the Canadian measure rather than the Canadian measure to the U.S. one. The drawback with this approach is the data are only available on an annual basis and the U.S. measure still includes the disposable income of non-profit institutions serving households.

The following chart provides an annual Canadian—U.S. comparison of the household credit market debt to disposable income ratio on two bases: (i) with U.S. current definitions and concepts used in the derivation of U.S. official debt and disposable income measures; and (ii) with SNA definitions and concepts, currently used in the Canadian official debt and disposable income measures but including the non-profit institutions serving households. Both approaches yield similar conclusions to the comparative analysis of trends in household credit market debt to disposable income in Canada and the U.S.

Chart 3
Household credit market debt to disposable income annual ratios – comparing Canadian and U.S. ratios derived on U.S. current basis and SNA basis [1]



1. includes Non-profit institutions serving households.

Conclusion

The intention of this note is to provide guidance to users undertaking comparative analysis of disposable income and credit market debt of the Canadian and the U.S. household sectors. Recognizing the current differences in data availability, concepts and definitions between the national accounts systems in the two countries, this note provides a way to place the Canadian disposable income and Canadian household credit market debt measures on a conceptually and definitionally consistent basis with the corresponding measures in the U.S. It should be noted that this is considered an interim solution and this note does not argue that this is a better or more representative measure. As the national accounts systems in the two countries become more harmonized and better aligned to the international national accounting standards, the adjustments suggested in this note should become redundant.

Appendix

Appendix Table
Canadian household debt to income ratio, adjusted for U.S. concepts and definitions

	Canadian household debt to income ratio, adjusted for U.S. concepts and definitions	CANSIM Vector
1	Household disposable income	V62305980
2	Add: household non-mortgage interest payments (adjusted for financial intermediation services indirectly measured)	V62306169 minus (V62700549 multiplied by 4)
3	Add: Change in pension entitlements	V105775422
4	Add: household current transfers to non-residents (net)	V62305979 minus V62305971
5	Add: household other current transfers paid to general governments, excluding contributions to social insurance plans	V62305977 minus V62305978
6	Add: non-profit institutions serving households' disposable income	V62306061
7	Add: non-profit institutions serving households' non-mortgage interest payments	V62306048
8	Add: non-profit institutions serving households' current transfers to non-residents (net)	V62306060 minus V62306055
9	Add: non-profit institutions serving households' current transfers paid to general governments	V62306059
10	Equals: household disposable income adjusted for U.S. concepts and definitions	(1) plus (2) plus (3) plus (4) plus (5) plus (6) plus (7) plus (8) plus (9)
11	Household credit market debt	V62698011

12	Add: non-profit institutions serving households' credit market debt	V62698015
13	Equals: household credit market debt adjusted for U.S. concepts and definitions	(11) plus (12)
14	Household credit market debt to disposable income ratio adjusted for U.S. concepts and defintions	(13) divided by (10)
Source: Statistics Canada		

Notes

1 In Canada, non-profit institutions serving households are recorded in a separate sector as recommended by international standards.

2 Examples of net property income include interest income received less interest income paid, royalties received on natural resources, dividends received less dividends paid.

3 The U.S. household credit market debt is derived by summing the household credit market debt and the credit market debt of the noncorporate business sector.

4 See the set of tables produced by the BEA for the Organization for Economic Cooperation and Development (OECD).