

THE PATTERN OF HOUSEHOLD SAVINGS DURING A
HYPERINFLATION: THE CASE OF URBAN CHINA
IN THE LATE 1980s

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This paper presents evidence on household savings in urban regions of the Chinese provinces Sichuan and Liaoning, based on data from the State Statistical Bureau's Urban Household Survey for the late 1980s. In this period the Chinese economy was subject to extensive reforms that resulted in rapid economic growth followed by extremely high inflation. The high inflation rates gave the households strong motives to switch from financial savings to purchase of consumer durables, which also appear to be consistent with the structure of the observed data. By providing empirical evidence on the relative importance of savings by lower, middle and upper income groups for single-child families and for all households, this study also discusses whether savings decisions depend on the level of household income. Single-child families are focused, not only because of their growing dominance in the current Chinese society, but also to control for the effect of demographic disparities.

1. INTRODUCTION

It is conventional wisdom that the 1980s have been a period of economic reforms and rapid growth in China. However, few people have realized the importance role savings, and private sector savings in particular, have played during this process. In fact, China has been among the top savers ever since the 1970s, with an average savings rate of around 35 percent for the past quarter of the century. According to a recent World Economic Outlook (International Monetary Fund, 1995) China might have overtaken the United States and Japan as the largest saver already by 1993, contributing to as much as 16 percent of total world savings on the Purchasing Power Parity (PPP) basis.¹

One important aspect of the economic reform in China is the structural shift from public sector saving to the private sector saving while the total domestic savings rate has remained largely unchanged. This fact clearly indicates the ever-growing importance of understanding household savings for studies of the Chinese economy. However, very few studies on household savings in China have been published so far. The few exceptions are Pudney (1993), who used a non-parametric

Note: We would like to thank Erling Holmøy and two referees for very helpful comments and the State Statistical Bureau of China for providing us with detailed income, expenditure and financial savings data from the provinces of Liaoning and Sichuan.

¹Some recent studies, including those by IMF and World Bank, have suggested that China's per capita GNP might be four to eight times higher on PPP basis than that indicated by its official exchange rate.

approach to test the life-cycle hypothesis for China, and Qian (1988), who studied the household savings behavior in China during the period 1955–83, applying aggregate time-series data.

This study uses micro-data from the State Statistical Bureau's Urban Household Survey (UHS) for the period 1986–90 to examine savings behavior of urban households in the Chinese provinces Sichuan and Liaoning during the late 1980s. This period captures the early stage of economic reforms in the urban regions, which the government decided to introduce in late 1984 after the rural reform was declared a huge success. Moreover, roughly regarded it may also be considered as a complete economic cycle. The years 1986, 1987 and 1990 were more or less "normal," with low inflation and a sustainable growth rate in GNP. For the two years in between, the economy was clearly overheating.

Liaoning is a coastal province in the northeast of China, which had a population of 40 million people in 1990. Liaoning is characterized by a relatively high degree of industrialization and urbanization. Approximately two fifths of its population live in urban regions which include four out of thirty cities in China with more than one million non-agricultural residents. The more heavily populated southwestern province of Sichuan has a relatively low degree of urbanization. Only two of the cities have a non-agricultural population over one million, whilst the remaining twenty-four cities are medium-sized or small.²

The micro-data we have does not allow us to study the direct link between household savings and economic growth. However, it may still help us to get a better understanding of the savings behavior of Chinese households. In this paper we will seek to answer the following questions:

- (1) What are the relationships between the rapid wealth accumulation and the private savings in the late 1980s?
- (2) What are the motives behind the relatively high levels of household savings in urban China?
- (3) How do consumers react to changes in inflation?
- (4) Do savings decisions depend on household income? Since household savings behavior may depend on the income level and the household's relative position in the income distribution, we explore the relative importance of savings by lower, middle and upper income groups.³

This paper is organized as follows. Section 2 describes the economic reforms and the macro-economic facts that serve as a background for the empirical work. Section 3 discusses the data and the definition and measurement of savings, and provides a descriptive analysis of savings. We first present cross-sectional evidence of the pattern of savings. The sub-sample of couples with a single child, which accounts for half of our sample, is used to control for the impact of demographic factors on savings. We then turn to the financing of purchases of durables and explore different motives for savings. Section 4 summarizes the paper and discusses briefly whether the high savings rate in China is likely to be maintained in the future.

²The city of Chongqing and its surrounding areas were promoted to the status of a municipality directly under the central government in 1997.

³On this issue see Cole, Mailath, and Postlewaite (1992).

2. MACROECONOMIC CONDITIONS AND ECONOMIC REFORMS

Since the People's Republic was founded in 1949, the Chinese authorities adopted the Stalinist style development strategy, which gave top priority to the establishment of heavy industry, partially because of defence concerns. As a result, a predominant proportion of national savings was carried out by the sector of modern industry before economic reforms. The net financial surplus generated by the modern industry in the form of profits and taxes accounted for nearly 80 percent of the national financial savings and 25.4 percent of GNP in 1978. On the other hand, household financial saving amounted to merely 1.3 percent of GNP for the same year⁴ and the possession of durable consumer goods stayed at a very low level as a predictable consequence of the "low wage, low consumption" policy. The "Big Three" consumer durables in the 1970s were wristwatches, bicycles and sewing machines, all of which were rationed by "industrial coupons."

The economic reforms in China began in 1979, with the implementation of the "Household Responsibility System" in rural areas. The de-collectivized agriculture sector immediately witnessed an impressive growth, at 6.6 percent per annum during the period 1979–1985, contributing to almost half the acceleration in the annual growth rate of 9.5 percent in GNP for the same period. Encouraged by the remarkable achievements in rural reforms, the central government decided to implement urban and industrial reforms from 1984. However, the urban reform process turned out to be far more intractable and less successful, and has been marked by a cycle of boom and bust.

TABLE 1
PRICE INDEXES AND GNP GROWTH, 1986–90
(Percentage Change from Year to Year)

Year	Overall Residents Cost of Living Indexes		Urban Retail Price Indexes	GNP Growth
	Sichuan	Liaoning		
1986	4.8	7.0	7.0	8.1
1987	7.6	8.8	9.1	11.1
1988	19.9	19.3	21.3	11.1
1989	19.8	18.2	16.0	4.3
1990	3.8	3.3	0.2	4.0

Source: UHS and SYC 1991, pp. 223–5.

Table 1 presents various price indices and GNP growth rates during 1986–90. The first two columns will be used to convert current prices into fixed prices later in this paper. The year 1985 registered an explosive growth in price levels in urban areas, 12.2 percent higher than in the preceding year as measured by the urban overall retail price index. This is virtually a historic high since the "three years of hardship" (1960–62). Faced with public discontent, the central government⁵ had to pursue a stabilization policy to bring down the inflation rate

⁴It has always been difficult to decompose total domestic savings in China into government savings, business savings and household savings, due to the different national account practice.

⁵The People's Bank of China was not given the role of a central bank until the early 1980s. During our sample period, it was still more like a *de facto* accounting subsidiary of the government rather than an independent central bank (see Yu, 1997).

by reining in investment. As a result, the urban inflation rate fell remarkably to 7.0 percent in 1986 while GNP growth dropped to just over 8 percent from over 11 percent in the previous two years. However, the control over credit was soon relaxed and inflation recurred just a year later. Although the coupon system was reintroduced for major non-staples in provincial capitals and other large cities to curb inflation pressures in September 1987, the urban inflation rate still reached 9.1 percent on an annual basis. The demand pressures continued to build up in the first half of 1988, pushing the economy to the limits of its productive potential. At the same time, local authorities went ahead with price reforms by raising the price of meat, vegetables, eggs and sugar in succession while granting price subsidies directly to the urban consumers. Despite the overheated economy, the central authorities announced in June 1988 plans for a comprehensive price reform. Inflation soared as consumers switched in panic from financial assets into durable consumer goods. For 1988 as a whole, the urban inflation rate went as high as 21.3 percent. Faced with this crisis, the central government adopted a series of stabilization measures, which was implemented in its full rigor only in June 1989 after the change in the political leadership. But the inflation rate remained high in 1989, at 16.0 percent per annum. The anti-inflation policies finally succeeded in reducing annual inflation to 0.2 percent as measured by the urban retail price index in 1990. But they have also sharply lowered growth rates in GNP, from 11.1 percent in both 1987 and 1988, to 4.3 percent and 4.0 percent in 1989 and 1990 respectively.

After being frozen for a decade during the Cultural Revolution (1966–76), the wages of staff and workers were substantially increased to provide better

TABLE 2
AVERAGE ANNUAL WAGE OF STAFF AND WORKERS AND URBAN SAVINGS DEPOSITS

Year	Average Annual Nominal Wage (Yuan)		Real Wage Index (1978 = 100)		Year-end Urban Savings Deposit Value Index	
	State-owned	Collective	State-owned	Collective	(Bill y)	(1978 = 100)
1978	644	506	100.0	100.0	15.5	100.0
1985	1213	967	140.4	142.5	105.8	682.6
1986	1414	1092	152.9	150.3	147.2	949.7
1987	1546	1207	153.7	152.7	206.8	1334.2
1988	1853	1426	152.6	149.5	265.9	1715.5
1989	2055	1557	145.6	140.4	373.5	2409.7
1990	2284	1681	159.8	149.6	519.3	3350.3

incentives. As demonstrated by Table 2, the average annual real wages for staff and workers were raised by 60 and 50 percent during the period 1978–90, in state and collective owned work units respectively. In the mean time, family sizes have steadily decreased due to the introduction of the one-child policy. Great efforts have also been made to secure employment for the “baby boomers” that were born in the 1960s and were entering the labor market during this period. As a result, the urban dependency rate, as measured by dependents per urban employee, dropped from 106 percent to about 77 percent between 1978 and 1990. Accordingly, urban household savings grew at a phenomenal speed. The total

urban savings deposits by the end of 1990 were 33.5 times higher than twelve years before. This corresponds to an annual increase of 25.4 percent in real terms.

However, the most remarkable change took place in the field of household possession of consumer durable goods. Table 3 indicates the changes in the urban

TABLE 3
URBAN HOUSEHOLD POSSESSION OF SELECTED DURABLE CONSUMER GOODS
IN SICHUAN
(Per 100 Households)

	1980	1985	1988	1990
Electric fans	16.97	79.36	126.20	156.45
Black and white TV	10.91	59.94	53.09	45.71
Recorders	4.26	37.08	59.95	66.15
Cameras	0.77	8.61	18.52	22.46
Washing machines	0.06	49.46	73.81	80.52
Refrigerators	0.03	5.80	28.74	49.02
Color TV	0.03	17.78	46.24	63.46

Source: *Sichuan Tongji Nianjian* (Statistical Yearbook of Sichuan), 1991, p. 519.

household possession of selected durable consumer⁶ goods throughout the 1980s for Sichuan province, which constitutes part of our sample. Modern electric appliances such as refrigerators and color TV sets were virtually non-existent in 1980. By 1985, the year before our sample started, every 100 urban households in Sichuan owned forty-nine washing machines, six refrigerators and eighteen color TV sets. By the time our sample period ended five years later, it has reached a staggering level of eighty-one washing machines, forty-nine refrigerators and sixty-three color TV sets.

3. EMPIRICAL ANALYSIS

3.1. *Sample Method and Data Quality*

The data used in this paper are from the Urban Household Survey (UHS) of the Chinese provinces Sichuan and Liaoning and cover the period 1986–90. The UHS is a comprehensive household survey based on complete annual accounts of incomes and expenditures of a large number of non-agricultural households with additional information about family structure, dwelling, ownership of durable goods, etc., for each household. The sampling population comprised 140 million people in 1988 with urban non-agricultural *hukou* (household registration).⁷ The sampling procedure of UHS can be best described as a

⁶All of these consumer durables were counted for the first time in 1980. Before that, official statistics were only available for bicycles, sewing machines, radios and wrist watches.

⁷The *hukou* system in China was originated from the occupational division in the 1950s, and still has a huge impact on people's everyday lives today. This dual classification of agricultural and non-agricultural *hukou* registration was designed to set up and maintain social control, and in particular to block rural–urban migration in the pre-reform era. An urban *hukou* registration gives its holder accessibility to many state-provided benefits and opportunities, ranging from rationed food supply to primary and secondary education. Many types of urban jobs are still reserved for local *hukou* holders only, even in the present time of reforms. *Hukou* registration place and status were inherited from a person's mother until 1998 and conversion of *hukou* status has always been strictly controlled. For a full account of the *hukou* system in relation to rural–urban migration in post-1949 China, see Chan and Zhang (1999).

multi-stage stratified systematic sample. A one-time sample of about 150,000 households is established, to serve as the basis for annual sampling. The sample of households is selected by adopting a two-stage sampling design. At each stage stratified systematic sampling is used. In the first stage, the State Statistical Bureau (SSB) and provincial statistical bureaus select a sample of cities and county towns. The cities and county towns are according to the size of their non-agricultural populations selected by means of a systematic sampling procedure. In the second stage 100 households are selected randomly from each selected city and county town. In addition to providing daily income and consumption accounts, the selected households are every month asked questions about household size and composition, and education and employment status of the household members. For information on the history of the UHS we refer to Bjerkholt and Zhu (1993).

In order to reduce non-response and the extent of measurement errors, the Urban Household Survey has been based on a rotation sample since 1988. The rotation proportion is 1/3 and the rotation period is one year. Unfortunately, SSB does not publish information on non-response rates, but the Survey officials report very high response rates due to extensive supervision by the local household survey divisions and a comprehensive set of instructions for Survey officials. These instructions deal with the Survey officials' behavior during the field operations. They are, for instance, instructed to assist the selected households with homework and childcare and otherwise comply with the households' customs. Note that Survey officials will revisit selected households who initially refuse to participate in order to convince them about the importance of their participation.

It turns out that the UHS does not include households who are temporarily living and working in urban areas without urban registration. According to Howes (1993) this floating population may account for as much as 20 percent of the urban population. Hussain, Lanjouw, and Stern (1991) found by cross checking that the UHS 1986 is significantly biased in favor of the employees in state-owned units. In our sample very few households comprise self-employed persons or wage earners in foreign enterprises and joint ventures, which indicate similar biases as reported by Hussain *et al.* (1991). Since this group of wage earners and self-employed persons probably earn considerably more than employees in state-owned and collective-owned work units the overall level of savings may be downward biased. However, lack of relevant data prevent us from assessing the overall effect of these possible biases. Thus, for the moment we should primarily bear in mind that the results of this paper solely concern the non-floating urban households who mainly make their living from work in the state sector. Note, however, that the private sector merely accounted for 3.5 and 4.5 percent of the urban labor force at the end of 1985 and 1989, respectively (see *Statistical Yearbook of China*, 1990, p. 119).

A household is defined as including all persons living in the same dwelling and having common board. The main income variable of the UHS, total annual household income, includes all cash income received by the household during the year, but excludes all non-cash benefits. The predominant source of cash income in urban areas is wage earnings by employment in the state or collective sector. Other important sources comprise subsidies, pensions, income from secondary

employment and income from self-employment. For further details of the income data we refer to Aaberge and Li (1997) who studied the trend in urban income inequality in the late 1980s.

Note that most of the non-floating urban households enjoy housing subsidies. The reported amounts, however, merely comprise rental housing which do not reflect the “market” value of housing. As is apparent from the UHS definition of household income, other types of non-cash benefits from employment are also disregarded. It is, for instance, well known that state-owned work units regularly offer commodities and services at prices below the market price. The common practice of providing price subsidies through the system of ration coupons has, however, gradually been abolished in the second half of the 1980s. As an alternative to the coupon system the government has introduced direct price subsidies, which is measured by the UHS as transfer income. Thus, the underreporting of the benefits from ration coupons has diminished during the late 1980s.

Various observers have noted that most Chinese surveys suffer from lack of non-cash income data. The National Income Household Survey 1988 is, however, a notable exception. Based on data from this survey, Khan *et al.* (1991) are able to account for various non-cash income sources. By comparing the standard SSB figures with those reported by Khan *et al.* (1991), Howes (1993) found that the non-cash income on average amounts to approximately half of the reported cash income. About 50 percent of this difference is due to the imputed “market” value of housing. The impact on income inequality from disregarding non-cash incomes was examined by Khan *et al.* (1991) who found that the overall effect of non-cash income slightly increased urban income inequality. It is important to bear in mind the indicated weaknesses when interpreting the UHS data. Nevertheless, it should be noted that the American and European income and expenditure surveys suffer from similar deficiencies.

3.2. *Measurement of Savings*

As elsewhere, savings are not measured directly in the UHS in China. The construction of savings data and its composition in this paper is based on the following identity:

$$\begin{aligned} \text{Spot Cash (year beginning)} + \text{Income} + \text{Net reduction in the stock of financial assets} \\ = \text{Expenditure} + \text{Net increases in the stock of financial assets} \\ + \text{Spot Cash (year-end)} \end{aligned}$$

Therefore:

$$\begin{aligned} \text{Savings} &= \text{Income} - \text{Expenditure} \\ &= \text{Net increases in the stock of spot cash} \\ &\quad + \text{Net change in the stock of financial assets} \\ &= \text{Net increases in cash} + \text{Net increases in bank deposits} \\ &\quad + \text{Net increases in cooperative saving fund} \\ &\quad + \text{Net increases in repayments of loans (i.e. net reduction in debt)} \\ &\quad + \text{Net increases in lending} + \text{net increases in other forms of savings} \end{aligned}$$

The term “financial savings,” or “savings” for short, is defined as the difference between annual income and annual expenditure. Thus, savings and dissavings can

be further decomposed into increases in the stock of spot cash and increases in the stock of financial assets of various categories (the results are displayed in Figure 5). Note that there is no direct measure of wealth in the UHS and thus the word saving should only mean the flow in this paper.

The increased importance of costly consumer durables in urban China in the 1980s is closely related to the structural shift in private savings. Thus, it seems to be more economically meaningful to treat durable purchases as closer substitutes for savings than for consumption. Moreover, theoretical models of consumption and saving behavior are normally stated in terms of the consumption-of-service flows rather than consumption expenditures. Therefore it appears appropriate to consider net investment in consumer durables as saving. Unfortunately we know virtually nothing about the depreciation of durables in UHS. One way to get around this measurement problem in this paper is to use the concept of gross saving, the sum of financial savings and expenditures on consumer durables, which is analogous to Clements' (1985) favored saving series based on the new System of National Accounts data. Moreover, when inflation is expected to hold on in the foreseeable future, consumers may expect capital gains by speeding up purchases of consumer durables. It is not inconceivable that the capital gains and depreciation can more or less offset each other and hence largely eliminate the bias caused by using this gross saving concept.

3.3. *General Patterns of Savings and Acquisition of Durables*

The life-cycle hypothesis suggests that an individual's propensity to save varies with age in such a way that the life-cycle comprises a low-income, low-wealth phase in early adulthood, followed by rising earnings and wealth accumulation in mid-life, and completed by a phase of low income and dissavings in retirement. Although longitudinal data are required for testing the life-cycle hypothesis, cross-sectional data may be used as a basis for examining whether the age-profile of the savings pattern is consistent with the life-cycle hypothesis.⁸ Table 4 presents savings-income ratios and expenditure on durables-income ratios, as well as size of households by the age of head of households for Liaoning province. Sichuan province displays an almost identical pattern, and is thus left out.

First, there is a lot of variation in the savings rates over time. This certainly reflects consumers' reaction to the outbreak of inflation in this period, but a cohort effect may also be partly to blame. It is clear that the age-income profile is far from smooth, especially for people around 35. This presumably reflects the adverse effect of the "Cultural Revolution" on people's education and hence earning capacities later on. Without panel data, it is simply not possible to separate out these two effects.

Second, there is some evidence of life-cycle savings, if we look at financial savings alone. In a normal year like 1990, people do not start to save seriously (savings rate over 5 percent) until their late-forties. The savings rate then stays relatively high until the heads of the households reach their mid-fifties. It begins

⁸For a discussion of these issues, see the survey of Hurd (1990).

TABLE 4
SAVINGS-INCOME RATIOS AND EXPENDITURE ON DURABLES-INCOME RATIOS BY THE AGE OF
THE HEAD OF THE HOUSEHOLD IN LIAONING, 1986-1990
(Percent and RMB Values in 1990 Yuan)

Age of Head of Household		Year				
		1986 (n = 599)	1987 (n = 600)	1988 (n = 599)	1989 (n = 599)	1990 (n = 597)
30 or under	Pct. of pop.	13.4	17.5	15.7	11.4	9.7
	Saving/income	-0.2	-0.5	-5.6	-2.0	-2.5
	Exp. dur./income	12.9	15.3	22.7	16.2	18.2
	Mean income	2864	3893	4151	4228	5280
	Household size	3.46	3.41	3.30	3.14	3.12
31-35	Pct. of pop.	23.2	24.8	19.4	21.5	20.6
	Saving/income	-0.5	1.0	-5.9	-5.7	-3.9
	Exp. dur./income	15.1	14.7	23.9	22.1	14.7
	Mean income	2816	3503	4177	4472	5089
	Household size	3.43	3.26	3.10	3.05	3.05
36-40	Pct. of pop.	21.9	18.0	21.2	21.9	25.8
	Saving/income	2.7	-4.1	-9.2	-1.8	3.1
	Exp. dur./income	12.0	18.0	22.9	18.1	12.1
	Mean income	3117	3370	4360	4713	5452
	Household size	3.93	3.29	3.31	3.18	3.17
41-45	Pct. of pop.	14.5	13.0	10.7	15.0	15.2
	Saving/income	5.6	7.5	-3.5	-1.8	3.1
	Exp. dur./income	7.5	8.8	19.2	15.8	12.4
	Mean income	3511	4115	5230	5550	6199
	Household size	4.40	4.26	4.05	3.96	3.79
46-50	Pct. of pop.	11.0	12.2	13.2	11.5	11.2
	Saving/income	8.9	3.9	-7.9	8.2	8.9
	Exp. dur./income	8.4	12.3	20.5	12.7	9.6
	Mean income	4227	4891	5570	6173	6742
	Household size	4.73	4.29	3.94	3.94	3.88
51-55	Pct. of pop.	7.8	6.2	6.8	8.7	7.2
	Saving/income	2.8	-1.3	0.6	6.6	5.9
	Exp. dur./income	11.2	12.5	16.4	10.1	10.3
	Mean income	3993	4989	6051	6745	7006
	Household size	4.26	3.81	3.98	4.09	3.73
56-60	Pct. of pop.	2.7	4.3	6.5	4.7	4.0
	Saving/income	15.8	9.7	-1.6	6.3	3.9
	Exp. dur./income	6.4	11.9	19.1	11.4	15.5
	Mean income	3897	4312	4961	5648	6926
	Household size	3.44	3.04	3.33	3.11	3.53
61-70	Pct. of pop.	4.3	2.3	5.0	4.0	4.0
	Saving/income	14.4	7.8	-7.7	-1.5	3.9
	Exp. dur./income	4.5	7.5	16.4	11.7	1.6
	Mean income	2578	3016	2999	3549	4127
	Household size	3.42	2.50	2.53	2.65	2.39
71 +	Pct. of pop.	1.2	1.7	1.5	1.3	2.2
	Saving/income	0.6	-0.6	5.0	-7.3	8.7
	Exp. dur./income	2.0	6.3	0.0	13.4	0.7
	Mean income	1729	2094	2423	3101	3159
	Household size	2.29	2.60	2.44	2.49	2.46

to fall with retirement, but still remains positive for the rest of the life cycle.⁹ It is clear that people over 60 had significantly lower income. This is not surprising, as a retired worker usually receives a pension that ranges from 60 to 75 percent of his final wage according to his length of service (see Yue, 1985), plus some price subsidies which often lags behind the pace of inflation. Moreover, more and more pensioners are living on their own as indicated by the sharp decline in average household size.

Third, there is a strong negative correlation between savings and purchases of durables throughout the life-cycle and over the years. Younger families, which make up over 55 percent of the population if we just include households headed by a person under 40 year old, and over 70 percent when we increase the threshold to 45, on average spend a much larger share of their income on purchases of consumer durables than the older families, and as a result have very little financial savings. This seems to suggest that target savings for purchases of consumer durables could be very important, as least for the younger households. If target savings is the single most important motive for young cohorts, then savings and dissavings will tend to offset each other when individual households are aggregated. In contrast, middle-aged cohorts spend much less on durables although

TABLE 5
OWNERSHIP OF MAJOR DURABLES IN 1990 BY HOUSEHOLD TYPES
(Percent)

	Sichuan		Liaoning	
	Single Child Families	Others	Single Child Families	Others
Bicycles	53.3	43.9	89.8	87.6
Electric fans	100.0	95.2	51.1	29.6
Washing machines	87.4	78.9	84.5	77.0
Refrigerators	76.4	62.7	69.3	48.5
Color TV	74.4	68.4	76.8	60.9
Stereo recorders	42.2	27.1	39.3	26.6
Cameras	25.6	27.4	32.2	23.4
Sewing machines	57.8	64.4	40.6	74.8
Black and white TV	35.2	47.9	35.3	60.2
Mono recorders	32.2	42.2	35.6	39.8
Age of head of household	38.0	51.0	35.8	48.5
Per capita household income	1646	1748	1736	1730

their income is 20–30 percent higher. Table 5 demonstrates that this is not a result of high initial stock of durables for this older group since couples with one child, by far the most important type of younger family (see section 3.4), have a higher ownership level of most durables than others. The high savings rate may well reflect motives other than target savings, such as children's education cost, supplements for the future public pension, and perhaps most important, children's wedding expenditures.

⁹The official retirement age in China is 60 for male workers, 55 for female white-collar workers and 50 for female blue-collar workers.

The estimates for savings of pensioners may be less reliable, as relatively few households fall into these cohorts. The small but positive savings may be best explained by a strong precautionary motive.

Our findings seem to suggest that target savings for purchases of durables might be much more important than life-cycle savings, at least for the majority of younger families. This result emphasizes the importance of taking the dynamic aspects of the Chinese economy into account when testing the life-cycle hypothesis on Chinese household data. In an economy where real wage and real per capita consumption grew by an average of 4.0 and 5.8 percent per annum in urban areas for more than one and a half decades, it is hard to imagine that consumers will not form rational expectations about that increase in their future income and adjust their consumption and savings behavior accordingly.

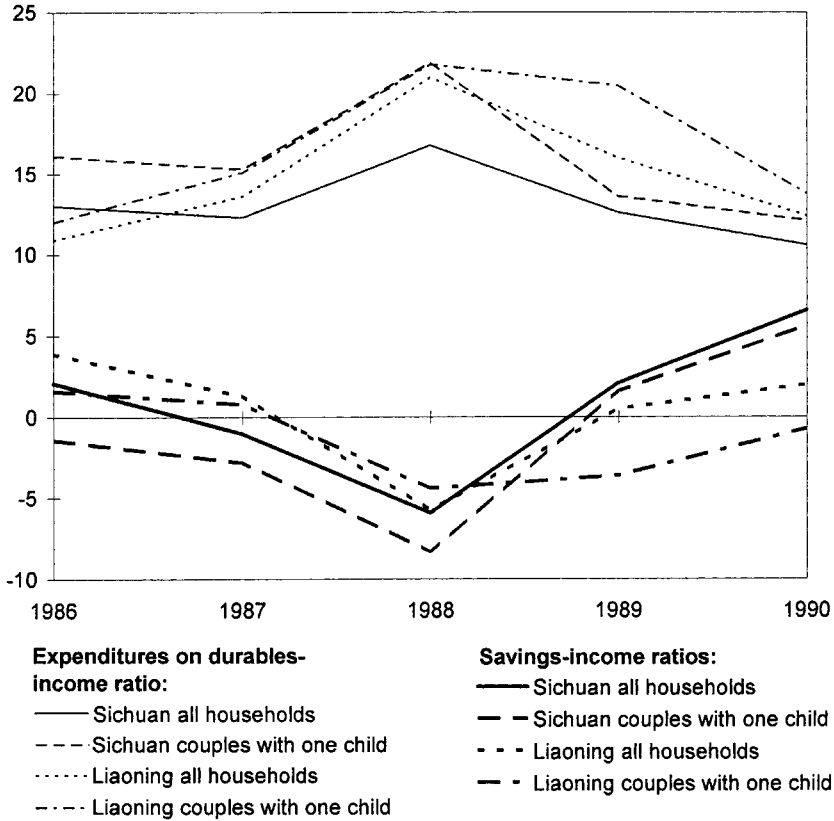


Figure 1. Mean Savings-Income Ratios and Expenditure on Durables-Income Ratios for Various Household Groups in Sichuan and Liaoning, 1986-90, Percent

Figure 1 shows the time series of savings and the expenditure on durable goods as shares of total annual household incomes for both provinces. The savings rate for both Sichuan and Liaoning fluctuated around zero percent. The expenditure on income ratio for Sichuan fluctuated between 12 and 17 percent while Liaoning, the province with higher mean household income, displayed a

similar pattern but its expenditure on durables as a share of income was always a few percentage points higher. It is also obvious that savings and purchases of durables are strongly negatively correlated. It seems to suggest that purchase of durable goods is to a large extent financed by savings from previous years. Moreover, savings dropped abruptly while expenditure on durables peaked in 1988 when inflation hit the highest level.

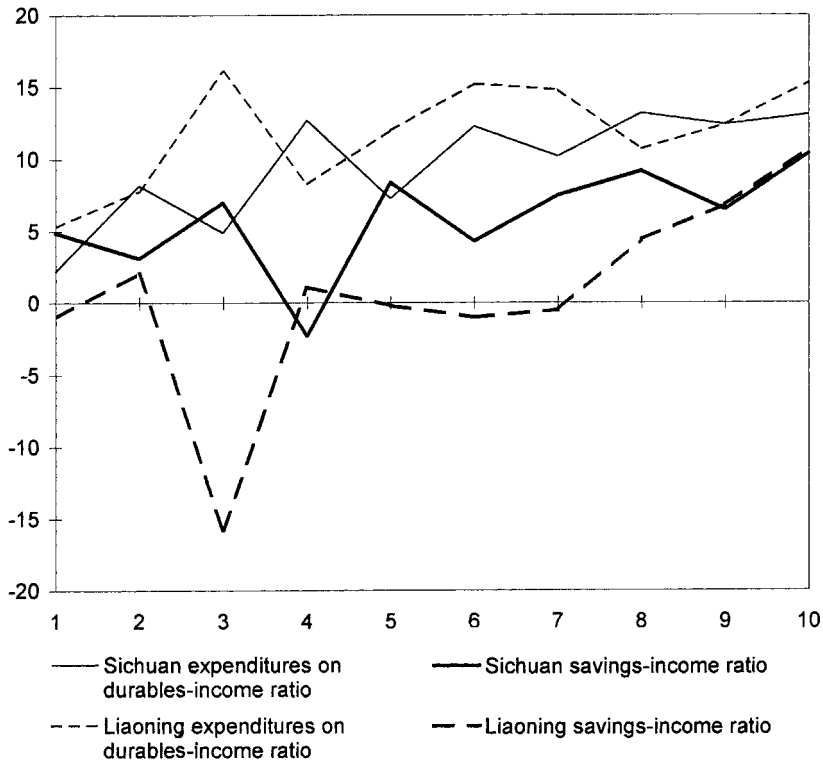


Figure 2. Savings-Income Ratios and Expenditure on Durables-Income Ratios by Income Decile Groups for all Households in Sichuan and Liaoning, 1990, Percent

Figure 2 presents mean savings-income and expenditure on durables-income ratios by income decile groups for both provinces in 1990, the year with virtually no inflation. Again, savings and purchases of durables are strongly negatively correlated for all but the highest two decile groups. The results also show that there is no strong correlation between income and the savings-income ratio except for households at the upper part of the income distribution.

3.4. Accounting for Household Size

The idea of family planning was first introduced in China in 1970, when urban residents were encouraged to have no more than two children. A more radical “one-child policy” has been rather strictly enforced in urban China since 1980, when the government realized that the original population target for the year 2000 would not be met. As a result, couples with one child have become a

dominant urban household type. The pure type of couples with one child less than 18 years old accounted for roughly half of the population of urban households in 1990.

It is clear from Figure 1 that the savings–income ratio is lower for couples with one child than for the total population, with the only exception for Liaoning in 1988. On the other hand, couples with one child spent on average higher proportions of income on durables during the five-year period for both provinces. Therefore, when we apply the concept “gross savings” by summing up financial savings and expenditure on consumer durables it is no longer evident that couples with one child saved less than others.

Table 5 compares possession of major consumer durables between couples with one child and other family types. Note that the major electric appliances are divided into two subsets. With the only exception of cameras for Sichuan, couples with one child have a higher ownership level of the first subset of durables than the reference group. The second subset of durables, of which couples with one child have a much lower ownership, happens to be inferior goods. As in the entire world over, people will turn to ready-made clothes when they are better off.

Aaberge and Li (1997) demonstrated that the mean real household income in Sichuan did not change much during the late 1980s, while the households in Liaoning experienced a period of relatively steady growth in the standard of living. Their study also shows that income inequality increased considerably from 1986 to 1990. This means that poor households living in urban Sichuan suffered a loss in their material well being. However, generally speaking, urban wage earners had very stable wage income. The growth in the cost of living was largely compensated by increases in wages and bonuses and various kinds of subsidies.¹⁰ Figures 3 and 4 (for corresponding tables, see Aaberge and Zhu, 1998) offer an opportunity to look at the profiles of savings and purchase of consumer durables by income for a homogeneous household type. Economic theory suggests that the savings rate rises as income increases if the marginal propensity to consume is less than unity. But this relationship is not supported by the data. It seems that even the poorest families could manage to make ends meet. It is often the 4th or 5th income decile that recorded the highest dissavings rate. Low savings rates tend to be accompanied by a high proportion of expenditure spent on durables, and extremely low savings rates are always accompanied by extremely high expenditure on durable–income ratios. Apparently, we would have found a much more stable (proportional) relationship between savings and income if we had chosen the alternative definition of gross savings given by the sum of financial savings and expenditure on consumer durables.

3.5. *Exploring Motives for Savings*

All our evidence so far has suggested a strong case for target saving for future purchases of durable goods in urban China in the late 1980s. Here we attempt to give explanations other than a low initial stock, some of which are

¹⁰State-owned enterprises had a reputation of granting generous wage and bonus increments, even when a loss occurred. This happened, of course, at the cost of increasing state subsidies.

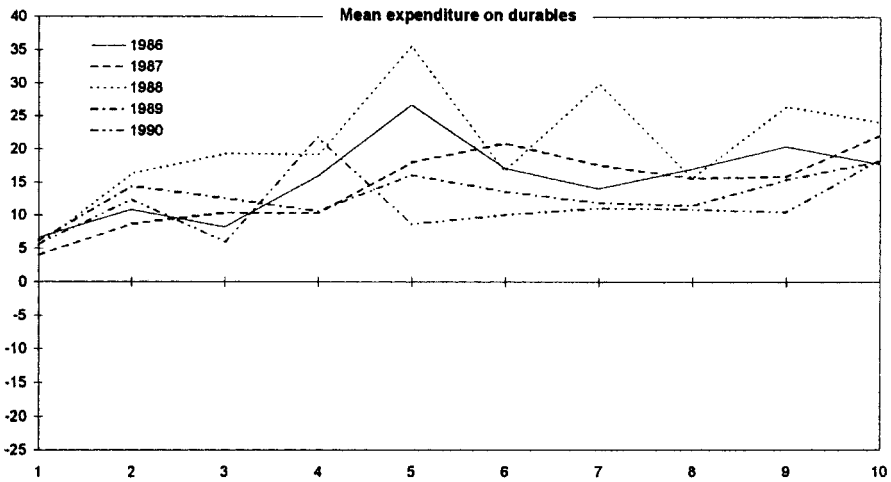
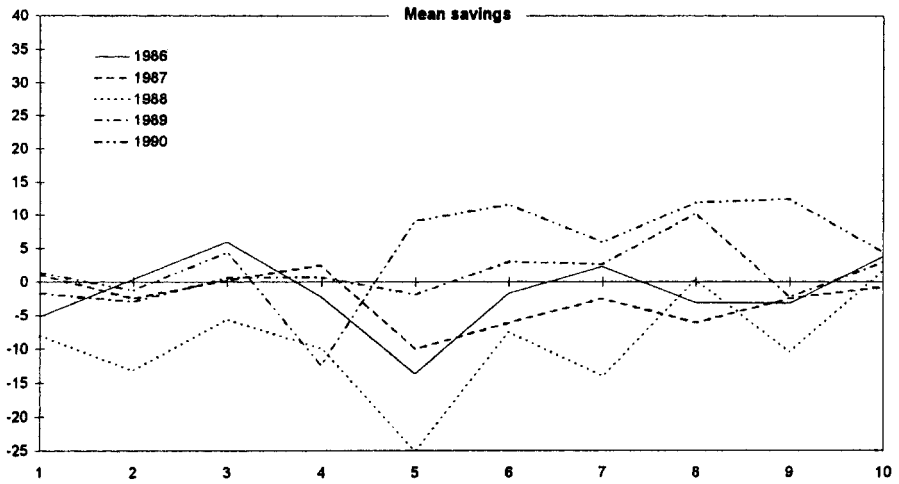


Figure 3. Savings–Income Ratios and Expenditure on Durables–Income Ratios by Income Decile Groups for Couples with one Child in Sichuan, 1986–90, Percent

deeply rooted in the institutional framework at the time:

- (a) Relatively expensive durables.
- (b) Credit constraint.
- (c) Generous labor insurance system.
- (d) Marriage portion.
- (e) Low real interest rates and limited investment opportunities.

(a) Relatively Expensive Durables

The expenditures on major durables typically account for a sizeable proportion of the household annual income in China. While necessary goods are

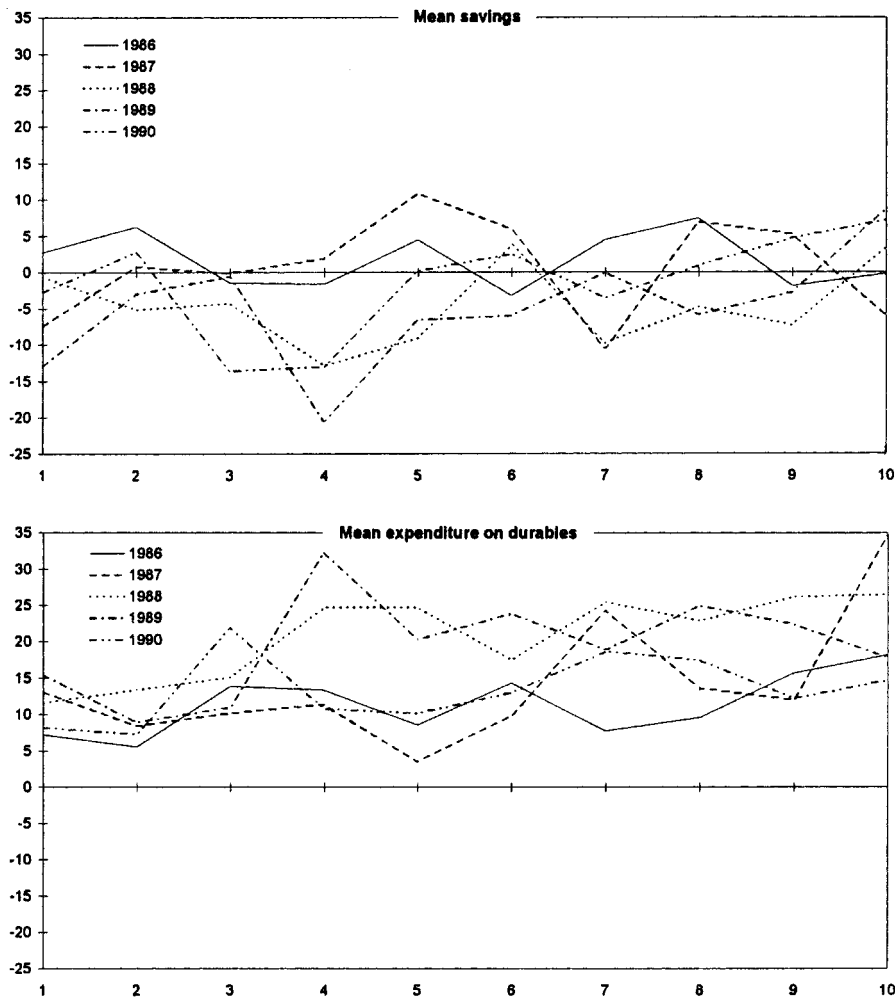


Figure 4. Saving–Income Ratios and Expenditure on Durables–Income Ratios by Income Decile Groups for Couples with One Child in Liaoning, 1986–90, Percent

heavily subsidized by the government, major consumer durables on the other hand, have often been used as an effective means of recalling surplus currency out of circulation by the government to ease inflation pressure.¹¹ The production of household electric appliances became so profitable that hundreds of production lines were imported in just a couple of years. In 1988, special “consumption tax” and “business tax,” which could amount to 20 percent of the value, were imposed on the sale of color TVs and refrigerators, on top of the ordinary retail taxes.

¹¹Between 1983 and 1985, billions of dollars worth of consumer durables were imported to meet the strong consumption demand that could not be otherwise met by the domestic production capacity. The huge income generated from high tariffs on imports has contributed to the relatively modest price increases in 1983–84. However, a ban on importing consumer durables and motor vehicles had to be imposed in late 1985, due to a dramatic deterioration in the balance of trade.

This proved to have very little damping effect on the panic purchases. The special taxes were finally abolished in 1990 as demand fell short of supply in the market of consumer durables.

Table 6 gives an indication of the costs the purchase of a major consumer durable can mean to the average Chinese urban household. The mean unit price of major consumer durables such as color TVs and refrigerators, can account for up to 25–45 percent of mean household income, even without the special “consumption tax.” Thus, for ordinary households it was impossible to make the purchase of these durable goods without any beforehand savings or any forms of commercial credit.

TABLE 6
MEAN UNIT PRICES ON SELECTED MAJOR CONSUMER DURABLES AS SHARE OF
MEAN ANNUAL HOUSEHOLD INCOME IN URBAN SICHUAN, 1986–90
(Percent)

	1986	1987	1988	1989	1990
Recorders	13.3	11.6	9.0	7.5	5.0
Washing machines	10.2	10.4	10.5	10.3	9.4
Refrigerators	28.3	34.5	37.5	37.4	25.3
Color TVs	42.4	41.2	51.7	57.0	44.9

Note: The term “recorders” refers to both stereo and mono recorders.

(b) Credit Constraint

Until the late 1980s, there was virtually no access to commercial credit for ordinary Chinese families. The only source of a loan is from friends and relatives, usually in the absence of any interest paid. However, this was constrained by traditional conservative attitudes toward borrowing. It is therefore natural to assume that household savings, the most important form of which is bank deposits, will play an important role in acquisition of consumer durables. Our hypothesis is strongly supported by Table 7, where financial sources of expenditure on durables are studied for the whole population in general and for those households with relatively high expenditure on durables (more than 20 percent of the annual household income) in particular. The year 1988 was chosen, with good reasons, as this was the year with the highest *expenditures on durables–income ratio* in the five-year period for both provinces.

The first sources of finances for the purchases of durables are most likely *current income surplus*, and a reduction in the stock of spot-cash, none of which bear interest. When that proves to be inadequate, which is often the case except for the very rich, the balance has to be covered by the bank savings from previous years, or from another perspective, dissavings from the current year. Indeed, roughly 40 percent of the panic purchases of consumer durables in 1988 were financed by withdrawal from bank deposits. For those who did make purchase of major consumer durables (see the right-hand column for each province in Table 7), the withdrawal of deposits played an even more significant role, accounting for 55 percent and 60 percent of expenditure on durables for Sichuan and Liaoning, respectively, while the contribution from current income has dropped to one third in both provinces. At least 85 percent of households in each

TABLE 7
FINANCING SOURCES OF DURABLE PURCHASES FOR ALL HOUSEHOLDS AND FOR HOUSEHOLDS
WHOSE EXPENDITURE ON DURABLES EXCEEDS 20 PERCENT OF THE ANNUAL DISPOSABLE
INCOME IN SICHUAN AND LIAONING IN 1988
(RMB Yuan and Percent)

	Sichuan		Liaoning	
	All	<i>E</i> > 0.20 DI	All	<i>E</i> > 0.20 DI
No. of observations	550	133	600	167
Mean household income	4186	4790	4601	4969
Size of household (persons)	3.24	3.36	3.39	3.42
Expenditure on durables (Yuan)	702	2241	964	2866
Of which (%):				
Current income	64.5	33.6	72.9	32.7
Bank deposits	39.9	54.8	38.9	59.3
Other (dis)savings	-4.4	11.8	-1.8	8.0
Sum	100.0	100.0	100.0	100.0
Percentage of households with net withdrawal of deposits	49.1	85.7	47.8	88.6

Note: *E* > 0.20 DI = households with expenditure on durables exceeding 20% of annual disposable income. Other (dis)savings include reduction in the stock of spot-cash by year end, and borrowing, etc.

province had to finance their purchases of major durables in the form of withdrawals of bank deposits. Households who did not count on withdrawal of deposits in order to make major purchases on durables, had significantly higher mean incomes, amounting to 5320 Yuan for Sichuan and 5726 Yuan for Liaoning.

(c) Generous Labor Insurance System

The gradualist aspects of China's reforms made its transition to a market-oriented economy different from the pattern that has been widely advocated for Eastern Europe and the former Soviet Union ("Big Bang"). The transition is far from complete as there are still many problems unsolved. One of the most important issues is the establishment of a modern social security system. The traditional enterprise-based labor insurance system remained essentially unchanged throughout the 1980s. One should be very cautious in judging the living standard of urban Chinese households by merely studying the monetary wage bills, which may not reflect the real income. Through the *hukou* (household registration) system, urban households were provided guaranteed employment, access to rationed essential consumer items, and eligibility for a *danwei* (workunit)-based labor insurance system that included health care, housing, retirement, and disability provisions (see footnote 7). Minimum nutritional intake, shelter, basic health care and universal primary education were generally achieved in urban areas even in the pre-reform era. With the absence of substantial income inequality, the vast majority of Chinese households were provided a guaranteed living standard, which is reflected by China's favorable rankings for many socioeconomic indicators among the low-income countries.

Pension replacement rates defined as the ratio of average annual pension to average annual wage stayed at around 80 percent throughout the survey period

when price subsidies were taken into account (see West, 1999). Savings for medical care and children's education is unnecessary as these costs are either fully covered by the extensive *danwei*-based welfare system or heavily subsidized by the state government. Practically no one saved for housing. Around 90 percent of the households in both provinces live in dwellings allocated by the employing unit based on seniority and need, at nominal costs which are typically below 1 percent of the wages. Among the remaining 10 percent of households, there are more owner occupiers than private renters (see Bjerkholt and Zhu, 1993). All these suggest that life-cycle savings are far less important than target savings in urban China in the late 1980s. If people's lifetime income flow is already smooth, there is little reason to accumulate wealth to smooth consumption.

(d) Marriage Portion

It is also common practice in China that parents bear a considerable proportion of children's wedding expenses. Thus, savings for children's marriages might be viewed as another major motive for household savings, in addition to target savings for purchases of consumer durables. However, this is indirectly connected to expenditures on consumer durables, as most of the wedding expenses are often spent on furniture and major electric durable goods such as color TVs and refrigerators, which are usually viewed as necessities by the younger generation.

(e) Low Real Interest Rates and Limited Investment Opportunities

China's monopolistic state banking sector remained largely unreformed in the 1980s. The nominal interest rates have been kept low as the consequence of the institutional arrangement, so that the state industry can be given credit at heavily subsidized rates. The difference between the mean deposit rate of one-year time deposit¹² (International Monetary Fund, 1996, p. 279) and the urban retail price indexes in Table 1 are 0.2, -1.9, -12.64, -5.66 and 8.44 percent per annum during our 1986-90 sample period. This in turn provided very little incentive for any long-term household savings. In fact, durables were commonly viewed as a tangible store of value for the depreciating currency; i.e. purchases of durables were regarded as investment rather than consumption by conventional wisdom.

There are six components of savings in Figure 5. An almost identical pattern is found for Liaoning (the actual graph and a corresponding table is provided by Aaberge and Zhu, 1998). From 1988 four more categories, namely savings insurance, portfolio, repayment of purchase on credit and repayment of loans for purchasing dwelling, were added into the survey. Nevertheless, they will be entered as "other savings" in the figures for consistency. The fluctuations for the share of "other savings" might therefore reflect the volatility of returns of risky portfolios.

The figures used to produce Figure 5 show that about one-third of all households have negative savings in a "normal" year. In general, households that have

¹²Inflation-indexed deposit rates were available for very long term deposits (of 3-5 years maturity) only when inflation rates went into double digits.

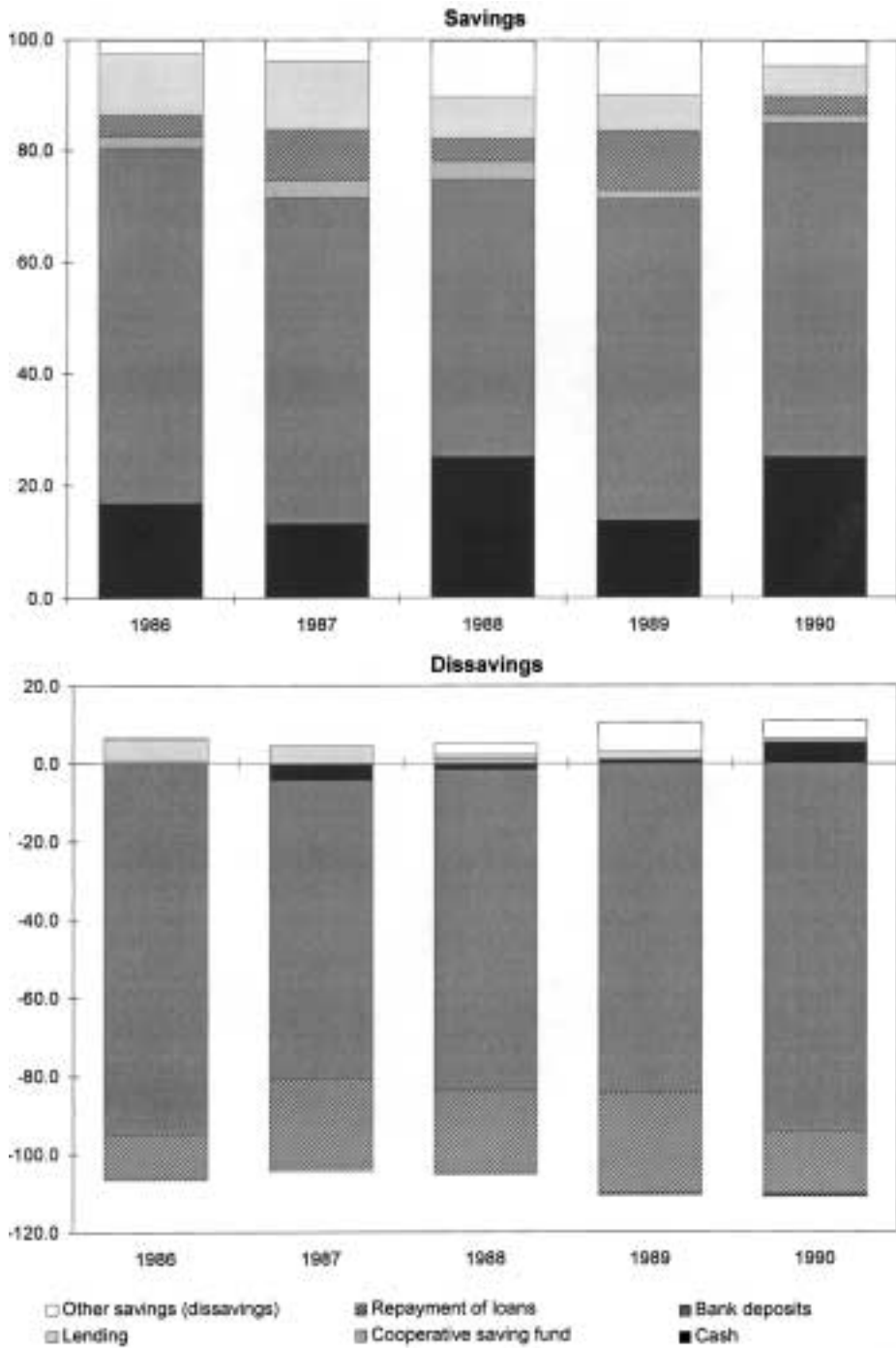


Figure 5. Distribution of Savings and Dissavings by Components for Sichuan, 1986–90, Percent

non-negative savings have slightly higher total income than households with negative savings. However, when accounting for the effect of the household size this relationship is no longer apparent. On the other hand, families with negative savings record on average expenditure on durables that are four to eight times as high as that of families with non-negative savings.

Figure 5 also demonstrates that a remarkably large proportion (20–30 percent) of savings was kept in cash, which granted no interest at all. This might indicate that either the demand for cash for the purpose of transaction is rapidly increasing or opportunity cost of holding cash is not very high. It is noteworthy that bank deposits appear to be the dominant type of savings for those who do save. In a “normal” year, this will account for 60 percent of gross saving. In the years when inflation ran out of control (1988–89), people responded by reducing the share of deposits in gross savings to 40–50 percent while increasing the shares of either cash or more risky assets. When the situation returned to normal in 1990, the share of deposits recovered to its original position. This is likely to be a reflection of lack of investment objects for urban households in China. According to Qian (1988), rural savings–income ratios were two to four times higher than the urban ones in the early 1980s, even though their per capita income was about 50 percent lower, presumably because farmers faced increasingly larger investment opportunities in housing and means of production. For those who need to run down wealth to supplement current consumption, withdrawal of bank deposits may prove to be even more important, often accounting for 90 percent of total dissavings. The second most important source of dissavings is borrowing, which is reflected by the negative “repayment of loans” in Figure 5.

4. SUMMARY AND DISCUSSION

The purpose of this paper has been to provide a descriptive analysis of household savings in urban China for the 1986–90 period, based on data from the State Statistical Bureau’s Urban Household Survey. The late 1980s are characterized by economic reforms, rapid growth and periodically extremely high inflation rates. The strong motives to switch from financial savings to purchase of durables caused by high inflation and even hyperinflation for a few years appear to be consistent with the structure of the observed data. We have shown that the motives for savings were rather monotonous and that target-savings for future purchases of major consumer durables clearly singled out. There is a strong negative correlation between expenditure on durables and financial savings, implying that gross savings should be the preferred measure of private savings for urban China. There is also a distinctive generation gap with respect to the readiness to save, as the young generation will expect a much higher lifetime income than their parents so long as the current trend in economic growth continues.

One interesting question emerges. Could the high savings rate in China be maintained in the future? Most economists seem to agree that China’s economy is likely to grow at a relatively fast pace at least for the near future. Numerous empirical studies have suggested that there may be a virtuous circle between growth and savings; increases in growth raise the savings rate, which in turn feeds back to increase growth. The termination of lifetime employment will almost

certainly induce more precautionary savings. The current pension and housing reforms are also likely to work in favor of high savings rates in the coming years. However, there are many factors that may affect savings in the opposite direction. As real income continues to rise, consumer durables will be more affordable, other things being equal. Consequently, target saving is likely to decline over time although one might expect consumers to move on to more expensive durables like motorcycles and computers. Moreover, deregulation of the financial market will allow Chinese consumers better access to credit and thus reduce target savings further. Changes in demographic and cultural factors may also reduce savings rate in the long run. The aging process of the population will accelerate in the coming years as a result of the family planning policy. As the dependency ratio increases, savings rate will inevitably decline if other things remain unchanged.

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