Housing Services in the National Economic Accounts

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Housing Services and Rental Income of Persons

Housing services are a component of personal consumption expenditures (PCE), and consequently part of GDP, in the national income and product accounts (NIPAs). The rental value of tenant-occupied housing and the imputed rental value of owner-occupied housing are both part of PCE housing services, reflecting the amount of money tenants spend for the service of shelter and the amount of money owner occupants would have spent had they been renting. Owner-occupied housing is included in PCE because the NIPAs treat the owner-occupant as if it were a rental business, or in other words, a landlord renting to him or herself. That is, BEA imputes a value for the services of owner-occupied housing (space rent) based on the rents charged for similar tenant-occupied housing, and this value is included in GDP as part of personal consumption expenditures. This imputation is necessary in order for GDP to be invariant when housing units shift between tenant occupancy and owner occupancy.

The income generated from housing services is used to pay expenses such as maintenance and repairs, property taxes, and mortgage interest, leaving a profit-like remainder of business income that is mostly recorded as rental income of persons in the NIPAs. (See the example for 2006 in table A below.) Rental income of persons is the net income of persons from the rental of property. It consists of the net income from the rental of tenant-occupied housing owned by persons, the imputed net income from the housing services of owner-occupied housing, and the royalty income of persons from patents, copyrights, and rights to natural resources. It does not include the net income from rental of tenant-occupied housing owned by corporations (which is included in corporate profits) or by partnerships and sole proprietors (which is included in proprietors' income). Like other measures of income in the NIPAs, rental income of persons measures income from current production and excludes capital gains or losses resulting from changes in the prices of existing assets.

For tenant-occupied property, rental income of persons is the net income of the landlord from current production. It is calculated as the output of housing services (the rental value or "space rent") less the related expenses, such as depreciation, maintenance and repairs, property taxes, and mortgage interest.

For owner-occupied property, rental income of persons is the imputed net income of the owner. It is calculated as the imputed output of housing services (space rent) less the expenses associated with owner-occupied housing, such as depreciation, maintenance and repairs, property taxes, and mortgage interest.

Estimates of space rent for tenant- and owner-occupied housing are estimated as the number of tenant-occupied (or owner-occupied) units times the average rental value (or imputed rental value). These estimates are benchmarked to units data from the decennial Census of Population and Housing and rental values from the Census Bureau's decennial Residential Finance Survey (RFS). For owner-occupied housing the average contract rent on 1-unit rental and vacant nonfarm properties, as reported in the RFS, is imputed, by property value class, to owner-occupied units, as reported in the biennial American Housing Survey (AHS). The benchmarked estimates are interpolated and extrapolated using average rents from the AHS and the Current Population Survey, consumer price indexes for rent from the Bureau of Labor Statistics, and BEA adjustments to imputed rent for quality changes to the stock of housing.

Estimates of tenant- and owner-occupied housing expenses for mortgage interest and property taxes are benchmarked to the RFS. Closing costs and maintenance and repair expenses are benchmarked to BEA's quinquennial benchmark input-output accounts. Estimates are interpolated or extrapolated between benchmark years with various annual and quarterly data sources.

For further information, detailed estimates of rental income of persons are shown in table 7.9; the relationship between housing services and rental income is shown in table 7.4.5, and the imputation of owner-occupied housing is shown in lines 133-140 of table 7.12.

Housing and Personal Saving

The NIPAs do not calculate personal saving by adding up amounts invested in individual assets such as bank accounts or mutual funds. Rather, personal saving in the NIPAs is the amount of disposable personal income left over after deducting personal consumption expenditures, personal interest expenses and net current transfer payments. Nevertheless, because uses of personal income to acquire assets are not counted as consumption and thus deducted as part of the saving calculation, they are included in personal saving. One such use of personal income is the building up of equity in residences via down payments on home purchases and repayments of mortgage principle.

Of course, in the aggregate, repayment of mortgage principle by persons need not be positive. Indeed, in recent years, net mortgage borrowing has been substantially larger than investment in residential real estate by persons. In BEA's Fixed Assets accounts for 2006, investment net of consumption of fixed capital by the personal sector in residential fixed assets is $486.5 billion. The Flow of Fund Accounts of the Federal Reserve Board provides details on the financing of this investment. They show a net increase in personal sector mortgage liabilities of $828.4 billion (see table F.100). These figures imply dissaving by persons of $341.9 billion, or 3.6 percent of disposable personal income.

Despite this dissaving, the value in current dollars of personal sector home equity rose in 2006 because capital gains on residential real estate were $1.063 trillion. Capital gains are a part of change in wealth, but they are not part of the NIPA concepts of income and saving. Capital gains are excluded from saving because they represent changes in prices of pre-existing assets and they are not a source of funding for new investment. Unlike the creation of new assets via investment, changes in price of already-existing assets do not add to economic growth.

Although investment by persons in residential fixed assets and mortgage borrowing by persons are not part of the calculation of personal saving in the NIPAs, current expenses for housing services are included in this calculation. Personal consumption expenditures in the NIPAs include explicit payments of rent by residential tenants and implicit space rent of owner-occupiers. Yet, as shown in table A, the implicit space rent and the part of the tenants' rent paid directly to persons are also included in the calculation of personal rental income. Since these amounts are included both as a consumption expense and as an income item, they have no net effect on the calculation of personal saving. On the other hand, the depreciation and cash expenses borne by owner-occupiers that are deducted from their rental income do reduce the measure of personal saving. In 2006, household owner-occupiers' expense for depreciation amounted to almost 2 percent of disposable personal income, and their cash expenditures on intermediate inputs for upkeep, maintenance and repair, on property taxes, and on mortgage interest amounted to over 8 percent of disposable personal income.

A Note on House Prices and the CPI for Shelter

Many commentators have noted that home prices have been rising faster than the detailed consumer price index for owner's equivalent rent of primary residence in recent years. The owner's equivalent rent index measures the change in the rental income foregone by a household that chooses to occupy a dwelling that it owns. This measure is used because the alternative of measuring acquisition costs of residences is conceptually inappropriate for the CPI. The CPI tracks the change in cost of living, that is, in the cost of current consumption. Yet investment considerations play a large role in acquisitions of residences. Moreover, unlike money spent on items that do not hold their value, money that is spent to acquire a residence is not "gone" in the sense that it cannot be reclaimed. Money spent on a residence usually can be recovered—often with a profit—by selling.

A rise in the price of a residence has the effect of reducing its net cost of ownership. Therefore, when capital gains are high, a low rent is adequate to make the profits from renting a housing unit equal to the interest that could be earned by selling the unit and investing the proceeds. Low interest rates also reduce the rent that is needed to make renting out the housing unit as profitable as selling it. Since capital gains on residences have been extraordinarily high in recent years, and interest rates have been low, the low rates of increase in owner's equivalence rent reflect the relatively low net cost of occupying the residence that a household owns. For more information on alternative ways of measuring changes in the cost of owner-occupied housing, see the paper on "Treatment of Owner-Occupied Housing in the CPI" by Robert Poole, Frank Ptacek, and Randal Verbrugge.

The Relationship between Housing Output and Rental Income of Persons (2006)
(Billions of dollars)

	line	Total	Owner-occupied permanent site	Tenant-occpuied permanent site	Other (incl mobile homes, and farm housing)
Output of housing services (PCE)[1]	**1**	**1306.3**	**980.3**	**270.3**	**55.7**
Less: Intermediate goods and services consumed [2]	2	268.1	197.6	62.7	7.8
Equals: Gross housing value added	3	1038.2	782.7	207.6	47.9
Less: Consumption of fixed capital (depreciation)	4	254.3	183.3	58.5	12.5
Compensaton of employees	5	13.2	….	13.2	….
Taxes on production (property taxes)	6	213.9	144.1	65.8	4.1
Net interest paid (primarily mortgage interest)	7	558.9	466.8	88.1	4.0
Net current transfer payments (insurance settlements)	8	7.8	7.0	0.8	….
Current surplus of government enterprises [3]	9	-15.5	….	-15.5	….
Less: Subsidies[4]	10	30.9	2.3	28.6	….
Equals: Net business income	11	36.4	-16.2	25.3	27.3
Less: Proprietors' income	12	7.5	….	4.6	2.9
Corporate profits	13	1.9	….	1.9	….
Equals: Rental income from housing (NIPA table 7.4.5, line 21)	14	26.9	-16.2	18.7	24.4
Plus: Royalties, rental income from nonresidential property[5], and farm nonres structures and land owned by nonoperator landlords	15	27.6	….	….	27.6
Equals: Rental income of persons (NIPA table 7.9, line 1)	**16**	**54.5**	**-16.2**	**18.7**	**52.0**
Addenda:					
Consumption of fixed capital excl. disasters	17	254.3	….	….	….
Net current transfer payments excl. disasters	18	7.8	….	….	….
Rental income of persons excl. disasters	**19**	**54.5**	….	….	….

1. Equals personal consumption expenditures for housing excluding expenditures for other housing such as hotels and motels as shown in NIPA table 2.5.5.
2. Includes expenses such as maintance and repairs, property insurance, brokers' commissions on land, closing costs, and property management fees.
3. Consists mostly of state and local housing and mortgage finance agencies.
4. Includes Section 8 housing subsides, rental assistance to rural housing, supplemental rent, and disaster relief for owner occupied housing.
5. Includes rental income of private noninsured pension plans.