

Does consumer sentiment forecast household spending? The Hong Kong case

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Abstract

Using Hong Kong data, this paper examines the predictive capacity of consumer confidence indexes for consumption. The results indicate that in sharp contrast with the situation in the US or Britain, the consumer confidence indexes in Hong Kong have little or almost no explanatory power in forecasting consumption growth. © 1998 Elsevier Science S.A.

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1. Introduction

The life-cycle and permanent income hypotheses imply that consumers' decisions depend on their expectations of their future incomes. When consumers are optimistic about the future, they consume more and save less than when they are pessimistic about it. Thus, economic forecasters and other analysts find it useful to know what consumers are thinking about the future at any particular time.

One of the best known surveys that aim to measure consumers' expectations is the 'index of consumer sentiment', which is based on what consumers tell interviewers about their expectations for the future of the economy. An important question is: 'Does consumer sentiment accurately forecast household spending?' Recently, Carroll et al. (1994); Acemoglu and Scott (1994) examined this question and presented evidence in the US and Britain, respectively, that lagged consumer sentiment has significant explanatory power for current changes in household spending. These important findings not only contribute to the empirical examination of forward looking theories of consumption but also provide a useful guide to the prediction of business cycles.

In this paper, we will follow the methodology recently developed by these authors to examine the situation in Hong Kong. To our knowledge, these two are the only papers in the literature that empirically examine the relationship between consumption and consumer sentiment. It will be

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interesting to apply these techniques to other countries to examine whether the correlation between consumption and lagged consumer sentiment is also significant.

The application in Hong Kong seems to be particularly interesting, because of the 1997 handover, when China took over the sovereignty of Hong Kong. Because the economic success of Hong Kong has depended and will depend critically on a free market and fair competition, the change of sovereignty to a communist country may undermine the institutional basis for Hong Kong's future prosperity. Thus, Hong Kong people's confidence, which has fluctuated due to speculation as to whether China will keep its promise of 'one country, two systems' in Hong Kong after July 1, 1997, presumably contains much information about people's future earnings. Therefore, by applying the same methodology as in Carroll et al. (1994), we expect that the explanatory power of consumer confidence for consumption would be much stronger in Hong Kong than other places.

A rather surprising finding of this paper, however, is that in sharp contrast with the situation in the US or Britain, the consumer confidence indexes have little or almost no explanatory power in forecasting consumption growth in Hong Kong. An interpretation of the result is that the consumer confidence indexes in Hong Kong contain information on people's expectation of their future well-being rather than simply their future income.

2. Methodology

To make the best comparison with the existing literature, we will follow the method developed by Carroll et al. (1994), who examine the predictive ability of the index of consumer sentiment (ICS) in two steps. First, they examine the R^2 's from regressions of the growth of various measures of household spending on lagged values of the ICS:

$$\Delta \log(C_t) = \alpha_0 + \sum_{i=1}^4 \beta_i S_{t-i} + \varepsilon_t \quad (1)$$

where C_t denotes consumption at time t , and S_t denotes the index of consumer sentiment at time t .

Next, Carroll et al. (1994) investigate whether the sentiment index has any predictive ability once one controls for information contained in other variables available to economic forecasters. They implement this investigation by estimating equations of the following form:

$$\Delta \log(C_t) = \alpha_0 + \sum_{i=1}^4 \beta_i S_{t-i} + \gamma Z_{t-1} + \varepsilon_t \quad (2)$$

where Z_t is a vector of other variables. Specifically, in their model, the control variables, Z_t , are four lags of the growth of real labor income.

3. The data description

The counterpart of the Index of Consumer Sentiment in the US is called 'Consumer Confidence Indexes' in Hong Kong. In the case of Hong Kong, there are two types of consumer confidence indexes: (1) Economic Confidence Index, and (2) Political Confidence Index. Simply speaking, the

difference between them seems to be that Economic Confidence Index reflects more people's expectation of their income and other economic conditions in the near future, while Political Confidence Index reflects more about people's expectation of their long-run well-being. Specifically, the questions that were asked to obtain the Economic Confidence Index and the Political Confidence Index are as follows:

1. The Economic Confidence Index is obtained based on the answer of the following three questions:
 - 1.1. How would you rate the present economic situation in Hong Kong: good, average or bad?
 - 1.2. Compared to last year, do you feel the economic situation of Hong Kong in the next 12 months will improve, will remain about the same or will deteriorate?
 - 1.3. Compared to last year, do you feel your financial situation in the next 12 months will improve, will remain about the same or will deteriorate?
2. The Political Confidence Index is obtained based on the answer of the following question: 'Which of these statements best describes your attitude towards the future of Hong Kong?':
 - 2.1. 'I am very confident about the future of Hong Kong';
 - 2.2. 'I am quite confident about the future of Hong Kong';
 - 2.3. 'I am not quite confident about the future of Hong Kong';
 - 2.4. 'I am not at all confident about the future of Hong Kong'.

The two indexes are obtained from surveys which were conducted by Survey Research Hongkong (1996) through telephone interviews with more than 1000 randomly selected individuals. These surveys were conducted every three months beginning in January 1985 immediately after the signing of the Sino-British Joint Declaration that officially announced the change in the sovereignty of Hong Kong from Britain to China on 1st July 1997. The base year of the surveys is 1985 and the base index is 100 for both the Economic Confidence Index and the Political Confidence Index.

Finally, the control variable in this model is quarterly median income in Hong Kong. This is the only difference of this paper from Carroll et al. (1994), who choose quarterly total labor income, because we are not able to obtain quarterly data on total labor income in Hong Kong. However, this is a very minor deviation. As Carroll et al. (Carroll et al., 1994, p. 1400) point out "....the choice of which other variables to include in the equation is inherently somewhat arbitrary". The data on quarterly median income are collected from the Quarterly Report on General Household Survey published by the Hong Kong Census and Statistical Department. As we will see in Section 4, regression of lagged median income with consumption show that it has a big R^2 , which implies that median income is a good control variable for the purpose of this paper.

4. Empirical finding

4.1. Forecasting capacity of disposable income

In order to make a comparison with the following subsections, we will first examine the forecasting capacity of disposable income in Hong Kong, which actually amounts to a test of Hall's (Hall, 1978) random walk hypothesis. The data on disposable income are obtained from the Hong Kong Monthly Digest published by the Hong Kong Census and Statistical Department.

Table 1
Self-forecasting capacity of disposable income

	θ	p value of the significance of θ	Adjusted R^2
Total PCE	0.2325	0.0000	0.68
Durable	0.2985	0.0095	0.14
Non-durable	0.4735	0.0000	0.40
Service	0.0945	0.0565	0.67

Let Y_{t-1} denote the disposable income at time $t-1$, then a simple regression equation is

$$\Delta \log(C_t) = \alpha + \theta \Delta \log Y_{t-1} + \eta_t \quad (3)$$

The results from regressions are summarized in Table 1.

According to Hall's random walk hypothesis, no lagged variable should have any predictive power for consumption. However, from Table 1, we can see that disposable income has very significant predictive ability for the changes of all categories of consumption in Hong Kong, which clearly rejects Hall's (Hall, 1978) random walk hypothesis.

4.2. Forecasting capacity of the consumer confidence index

In this subsection, we examine the forecasting capacity of the consumer confidence index in Hong Kong. In contrast to the case of lagged disposable income, we find that consumer confidence indexes do not have much predictive ability for the change of consumption.

(1) Economic Confidence Index (ECI)

Let S^E denote Economic Confidence Index, then the regression equation is

$$\Delta \log(C_t) = \alpha_0 + \sum_{i=1}^4 \beta_i S_{t-i}^E + \varepsilon_t \quad (4)$$

The result from regressions is summarized in Table 2.

From Table 2, we can see that the Economic Confidence Index (ECI) on its own does not have much predictive ability for the change of consumption. In contrast, Carroll et al. (1994) show that lagged consumer sentiment has significant explanatory power for current changes of household spending in the United States. In particular, the R^2 from the regression between total private consumption expenditure (PCE) and the index of consumer confidence using US data is 0.14. Using

Table 2
Self-forecasting capacity of ECI

	Adjusted R^2	p values of the joint significance of $\sum \beta_i S_{t-i}^E$
Total PCE	-0.0081	0.4611
Durable	-0.0513	0.7014
Non-durable	0.0435	0.2493
Service	-0.0444	0.6606

British data, Acemoglu and Scott (1994) find even greater explanatory power for consumer confidence.¹ For example, the R^2 from the regression between total private consumption expenditure (PCE) and the index of consumer confidence lagged two periods in Britain data is 0.29.

(2) Political Confidence Index (PCI)

Let S^P denote the Political Confidence Index, then the regression equation is

$$\Delta \log(C_t) = \alpha_0 + \sum_{i=1}^4 \beta_i S_{t-i}^P + \varepsilon_t \quad (5)$$

The result from regressions is summarized in Table 3.

From Table 3, we can see that the Political Confidence Index (PCI) on its own also does not have much predictive ability for the change of consumption, although it appears to have a slightly better explanatory power than the Economic Confidence Index. The exception is the case of nondurable goods, where PCI has a 20% predictive power, with a significant p -value. However, as will be shown next, the explanatory power of PCI will also become insignificant when a control variable is included.

4.3. Incremental forecasting capacity of the consumer confidence index

In order to study whether the lagged confidence indexes can provide additional information to predict the changes of private consumption expenditures, we will see whether the regression with lagged confidence indexes can generate higher adjusted R^2 than those when only the control variables are included.

As mentioned earlier, the control variable that will be used is four lags of the growth in median labor income. We will first examine its forecasting capacity. Let Z be the median labor income, then the regression equation is

$$\Delta \log(C_t) = \alpha_0 + \sum_{i=1}^4 \gamma_i Z_{t-i} + \varepsilon_t \quad (6)$$

The result from the estimation is summarized in Table 4, from which we can see that median labor income has good forecasting power for consumption, and hence is a good control variable for the purpose of this paper.

Because only the Political Confidence Index (PCI) has some self-forecasting power (see Tables 2

Table 3
Self-forecasting capacity of PCI

	Adjusted R^2	p values of the joint significance of $\sum \beta_i S_{t-i}^P$
Total PCE	0.0320	0.2882
Durable	−0.0833	0.8830
Non-durable	0.2037	0.0204
Service	−0.0219	0.5329

¹ In fact, consumer confidence appears to be the only variable with predictive power for future consumption growth in Britain (Acemoglu and Scott, 1994).

Table 4
Forecasting capacity of median labor income

	Adjusted R^2
Total PCE	0.6964
Durable	0.3359
Non-durable	0.8759
Service	0.8151

and 3), we will only examine the incremental forecasting capacity of PCI. To achieve this purpose, following Carroll et al. (1994), we estimate the following equation:

$$\Delta \log(C_t) = \alpha_0 + \sum_{i=1}^4 \beta_i S_{t-i}^p + \sum_{i=1}^4 \gamma_i Z_{t-i} + \varepsilon_t \quad (7)$$

The result of the regression is summarized in Table 5.

From Table 5, we see that the political confidence index (PCI) does not increase the forecasting power of median income for the change of consumption. In other words, the explanatory power of the political confidence index (PCI) for consumption almost completely disappears when a control variable is added. This result is also very different from those obtained by Carroll et al. (1994); Acemoglu and Scott (1994) that the index of consumer sentiment still has significant explanatory power in forecasting consumption even when a control variable is added. For example, Carroll et al. (1994) find that the confidence index in US contributes about 3% to the incremental R^2 for the total PCE.

5. An interpretation of the empirical finding

Section 4 reveals a surprising empirical finding that, in sharp contrast with the situation in the US or Britain, the consumer confidence indexes, neither the Economic Confidence Indexes (ECI) nor the Political Confidence Indexes (PCI), have explanatory power in forecasting consumption growth in Hong Kong. The question is: Why?

We believe that a rigorous answer deserves careful investigation in future research. In this paper, though, we will provide an intuitive explanation.²

Table 5
Incremental forecasting capacity of PCI

	Incremental adjusted R^2	F values of the joint significance of $\sum \beta_i S_{t-i}^p$
Total PCE	−0.0075	0.8260
Durable	0.0217	1.2452
Non-durable	0.0076	0.5816
Service	−0.0039	0.8548

² This interpretation is mainly based on the consumption of non-durable goods and services.

Our explanation is based on the observation that the pattern of the changes of income (or consumption) in Hong Kong is just opposite to that of consumer confidence indexes for the period. From 1985 to 1996, Hong Kong has experienced rapid economic growth, which has significantly increased people's income. Consistent with the prediction of the existing literature that income is the major determinant of consumption, Hong Kong people's consumption has increased significantly for this period. Despite the rapid economic growth, however, it is straightforward to see from the data that the consumer confidence indexes (both ECI and PCI) have been generally decreasing. The question, then, is: Why did the consumer confidence indexes in Hong Kong fall when average income kept growing?

First, for the Political Confidence Index, this secular decline may imply that it contains information other than people's expectation of future income. In other words, the consumer confidence index in Hong Kong is an indicator of people's expectation of their future welfare rather than simply their future income. For example, the indexes may also reflect people's expectations of some political factors, such as freedom and democracy, or even their concern about human rights issues in China. These non-economic factors, although having little impact on people's expectations of their future income, may affect their well-being. To illustrate the point, we may consider the extreme case that a religious individual believes he will not be able to have freedom of worship in Hong Kong after 1997. Thus, even though an interviewee thinks his (her) earnings will not be lower because of the handover, he may still give a gloomy answer to the interviewer because of the expected welfare loss after 1997 resulting from lack of freedom, etc.. In this case, however, his (her) consumption will not be lowered because the political factors do not change the expectation of his (her) future earnings. Thus, when consumer confidence indexes reflect people's expectation about both non-economic and economic factors in the future, they may not have good explanatory power in forecasting consumption.

Second, the decrease of the Economic Confidence Index may result from the deterioration of the income distribution in Hong Kong, which is largely due to increasing economic integration between Hong Kong and China for the past two decades. For example, Hong Kong has contributed over 60% of all direct foreign investment in China since 1979. In 1990, China's exports to (imports from) Hong Kong were 48% (38%) of total Chinese exports (imports) (e.g. Sung, 1991).³ Thus, factor price equalization has taken place in Hong Kong and China, which benefits investors but significantly reduces the real wage rate and living standard of the working class in Hong Kong (e.g., Moiseiwitsch, 1996).

The increasingly rapid (legal and illegal) immigration of unskilled workers from mainland China has also contributed to the deterioration of the living standard of the working class in Hong Kong. According to Hong Kong government's statistics, there are 150 mainland Chinese legal entries into Hong Kong every day through the family reunification program. This adds up to over 54 000 mainlanders per year. These workers typically have minimal education and few job skills. So, they can only compete for low-end jobs in Hong Kong, which decreases wages for unskilled workers. In fact, unemployment has become a serious problem for Hong Kong only in recent years. Before 1980, Hong Kong had long had a problem of labor shortage.

Thus, the living standard of the working class in Hong Kong actually decreased over the past decade, despite rapid economic growth in Hong Kong as a whole. Meanwhile, because the majority of

³ In fact, the investment and trade activities between southern China, Hong Kong and Taiwan have been so rapidly expanded that they are often referred to as the 'Greater China' in the literature (e.g. Ash and Kueh, 1993).

Hong Kong workers are unskilled, it is likely that most of the 1000 interviewees, who are chosen randomly by telephone numbers, are from the bottom of the income distribution in Hong Kong [in the construction the Economic Confidence Index (ECI)]. So, they would naturally report that they felt pessimistic about their economic future. Therefore, the ECI will likely get smaller although the GDP in Hong Kong gets larger.

6. Conclusion

Using Hong Kong data, this paper examines the predictive capacity of consumer confidence indexes for consumption. The results indicate that in sharp contrast with the situation in the US or Britain, the consumer confidence indexes, neither the Economic Confidence Indexes (ECI) nor Political Confidence Indexes (PCI), have explanatory power in forecasting consumption growth in Hong Kong. We interpret the finding as that the Political Confidence Indexes in Hong Kong contain information on people's expectation of their future well-being rather than simply their future income, and that the deterioration of income distribution has caused the Economic Confidence Indexes to fall, despite rapid economic growth in Hong Kong as a whole.

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