

## Appendix C1

### **Construction of the Urban Living Expenditure Basket**

When a nationwide average price is not available, the arithmetic mean price across those provinces for which prices are available is used; arithmetic mean prices across provinces are only used when nationwide average prices are not available, unless otherwise noted.

All weights used in the calculation of composite prices are chosen by assumption, unless otherwise noted.

The implicit prices are based on the urban household living expenditure survey data, which for numerous products offer quantity, value, and price data, with the price data presumably obtained as residual from the quantity and value data; these implicit price data are only meaningful for homogeneous products because the data do not take into consideration quality differences within one product category.

All available quantity data on individual items could be matched with price data except the quantity data for tobacco leaves, five types of clothes which were either too general or too specific to match with prices (cotton clothing, chemical fiber clothing, nylon clothing, silk clothing, knitted pants), electric watches, electric cooking utensils, and recorders.

#### A. Consumer goods (*goumai shangpin*)

##### 1. Foods (*shipin*)

Staples: two prices can be calculated. One price is obtained implicitly, as in the rural case, from the urban living expenditure data on staples, divided by the urban quantity of staples consumed. Second, in the urban case the urban household living expenditure survey contains quantity, value, and price data on six exhaustive items within staples, across provinces. For each of the six sub-categories a nationwide average quantity can thus be priced in each province; i.e., the implicit method is not confined to overall staples, but can be extended to six sub-categories. (The published price data in the household living expenditure survey, published with two decimals, presumably are rounded unit values, obtained as value divided by quantity. Nationwide, the sum of the values of the six items in the source adds up perfectly to the total. But the sum of 'quantity times price' across the six items does not add up perfectly to the total, presumably due to rounding. The unit values were recalculated based on the value and quantity data, allowing for more decimals; with four decimals, the sum of 'quantity times prices' across the six items adds up to the total.)

Both methods, pricing the average aggregate quantity of grain and pricing each of the six sub-categories individually, yield similar results across provinces. The positive correlation coefficient of the province-specific expenditures using the two pricing methods is significant at the 0.1% level. The results of both methods are reported in the table, and the second method is used later to derive provincial prices of staples. The second method is preferable, because the implicit price of aggregate staples, when later priced in individual provinces, ignores price differences for particular grains across provinces, and thus unnecessarily eliminates price variation across provinces.

Tobacco: the retail price of tobacco is a composite retail price of first-grade cigarettes (30%), second-grade cigarettes (50%), and third-grade cigarettes (20%); the nationwide price

of third-grade cigarettes (no data available) is calculated as the arithmetic mean across all provinces for which the price is available.

Alcohol: “all other alcohol” is priced as hard liquor (*daqujiu*).

Tea leaves: see the rural case.

Beef and lamb: the quantity data on ‘beef and lamb’ is split 90%:10%.

Poultry: the price of chicken is used.

Fresh melon: fresh melon is assumed to consist of watermelon only. The nationwide price of watermelon is calculated as the arithmetic mean across all provinces for which the price is available.

Fresh fruit: the price is a composite price of apples, pears, tangerines, and bananas, giving equal weight to each fruit. The nationwide price of bananas is calculated as the arithmetic mean across all provinces for which the price is available.

Sweets: the price of one type of sweets, *suxintang* is used, because for this one product price data are later available across almost all provinces.

## 2. Clothing (*yizhuo shangpin*)

Shoes: the nationwide price of all types of shoes except cotton shoes is calculated as the corresponding arithmetic mean across all provinces for which the price is available.

The price of leather shoes is assumed to be the average of one pair of men’s and one pair of women’s leather shoes.

## 3. Articles for daily use (*riyongpin*)

In the urban case, quantity data on a few small items of daily use and a few consumer durables are available.

The nationwide prices of thermos bottles and aluminum pots are calculated as the corresponding arithmetic mean across all provinces for which the price is available.

Clock, refrigerator, desk: see the rural case.

## 4.-6. Cultural and recreational articles (*wenhua yule yongpin*); books, newspapers, magazines (*shubaozazhi*); and other goods (*qita shangpin*)

No quantity data are available. The price variation across provinces is assumed to be the same as in the case of the articles for daily use.

## 5. Medicine and medical articles (*yao ji yiliao yongpin*)

See the rural case of medicine and hygiene.

## 6. Construction materials/ housing (*jianzhu cailiao*)

No quantity data on construction materials are available. The item construction materials (housing) in the urban living expenditure survey is divided by the urban household buildings construction costs per square meter to obtain the nationwide average amount of square meters that are later to be priced in every province; the adjustment factor, thus, equals unity by design. The construction costs per square meter of new urban household buildings of 173.66 yuan per square meter are obtained by dividing 1990 urban per capita household “investment in building construction” by the in 1990 completed square meters of urban household buildings. Nationwide (but not at the provincial level), the value of investment in urban *housing*, rather than all urban household *buildings*, is also available; it is 169.92 yuan/sqm instead of 173.66 yuan/sqm; newly completed urban housing in 1990 accounted for 90.42% of newly completed urban household buildings. Given the facts that the vast majority of newly completed urban household buildings are for housing and that the nationwide per square meter costs are almost equal, using urban household building construction costs rather

than urban household housing construction costs should not make any difference to relative values of the basket across provinces; it would affect the relative values only if the ratio of the two price were significantly different across provinces.

#### 7. Energy (*ranliao*)

Quantity data are available for coal and gas. With gas being a separate item in the service category, energy expenditures are taken to imply the purchase of coal. The available coal price is the one for *fengwomei*. Also see notes for the rural case.

The nationwide price of coal is the arithmetic mean of the price of coal across those 29 provincial capitals for which the price of coal is available.

#### B. Services (*fei shangpin*)

Gas (*meiqifei*). The nationwide price of one kg of liquefied petroleum gas is the arithmetic mean across all provinces for which the price is available (0.7352 yuan/kg). A separate nationwide price is available (1.505 yuan/kg) but does not appear credible because only two provincial capitals have a price above 1.505 yuan/kg (1.528 in Huhehaote, and 2.600 in Haikou), while all other provincial capitals have lower prices (data on five provincial capitals are missing).

No price data are available for “all other services.” These comprise rent (with living expenditures of 9.43 yuan per capita), water (3.68), electricity (16.13), transportation (within city: 3.70, other: 9.82), post and telecommunications (1.79), health care (6.02), education (28.33), child care (5.23), culture and recreation (4.53), repair services (24.8), and other services (12.02).

The prices of these services are proxied by the price of urban labor, which in turn is proxied by the average wage of industrial staff and workers in 467 cities nationwide (2278.20 yuan). The nationwide average urban living expenditures in 1990 on services corresponded to 5.5074% of the average wage of staff and workers in industrial enterprises with data covering 467 cities nationwide. This 0.055074 urban person labor-year then is priced in each province using the provincial-level price of labor (average wage of industrial staff and workers across the cities in the particular province, where the average wage is obtained by dividing the total industrial enterprise staff and worker wage bill in the province by the number of industrial enterprise staff and workers).