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## **Does Consumer Confidence Forecast Household Spending?**

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**ABSTRACT**

The traditional consumption function based on the life cycle permanent income hypothesis (LC-PIH) considers that consumer spending is based on households' expectations of their future income. However, in short-term forecasting, the traditional economic determinants of consumption do not perform accurately. In addition to these macroeconomic variables, a measure of uncertainty is needed to better assess the short-term dynamics of the consumption function. Such a measure of uncertainty may be given by households' expectations about their personal financial situation and general economic situation. A measure of these expectations is provided by consumer confidence (measured by the Consumer Confidence Index - CCI). In addition, consumer confidence seems to contain both a forecasting and independent explicative ability to predict consumption. Economic variables do not fully explain confidence, suggesting that its independent explicative power stems from its idiosyncratic features. We discuss in detail these features thanks to a review of the theoretical and empirical literature by discussing the consistency of consumer confidence with the standard consumption theory, analysing the determinants of the CCI and studying the predictive and causal power of the CCI.

Keywords: Consumer confidence; consumption function; forecasting

JEL classification: C52, C53, D11, D12, E21, E27

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## **1. INTRODUCTION**

According to the business press but also more and more economists, consumer spending depends not only on current income and wealth but also on consumer confidence. Consumer confidence reflects specific attitudes related to particular events and/or uncertainty about future financial and economic situation. The Consumer Confidence Index (CCI) is constructed to measure these attitudes but an assessment of its eventual explicative and predictive value is complex<sup>3</sup>.

Consumer confidence is supposed to reveal the potential impact of households' and firms' behaviours, in terms of emotional attitude, on spending. To measure such attitudes, the easiest way is to directly interview agents (Pickering et al., 1973). The results of these surveys are then arranged into "balances"; i.e. the differences between the percentages of positive and negative answers. A composite indicator, using a selection of questions extracted from a broader survey, is then built and compared with a related economic variable such as the GDP or private consumption.

The first survey of consumer confidence was developed in the USA by the University of Michigan in the 1940s. The aim was to measure, understand and analyse the impact of changes in consumer attitudes and expectations. University of Michigan's Consumer Sentiment Index and the Conference Board's Consumer Confidence Index have been the most broadly used measures of consumer confidence.

Both indices are based on responses to five survey questions. Two concern present conditions and the other three deal with consumers' expectations. The two measures usually follow similar trends over the long-run, but may give contradictory signals over the short-run. This is essentially due to their specific features in terms of surveys questions, methodology and computation approach.

Comparing the consumer confidence indices of the Conference Board and of the University of Michigan, Bram and Ludvigson (1997) conclude that both measures have significant incremental predictive power. That is, they both contain information about consumer spending that is not captured by economic fundamentals. However, they point out that Conference Board's predictive power concerns more categories of consumer spending than Michigan's.

For the European Union, consumer surveys are released on a monthly basis and provide qualitative data<sup>4</sup>. They give directions (improvement, worsening, no change) and not levels. The responses are

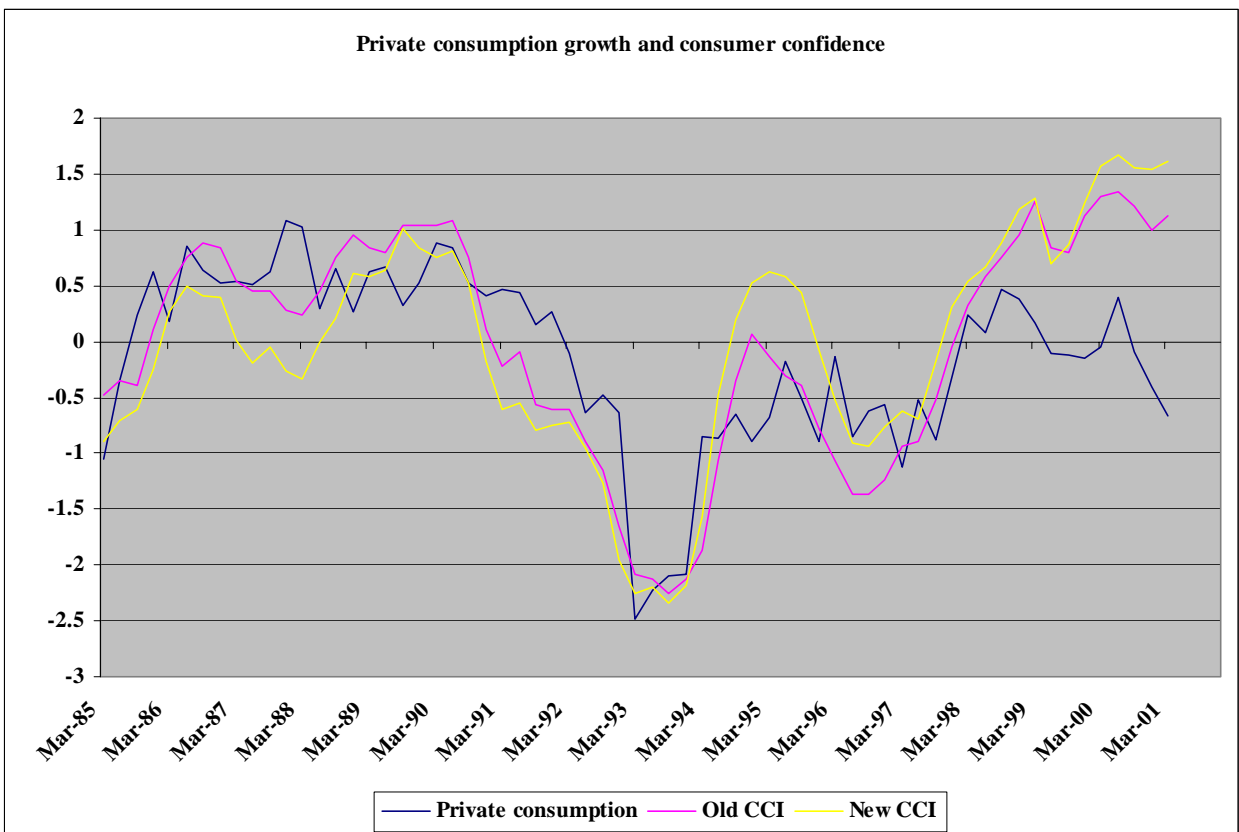
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<sup>3</sup> Tests of the rationality of surveyed expectations have also focused on inflation expectations.

<sup>4</sup> See also Carnazza and Parigi (2001), Parigi and Schlitzer (1995), Vuchelen (1995).

then balanced and an index is constructed taking into account the weighted average of four survey answers concerning financial, economic, saving and unemployment situation.

The chart below plots consumption growth (year on year quarterly growth rates) and consumer confidence (both the old and new CCI indicators for the EU) indicating a relatively close relationship which leads to think that confidence may have some valuable information for inference of current and near-future consumption.



In the remainder of the paper, we propose a review of the theoretical and empirical literature by discussing the consistency of consumer confidence with the standard consumption theory, analysing the determinants of the CCI and studying the predictive and causal power of the CCI.

## **1. CONSUMPTION THEORY AND CONSUMER CONFIDENCE**

### **1.1 Life-Cycle and Permanent Income Hypothesis (LC-PIH)**

The standard theories of consumer behaviour were developed half a century ago by Modigliani and Brumberg (the “life-cycle” theory, 1954) and Friedman (the “permanent-income” theory, 1957).

According to these authors, consumers decide upon their current consumption after having evaluated their disposable resources over their whole lifetime.

The LC-PIH is summarised by the following equation:

$$\Delta C_t = \frac{r}{1+r} \sum_{k=0}^{\infty} (1+r)^{-k} (E_t - E_{t-1}) Y_{t+k}$$

where, C: private consumption; r: constant real interest rate; Y: disposable income; E: expectation

In the framework drawn by Friedman and Modigliani, consumers, by taking into account the whole amount of financial resources they expect to gather over their life-time, decide how their consumption ought to be distributed over time. Hall (1978) improved these theories by explaining the way consumers evaluate their future lifetime revenues. Based on Hall's random walk hypothesis, Campbell and Mankiw (1989, 1990, 1991) show that consumption growth is a random walk as long as the response of consumption growth to the current change in income is taken into account. There are several alternatives to define the determinants of consumption. Long-term consumption is usually determined by income and inflation (Davidson et al., 1978). Other explicative variables, such as wealth, liquidity constraints or uncertainty are often added either contemporaneously or with lags (Nelson, 1987).

According to the Rational Expectation Permanent Income Hypothesis (REPIH), the movement in consumption spending from t-1 to t cannot be predicted at time t-1 and thus depends on the innovation or new information about income received during that period (see Flavin, 1981). In terms of rational expectations, all the information that could have been used in t-1 has been used. This information is reflected in the realisation part. The expectation part is then independent of any variable that was previously used to predict current consumption.

There is therefore no income uncertainty in the REPIH. To relax this assumption implies that income uncertainty will result in precautionary saving. Muellbauer and Lattimore (1994) discuss how models with income uncertainty allow a certain form of uncertainty in the factor used to discount future income. This discount factor will obviously be larger for indebted consumers than for others. If future income has to be more discounted because of uncertainty, current income must be more important in determining current consumption. The presence of uncertainty and precautionary savings explain why consumption follows income more strictly than the REPIH would suggest.

The REPIH may explain consumer behaviour over the long-run but is ill-fitted to forecast it over the short-run (Fuhrer, 1992). Berg and Bergstrom (1996) suggest that the expectation part in the LC-PIH equation can be summarised by consumer confidence acting as a coincident indicator. Since change in consumption growth is proportional to the current innovation in expectations of future income, the CCI, acting as a coincident indicator could provide a summary of changes in agents' beliefs about their future income (Flavin, 1981). In that case, consumer confidence would still be consistent with the REPIH. Note that for the REPIH to hold, confidence indicators (or any other variable) should not contain any information with predictive ability for consumption growth.

## **1.2 Rejection of the Rational Expectation Permanent Income Hypothesis (REPIH)**

However, several studies have rejected the REPIH because consumption displays an excessive sensitivity with respect to lagged income (Campbell and Mankiw, 1991). By adding consumer confidence to the Campbell-Mankiw model, Berg and Berström (1996) find no excessive sensitivity with respect to income. Consumer confidence seems therefore to predict consumption growth and thus rejects the REPIH.

The rejection of the REPIH might actually be solved by introducing terms to take into account of the financial sector in the consumption model. Mishkin (1978) considered that liquidity constraints were useful to help predict consumption of durable goods. In order to explain consumption of non-durable goods and services, the imperfection of capital markets measured by borrowing constraints may then provide some answers. The story runs that way: an increase in income today (i.e. higher level of income) leads to an increase in expected future income and then a shift upward in permanent income and thus consumption. However, if borrowing constraints are introduced into that framework, consumers are not able to borrow more in order to finance the increase in consumption. Consequently, as soon as income is realised the following period, consumers can increase consumption. So, consumption would rise later under borrowing constraints than in a situation where the REPIH holds.

In a similar way, high confidence at time  $t$  suggests higher income at time  $t+1$  since it reflects a more optimistic assessment by households of their future financial situation and of the future economic situation. Nevertheless, due to borrowing constraints, households cannot increase their consumption right away but will have to wait till the forthcoming period when the increase in their income does materialise. In that sense the CCI can help predict future consumption.

More fundamentally, the shifts of the consumption function over the cycle do require a new understanding of the consumption function. Is consumption motivated by irrational behaviour captured by consumer confidence or do the macroeconomic determinants of the consumption function need to

be reviewed? Acemoglu and Scott (1994) identify three explicative factors for these shifts in the consumption function. 1) Changes in the preferences or tastes of the households may cause these shifts even if their financial situation has not changed. But these preference shocks do not explain the forecasting power of the indicator, since only unanticipated shocks may shift consumption. 2) By relying on animal spirits or purely psychological (irrational) factors, we can find an element of response, although unsatisfactory since unexplainable. 3) A third explanation might come from the dropping of some of the restrictions of the REPIH in order to check whether the imperfection of capital markets or the uncertainty equivalence helps determine the predictive power of the CCI.

Acemoglu and Scott tried to determine whether consumer confidence is consistent with the REPIH. The REPIH does accept the introduction of a forward-looking element such as consumer confidence. However, confidence indexes are reflections of consumers' beliefs about the future and the introduction of this behavioural element in a consumption function may violate some of the restrictions attached to the REPIH. Acemoglu and Scott check whether confidence could predict current and future consumption. Their first conclusion is that confidence is a leading indicator for income and thus a coincident indicator for consumption. That is acceptable by the REPIH. It simply means that confidence helps predict determinants of consumption as income, wealth, inflation, unemployment or interest rates. But then, they notice that even lagging confidence indicators can directly lead and predict consumption, hence conducting to the rejection of the REPIH; since the REPIH stipulates that no variables should contain predictive information for forecasting consumption spending.

To prove this point, Acemoglu and Scott relax two strong assumptions of the REPIH: the perfection of capital markets and the certainty equivalence. After testing for the role of imperfection in capital markets, Acemoglu and Scott conclude that they do not play an explicative role for consumer confidence. They then analyse the case of precautionary saving. Precautionary saving implies that the certainty equivalence cannot hold. Indeed, households experience income uncertainty due for instance to the volatility of interest rates or the worsening unemployment situation and therefore consume less and save more. However, they still have to face their inter-temporal budget constraint, pushing them to increase their consumption at a faster rate than under certainty equivalence. Furthermore, as consumption depends upon the variance of income (measuring the part of saving and the one of spending), the ability to predict this variance will lead to the rejection of the REPIH.

The two authors (somehow counter-intuitively) infer from that analysis that a high value of the CCI reflects the higher uncertainty about the evolution of the interest rates felt by the households and therefore on their future income and consumption. As a response to that uncertainty, households consume less than they would do otherwise (under certainty equivalence). Thus, consumption

(because of inter-temporal budget constraints) will accelerate later (when the extra income will actually materialise) and at a higher rate than the REPIH would have predicted. This acceleration can be predicted since the variance of income is correlated with lagged confidence. Conversely, we might have expected that the risk-averse households disliking uncertainty would have relied on precautionary saving and therefore answered the survey in a more pessimistic way. In the case of high uncertainty, we should have had a high variance and a low confidence indicator. However, in the study of Acemoglu and Scott, a high indicator does predict a high variance in consumption but also a high variance of income. The authors then conclude that the rejection of the REPIH is due to the non-certainty equivalence and that the forecasting capacity of the consumer confidence is no proof of irrational behaviour.

### 1.3 Revision of the Life-Cycle and Permanent Income Hypothesis (LC-PIH)

The potential forecasting power of the CCI requires the revision of the LC-PIH. In the recent literature it seems increasingly straightforward that consumer confidence is able to predict part of consumption that is not explained by traditional macroeconomic variables.

The revised LC-PIH is summarised by the following equation:

$$\Delta \log (C_t) = c + \chi Z_{t-i} + \sum_{i=1}^N \beta_i CCI_{t-i} + \varepsilon_t$$

where  $Z$  is a vector of macroeconomic variables.

Attempts of reconciling rational expectations and psychological expectations in the consumption function framework have been frequent (Juster and Wachtel, 1972; Mishkin, 1978). As seen above, the life-cycle permanent income theory (LC-PIH) considers that current consumption is explained by the perceptions that the households have of their permanent-lifetime income. That income contains both current and future labour, financial and housing revenues. The way households perceive their future income is for a good part non-purely rational. Because of the uncertainty pertained to the future, consumers attach a greater value to their current financial situation than to their forthcoming one, since the latter is so difficult to predict. In that case, their assessment of their current financial situation should contain some accurate information about their spending decisions. By constructing an index taking into account the determinants of consumer expectations, it is then possible to forecast expenditures by taking full advantage of the impact of consumer spending.



Recently, some economists have tried to build a new consumption function taking into account both the knowledge of the LC-PIH and of the CCI. The LC-PIH considers that consumption is explained by expected income and wealth over the lifetime. For instance, in the case of high current income as regards expected future income, we expect economic agents to save part of their income and spend it later. In that sense both rational and psychological expectations theorists agree that current consumption depends on expectation about the future. Indeed, in case of potential financial distress, pure uncertainty or unexpected change of mood, economic agents will tend to save more, consistent with decreasing confidence. A higher probability of financial distress will be revealed in a lowering of the CCI and expressed in the detention of more liquid assets. These are easy to convert into money without a loss in value and then more useful than durable goods when facing financial risks. So this category of goods should suffer the most in a decrease in consumer confidence (Garner, 1991).

## **2. DETERMINANTS OF CONSUMER CONFIDENCE**

Explaining consumer confidence is a complex issue since attitudes are the product of multiple factors both objective and subjective. According to the pioneering work of Mueller (1963), 60% of the variance of the Michigan index could be explained by quantitative/objective economic variables; 40% remaining unexplained. Two explanations are possible: i) economic variables might reflect special circumstances that may not affect attitudes or ii) confidence reflects non-economic events. Moreover, the specificity of the index may come from its “marginal impact”. This marginal part is the one that economic variables are unable to explain. Then, we have to check if that marginal component appears systematically.

Besides, similar events may be apprehended differently under different circumstances (e.g. at its second occurrence a shock might be perceived in a different way) and conduct to different reactions. Finally, expectations are not simple extrapolations from past trends. They are strongly affected by new developments, such as political or social events. Their non-quantitative and uniqueness features make perfect forecasts of consumer confidence impossible (Mueller, 1963).

### **2.1 Quantitative/objective determinants of the CCI**

The mood of consumers is affected by general economic conditions. The CCI can thus be partly explained by macroeconomic variables. In that sense, confidence seems more passive than active as an actor of the economy (Fuhrer, 1993). Garner (1991) considers that consumer confidence is strongly related to traditional macroeconomic variables also acting as determinants of consumption. According to Lovell (1992), almost all the variation in the index could be explained by inflation, unemployment, stock prices and lagged confidence (see also Fair, 1971).

To estimate the idiosyncrasy of consumer confidence, authors specify the following equation:

$$CCI_t = \lambda + \delta X_t + \sigma_t$$

Where CCI denotes the consumer confidence index,  $\lambda$  is a constant,  $X_t$  is a vector containing standard economic variables with expected influence on consumers (i.e.: labour income, unemployment rate – as proxy for precautionary savings, inflation – as proxy for uncertainty, real interest rates, real net housing wealth, real net financial wealth, lagged confidence, etc...) and  $\sigma$  is the error term. If  $X$  explains most of the variations in consumer confidence, then the CCI mostly reflects current economic conditions.

Hymans (1970), Shapiro (1972) or Vanden Abeele (1983), among others, have attempted to show that consumer confidence does not contain independent information, since a small set of known macroeconomic variables can explain it. So, these chosen variables could be used (instead of the indicator) to forecast consumption (Praet, 1985).

The liquidity hypothesis of Mishkin (1978) was among the most coherent frameworks to select the determinants of consumer confidence. Mishkin based his thinking on the illiquidity of durable goods. To get rid off their durable goods, consumers have to sell them at a discount in case of an emergency. Likewise, an increase in indebtedness forces consumers to lower their purchases of illiquid goods. While conversely, an increase in their holdings of (realised) financial assets postpones the eventuality of future financial distress, allowing them to buy more durable goods. The probability of financial distress is thus positively correlated with households' debt and negatively correlated with households' financial assets.

Mishkin's CCI function reflects this financial distress:

$$CCI_t = c + \alpha \text{Income}_t - \beta \text{Price}_t - \gamma \text{Debt}_t + \delta \text{Financial}_t + \phi CCI_{t-1} + \varepsilon_t$$

These balance-sheet variables are, according to Mishkin, well correlated with the index. The common participation of both consumer confidence and financial distress data almost eliminate the predictive power of the index. In that case, consumer confidence measures financial distress rather than future income. Financial wealth and indebtedness, transitory income (difference between current and permanent income) [obviously, the expected level and variance of income also affect financial distress] and inflation (whose increase implies greater uncertainty) should then be part of the model. It is also possible to extend the reach of the model by including other variables like stock prices, the unemployment rate, oil prices and interest rates. They are all related to a broad definition of economic

uncertainty and risk. A strong link between the labour market and confidence seems obvious. One of the oldest explanations of consumer confidence is the economic discomfort index (the sum of the unemployment and inflation rates), apparently due to Okun and reused by Lovell (1975). Likewise, Delorme and al. (2001) consider that confidence is correlated positively with housing, financial wealth and previous sentiment and negatively with unemployment, prices and interest rates.

## **2.2 Qualitative/subjective determinants of the CCI**

Confidence in the sense of expectations is different from the rational expectations approach designation proposed by Muth (1961). Rational expectations are mathematical conditional forecasts of the economy based on the efficient use of all available information. Confidence or expectations in the common sense include broader and more idiosyncratic features than the former definition. For instance, it contains the potential impact of political as well as social sudden events. The CCI is therefore formed by both “rational” expectations - since the households logically use all the information available to them - and “psychological” expectations - since households also consider exogenous and subjective information before taking their consumption decisions. Therefore, confidence captures not only all the macroeconomic information but also some additional information endowing the CCI with some potential independent explanatory power for consumption.

For Katona (1975), the index as a mirror of consumer attitudes and expectations could be explained by the (unpredictable) responses of households confronted to current specific conditions. It might be possible to explain ex-post which variables accounted for these particular answers, but ex-ante the explanation remains speculative. What influences the answers of the respondents is related to personal situation. Similar links should appear at the aggregate level connecting for instance employment situation with personal and general economic situation.

Katona emphasised that the index of consumer sentiment measures a complicated range of attitudes and expectations where cognitive and emotional features are present. He suggested basic principles to apprehend consumer behaviour thanks to consumer sentiment. Consumers follow a learning process where they study the impact of past and present economic conditions on their spending decision. This process takes time and justifies the presence of the lag of the CCI in the equation as a partial adjustment feature. The law of large numbers says that random factors and personal experiences cancel out in the aggregate, but the influence of the mass-media tends to systematise households' behaviour fostering them to focus on a short range of well-known economic variables and act in a more uniform way.

Movements in the CCI may be due to changes in tastes or preferences, but it is hard to prove that these changes are co-ordinated at the aggregate level and would then influence macro consumption. Another approach is to see the variation of the prediction error of consumer confidence as a proxy for uncertainty. But is this uncertainty component correlated with consumption spending? Another view sees confidence as a measure of happiness or mood. In that case, at the individual level, respondents answer the surveys in terms of their own situation as regards their neighbours and the last noteworthy recent events in the news.

Among the factors that influence confidence, some cannot be quantified, such as a war. Therefore, by using available data series, only part of the changes in confidence can be explained. An approach would be to isolate the independent and unanticipated components of the indicator. These are movements not predicted by quantitative real variables. Confronted to a major political or social event, households modify their expectations on future economic conditions even though the current economic conditions did not require it. In special circumstances, consumer confidence may lose its correlation with general economic situation although it keeps its special relation with its short range of determinants (as unemployment and GDP). As soon as the special events dissipate, confidence goes back to its long-run relationship. Tracking the periods when consumer confidence drifted away from its economic determinants provides an insight into its determinants (Dion, 2005).

As Adams and Green (1965) remarked long ago, the wish to predict consumer confidence would require forecasting its components. Alternatively, it would also be possible to predict directly consumer confidence thanks to  $t-1$  data. This assumes that the determination of the expectations necessitates some time (the learning process) during which consumers take into account the latest economic news mixed with their own experience and draw their own conclusive picture. However, this lag is short (obviously less than a quarter) and restricts its use as forecasting period. The explanation of the CCI may then be partly contemporaneous and partly lagged. The effect of the latter diminishes with the length of the lag. Praet (1985) and Praet and Vuchelen (1989, 1988 and 1984) separate the set of explicative variables in two groups. First the lagged values of the indicator, since it appears that the indicator follows an auto-regressive process. Other lagged attitudinal variables might be included as part of the learning adjustment process. The second group gathers the already known macroeconomic variables.

Hymans (1970) decomposed the index of consumer sentiment into two separate elements: the predictive one and the non-predictive one. The former is represented by the explicative economic variables. The latter is represented by the residuals, the noise or “psychological” component of the CCI. While confidence reveals people’s beliefs (about their job and purchasing power), it thus also provides information about the current state of the economy. Garner (1981) tried to separate the

systematic economic determinants of the consumer confidence from their eventual non-systematic non-economic determinants. If the latter are significant, then forecasters will not be able to substitute macroeconomic variables for confidence. Finally, Praet (1985) notes that the absence of significant results in explaining opinions with macroeconomic data, provides evidence that consumer surveys also include original information necessary to forecast consumption.

### **3. CONSUMER CONFIDENCE AS COINCIDENT, LEADING AND UNCERTAINTY INDICATORS**

Throop (1992) distinguishes three separate approaches related to the use of consumer confidence:

#### **3.1 CCI as a coincident indicator**

A first approach considers confidence as a measure of optimism or pessimism about future economic situation. In that acceptance, confidence plays an important role as estimates of future income. Thanks to its timely availability and its value as a summary of known information it can act as coincident indicator of consumption growth. This is the approach that is the closest to the LC-PIH where current spending depends on expected future income. As a coincident indicator, the CCI captures current consumer decisions. The CCI might reflect the same information as other variables which are not yet published. As a summary of statistics of the economic situation, the CCI is broadly accepted and appears indeed in numerous studies.

#### **3.2 CCI as a leading indicator**

Historically, the work of Katona (1975) provided the foundations for a second role essentially embodied in the theories of psychological economics where confidence plays the role of leading indicator and independent predictor of consumption associated with other traditional determinants of spending. However, single questions have to be gathered within an indicator in order to assess a more stable relationship than would otherwise be the case. Indeed, the link between confidence and spending relies on common factor analysis where each component of the index has a role in the final decision of spending. Then, a set of responses is better prepared to fully represent the relationship. We can then dispose of an indicator theoretically good enough to forecast spending decisions on durable goods.

As a leading indicator, the CCI leads future consumer decisions. This role seems apparently to be well accepted (it is even used in the composite index of the US Department of Commerce). In effect, even if consumers forecast wrongly the economic situation, at least, if they are consistent with their own words, they should follow their answers and buy and spend according to what they said in the surveys

(Eppright et al., 1998; Huth et al., 1994). Being an index, the CCI can also act as a catalyst since it summarises the impact of macro-economic shocks. The CCI gathers different questions whose outcome can help forecasting or explaining consumption through their influence on the CCI. Optimism or pessimism about specific conditions (unemployment, inflation or the general economic situation) should somehow appear in the composition of the CCI and then relishes the power of this specific issue on consumption.

### **3.3 CCI as an indicator of uncertainty**

Finally, the last approach sees confidence as an indicator of uncertainty or risk. It contains several elements including the probability of financial distress or job loss. Obviously, the likelihood of facing these financial troubles is linked with the economic situation. But it affects spending through different routes absent in the traditional consumption theory. A household facing a higher probability of financial distress will save more in liquid form (and less in illiquid form) in order to confront an eventual loss of income. That would necessitate postponing the purchasing of durable goods. Other variables (mostly financial) do not seem to better measure risk and uncertainty than consumer confidence.

Madsen and McAleer (2000) insist that uncertainty should be included in the consumption function. It could be measured indirectly through inflation expectations, credit constraints or other expectations. Following Mishkin (1979), Berg and Bergstrom (1996) used the real growth rate of debt to construct a measure of income uncertainty. In the life cycle theory, debt plays a major role as a factor determined by time preferences, inter-temporal rate of substitution, expected income and interest rate.

Matusaka and Sbordone (1995) confirm that a measure of uncertainty or of risk provides interesting insights to forecast consumption. Indeed, such a variable is both objective and subjective. It might symbolise the “animal spirits” of investors. Uncertainty can be symbolised by precautionary saving. This uncertainty factor is usually modelled as a discount on future incomes. Acting as an extra discount factor, it is then higher for indebted consumers than for (less or non) indebted consumers. The influence of uncertainty would then be to discount more future income, in which case current income gains in importance as a determinant of current consumption.

Greater uncertainty or greater risk of financial distress should indeed conduct the consumers to hold more liquid assets than illiquid ones. This means spending more on non-durable goods instead than on durable goods. We should then expect confidence to better predict consumption of durable goods compared to non-durable goods since the former require adequate time and money before the consumers reach their decision of purchase (Delorme and al., 2001). The low-income elasticities of the

non-durable goods prevent them from being subject to the influence of confidence. At the same time, greater uncertainty and risk contribute to precautionary savings and therefore less consumption.

#### **4. FORECASTING POWER OF CONSUMER CONFIDENCE**

Both the theoretical and empirical work on the indexes of consumer confidence had not until recently been able to reach clear conclusions concerning its eventual forecasting power (Kamakura and Gessner, 1986; Linden, 1982). However, the influence of consumer confidence might have recently very well increased. For instance, Brown (1997) recalls that following the increasing role of financial institutions and instruments, household spending for durable goods is more connected to consumer confidence than before. In a society partly based on credit facilities and less liquidity constrained, changes in confidence may have a strong impact on the propensity to consume.

The traditional consumption function (based on the LC-PIH) implies that consumer behaviour depends on expectations of future incomes. Knowing what the consumer thinks about future income streams should then improve forecasts of consumption (Fan and Wong, 1998). If consumer confidence is independent of objective economic variables and has a separate effect on consumer spending, then it should be considered in the consumption function. On the other hand, if consumer confidence is mainly a mimic of already known objective variables, it does not provide any idiosyncratic added value in terms of forecasting. However, it might keep an interest as readily available proxy of till then omitted quantitative variables (Adams and Green, 1965).

##### **4.1 Absence of a forecasting power**

The sole purpose of consumer confidence was to help predict consumer behaviour, but till recently it had not been considered as a useful predictor. Several researchers have criticised the excessive role devoted to consumer confidence in forecasting consumption spending (Hymans, 1970; Shapiro, 1972; Van den Abeele, 1983; Burch and Gordon 1984; Kamakura and Gessner, 1986; Garner, 1991; Leeper, 1991; Fuhrer, 1993; Fan and Wong, 1998; Chopin and Darrat, 2000; Lek Goh, 2003). They pointed to the low coefficients of correlation even when focusing on consumption of durable goods. One way to demonstrate the absence of such a power has been to prove that the information contained in the index is present in traditional macroeconomic variables by regressing confidence on known economic data. Another way has been to add the index in forecasting equations and show that it did not provide extra forecasting capacity.

According to these studies, most (but not all) of the variation in the index can be explained by macroeconomic determinants. But then, this still leaves some part – the noise or additional

independent psychological factor – unexplained. Some studies even consider that the relationship between the index and consumer spending is stable over time and that the unexplained part (the noise) adds little to the forecasting of consumption (Vanden Abeele, 1983). Even unanticipated changes in confidence caused by exceptional events could be predicted by available macroeconomic data. Hymans (1970) found that the Michigan index added little in forecasting consumption of durable goods. Likewise, Burch and Gordon (1984) found no explanatory power between confidence and spending and raised an important issue in referring to the stock prices and unemployment rates as explicative variables as powerful as the index.

The role of confidence as predictor of consumption confronts the theories of life-cycle and permanent-income and more specifically their assumption of certainty equivalence. By using the model of Campbell and Mankiw (1989), Carroll and al. (1994) show that the only role of consumer confidence is its restricted influence as a predictor of income. In Campbell and Mankiw, there are two kinds of consumers: the “life-cyclers” and the “rule-of-thumbers”. The latter match their consumption with their income. An optimistic confidence indicator can indicate higher consumption in the future: if it implies that forward-looking “life-cyclers” expect a better economic situation. If they prove right, all consumers would receive higher incomes encouraging the “rule-of-thumbers” to spend more. The Campbell-Mankiw model embeds no direct link between confidence and spending, the relationship being catalysed via incomes.

“Life-cyclers” consumption function:

$$\Delta \log C_t = \varepsilon_t$$

where  $\varepsilon_t$  represents new information concerning lifetime revenues received at t. This is a white noise process or, in terms of level, a random walk.

“Rule of thumbers” consumption function:

$$\Delta \log C_t = c + \alpha \Delta \log (Y_t) + \varepsilon_t$$

## **4.2 Presence of a forecasting power**

According to its proponents, consumer confidence is supposed to help predict consumption of durable goods only. Lumping durable and non-durable goods together (as is the case for euro-area data) blurs the relevance of the CCI for inference on consumer spending. Several studies (Mueller, 1963; Juster



and Watchel, 1972; Garner, 1981; Praet and Vuchelen, 1989, 1988, 1984; Throop, 1992; Bram and Ludvigson, 1998; Howrey, 2001; Dion, 2005) emphasise the usefulness of consumer confidence. They find that confidence acts as a leading indicator of consumption of durable goods and thereby can actually help to forecast changes in overall consumption. Juster and Wachtel (1972) outlined the good forecasting power of the index in explaining consumption of automobiles. Kelly (1990) also underlined the use of consumer sentiment in the DRI/McGraw Hill model and its predictive power (see also Eckstein, 1983). According to Throop (1992), although confidence usually reflects the current economic situation, it can, at times of exceptional events, predict independently the direction of consumer spending.

Praet (1985) defends the role of the CCI for different reasons. He first notices that economic variables cannot explain fully the CCI. He points out that the rapid availability of the CCI also provides a determining advantage since most other macroeconomic variables are only available with a lag of at least one-quarter. Moreover, forecasting models based on surveys have given good results (Batchelor and Dua, 1998 and 1992; Dion and Kolodziejak, 2001; Dion, 2005).

## **5. INDEPENDENT POWER OF CONSUMER CONFIDENCE**

During the first two decades of thorough analysis of the consumer sentiment index (the 1950's and 1960's), the studies of Friend and Adams (1964) and Adams and Greene (1965) opposed the views of Mueller (1963) and confronted the so-called independent forecasting power of the consumer sentiment indicator. They used the confidence indicator that Mueller built with Katona during the 1950's at the University of Michigan. Adams (1964, 1965) said that the confidence indicator did not provide extra-information beyond what the data on unemployment and finance were saying. Katona and Mueller conversely showed that consumers' feelings were good at influencing the timing and the direction of consumer spending on durable goods.

### **5.1. Explicative power of the CCI**

Consumer expectations were one of the factors that according to Keynes (1936) could affect the "propensity to consume", but he recognised that the expectations should in the aggregate cancel out and their uncertainty made it hard to use as an influential factor. However, nowadays, consumer expectations are more uniform and widespread, so that they do not cancel out but rather sum up (Katona, 1975). Expectations are more complex than simple extrapolations from the past and they can then influence both individual and common behaviour (van Raaij, 1989; van Raaij and Gianotten, 1990).

Pigou (1927) noticed that psychological causes (in the sense of changes in attitudes without any constant base) acted as initial impulse in determining business cycle. Later, Keynes (1936) invoked “animal spirits” (in the sense of changes in tastes and preferences that affect expectations about the evolution of the aggregate demand) to explain the sudden changes in investment (see also Tobin, 1959). Katona (1975, 1960 and 1951) and Mueller (1953) built the consumer sentiment at the University of Michigan to provide a measure of the changes in attitudes, expectations, motivations and perceptions that may, independently from other factors, cause a shift in consumer spending (and saving). The main objective of Katona and Mueller, when building the University of Michigan consumer sentiment index, was to measure the reasons of the independent changes in consumption and saving growth.

The building of the consumer sentiment by Katona and his team was based on the discipline of psychological economics. According to this approach, the reaction of a consumer experiencing a change in his financial situation relies on his inner feelings and attitudes at that time. In this instance, consumer spending depends on the ability to buy (objective factor) and willingness to buy (subjective factor). This contradicts the traditional theory of consumption where consumers react uniformly to movements in income or wealth. The personal fluctuations in attitudes at disaggregate levels should cancel out at the global aggregate level. However, a common factor (sudden political or economic events) may affect the consumers and lead them to the same direction of behaviour (Throop, 1992). Besides, households may have heard about new economic prospects not yet officially released and act consequently.

Consumer confidence can be divided into two components: an exogenous part that is a function of uncontrollable external factors such as political or social events and an endogenous part that is a function of past, current and expected economic events such as real and financial economic events. Indeed, according to Shapiro (1972) and Katona (1975) consumer spending depends not only on economic factors but also on cognitive factors expressing the mood of consumers towards economic conditions since the latter affect the consumer’s perception of his economic situation and his forthcoming behaviour. Moreover, Katona (1975) insisted that consumer confidence is of particular use in cases of persistent and profound movements. The occurrence of dramatic changes conducted Katona to distinguish between the routine evolution of the CCI and the sudden breakthroughs able to better forecast spending.

In order to capture that subjective component, several confidence indicators were built all around the world. Consumer confidence is nowadays widely seen as a leading indicator and forecasting instrument. The US Department of Commerce uses Michigan attitudinal surveys in its composite index of leading indicators. Their role of summariser of known and not yet known data provides an interesting contribution to the current and immediate future state of the economy.

### THE AVAILABILITY AND THE WILLINGNESS TO BUY

According to the theory of psychological economics (Katona, 1975), determinants of consumer behaviour are an objective factor – the ability to buy – and a subjective factor – the willingness to buy. The ability to buy is based on financial resources such as income and wealth. They respond slowly to traditional economic events. The willingness to buy is more volatile and is affected by non-economic events. Consumer optimism leads to a higher willingness to consume whilst pessimism conducts to saving. Both factors are present within the index and indeed explain the behaviour of the consumer (Kumar et al. 1995). According to its proponents, the index through its predictive power in determining future consumption and eventual turning points ought to be used in short-term forecasting models.

In order to measure the willingness to buy, some questions in the index aim at measuring the intentions and attitudes of the households. The latter try to distinguish between the personal situation of the respondents and the rest of households. The former seek to determine the buying intentions of the households. As Katona put it: “consumer buying intentions are attitudes held at a given time... [and]... the two are theoretically and practically so closely related that their separation is not justified.” (Adams 1964 and Kumar et al., 1995). Consumer confidence is then a mix of intention and attitude. Thus, the CCI should measure the willingness to buy but since the households also act (at least partly) rationally it should also contain some insights about their ability to buy.

In the basic Keynesian consumption function, propensity to consume represents first the ability to buy as measured by disposable income and willingness to buy as measured by an index of attitudes and expectations about economic, political and social conditions. Income by itself is not able to explain all the changes in consumption, and so a compounded variable such as the CCI might provide a summary of all the other variables that play a role in the determination of consumption. This indicator would then be a summary of the ability and willingness to buy. Some authors granted to the indicator the unique power of summarising the willingness. However, the CCI gathers both: ability and willingness.

According to Van Raijj (1992), consumers form intentional and contingent expectations while making their spending decisions. The intentional expectations can be partly modified by the economic agent, whereas the contingent expectations are beyond his control. The first ones deal with questions about their financial situation, while the others concern their assessment of the general economic situation. The former should be the most accurate to predict their consumer behaviour. [Van Raaij (1989) recognises the need to associate the ability to buy (income) with the willingness to buy (confidence), but he fails to see that the indicator actually reveals both the ability and the willingness.]

## 5.2. Causal power of the CCI

Economists use a two-step procedure to determine the specific explicative power of the CCI. First, they consider a standard consumption function. Then, they add consumer confidence indicators and test whether it improves the goodness-of-fit (adjusted R-squared) and/or the root mean square error of the baseline model. Several authors have used vector autoregressions to analyse the dynamic impact of consumer confidence on real variables (among others: Leeper, 1992; Fuhrer, 1993; Matsusaka and Sbordone, 1995; Bram and Ludvigson, 1997). Other authors have built error-correction models (Banerjee et al., 1993) to measure the specific impact over the short-run that consumer confidence can have on household spending (e.g. Bovi, 2004; Dion, 2005).

As pointed out by Fuhrer (1992), confidence captures consumers' forecasts about the economic situation. Correct or not these forecasts might give guidance about the spending behaviour of the households. The information in confidence over that already present in macroeconomic variables should be useful to forecast consumption. The potential existence of a direct link between consumer confidence and consumer spending would then imply that independently of their financial situation, consumers may consume more later simply because they feel like doing it. They would then order more goods and services, encouraging firms to create more jobs and distribute more income. This is an example of self-fulfilling prophecies assessing the causal power of confidence.

As stated by Matsusaka and Sbordone (1995), the models of "strategic complementarities" and multiple equilibria point out that the pessimism felt by the consumers about the state of the economy (even if not based on economic fundamentals) can produce a slowdown in output. Whereas in the traditional single-equilibrium framework output only reacts to fluctuations in economic fundamentals, in the new multiple-equilibria models output not only changes according to fundamentals but also following self-fulfilling expectations provoking the shift from an equilibrium to another one. This is one way for consumer confidence to affect consumption.

According to the authors, if households expect the economy to get into recession, then there are great chances that the future output will be low provoked by a decrease in consumption. The consumers use the public announcement of their inner belief to co-ordinate. Consumer expectations can then be self-fulfilling as soon as the consumers seek to match their buying orders with their income. If, for an unknown reason (political change or military threat), households expect lower incomes, then, they will submit lower orders. This decrease in orders will force the firms to reduce their production and their workforce. Because of the following increase in unemployment, the consumers will indeed receive lower incomes. In terms of strategic complementarities and multiple equilibrium models, this means that as soon as the consumers believe (for whatever reason) that the equilibrium should be different

from the current one, then this is logical (rational?) for each of them to act in a way as to reach that new state. In that case, although the economic fundamentals have not been modified, feelings (optimism or pessimism) can affect consumer behaviour and eventually consumption. In that sense, consumer expectations cause consumption. Low consumption can cohabit with perfectly normal fundamentals.

## **6. CONCLUSION**

Consumer confidence indices exemplify the potential contribution of the psychological dimension in economic science. However, several areas for further research could be proposed to deepen our reflections. First, the choice of questions to be included in the composite indicator may impact upon the forecasting power of indices. Likewise, differences in the methodology of different surveys may lead to different statistical relationships. Second, the different weighting of confidence across consumers could allow to better taking into account the socio-economic and demographic factors attached to different households. Third, while spending is an obvious choice, other economic decisions could profit from survey data. Fourth, the potential explicative power of consumer confidence raises the issue of the proper theoretical framework to integrate the psychological dimension into consumption theory.

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