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## CONSUMER CONFIDENCE AND THE IMPACT ON RETAIL OUTPUT IN THE NETHERLANDS

The paper provides a theoretical exposition of the different motives to save, i.e. not to spend. The structure of consumer confidence is described with the methodology of data (sources). It is followed by the re-estimation of the model of consumer confidence for both the 1972–1987 and the 1987–2000 periods. The authors investigate which specific motives to save are reflected in the identified components. The results are discussed and compared with other actors' results. The model of firm output growth is specified by way of illustration in retail.

The variation in consumer expenditure is traditionally explained by both the willingness and the ability to buy (Katona, 1975). Consumer confidence determines the willingness to buy, while purchasing power (discretionary income) determines the ability to buy. The willingness to buy is the favourable opinion about purchasing goods or services. It is, for instance, determined by the perception people have about (the development) of the national economy and their household finances. The ability to buy is determined by household discretionary income. Insight into the structure of consumer confidence enables us to explain and predict consumer expenditure and retail output. It helps firms to anticipate changes in consumer demand. It helps governmental organisations to evaluate the economic effects of welfare policy, such as unemployment benefits and tax measures.

Various studies into the structure of consumer confidence and the influence on consumer expenditure have been done yet (Katona 1975; Pickering, 1983; Van Raaij and Gianotten, 1990). Van Raaij and Gianotten (1990) investigated the structure of consumer confidence in The Netherlands for the period 1972–1987. They apply a time-series principal component analysis over survey questions on consumer sentiment, collected by Statistics Netherlands (CBS), to get insight in the structure of consumer confidence. They concluded that consumer confidence can be reduced to two interpretable factors, i.e., the perception of the *development of the household financial situation* and the perception of the development of the general economic situation, including inflation and unemployment. They found the perceived *development in the general economic situation* to be a leading indicator of the development of the household financial situation. They found that the utility of saving is negatively related to the development of the household financial situation. They also found that the expected saving, i.e. the willingness to save, is positively related to the development of the household financial situation. When households become wealthier, the utility of precautionary motivated saving, i.e., saving for unexpected expenditures in the future (Keynes, 1936), is less necessary and will decrease. The way of saving will also change when households become wealthier.

Gianotten and Van Raaij (1990) also investigated the effects of consumer confidence on consumer expenditure. They apply multiple regression analysis on the factors of consumer confidence and income. They find no influence of the development of the household financial situation on consumer expenditure. They find the development of the household financial situation to contribute positively to consumer expenditure on durable goods, but no evidence on the influence on consumer expenditure on other than durable goods. As most non-durable goods are non-discretionary, this is in accordance with Katona (1975) who argues that especially discretionary consumer expenditures are influenced by consumer confidence.



One purpose of this study is to investigate the structure of consumer confidence for another time period: 1987-2000. This enables us to detect whether changes in the structure of consumer confidence have taken place. We expect differences in the structure of consumer confidence in the nineties compared to the eighties and seventies. Welfare increased significantly in The Netherlands and uncertainty about future welfare probably decreased, due to the structural high economic growth from the second half of the nineties, as well as the favourable labour market conditions during these years. The second purpose of this study is to investigate the influence of the components of consumer confidence on output growth of firms in the retail industry. We expect *retail* output to be more discretionary compared to most categories of *non-retail* output, such as communication, transport and use of gas, water and electricity.

### Types and Motives of Saving and Buying

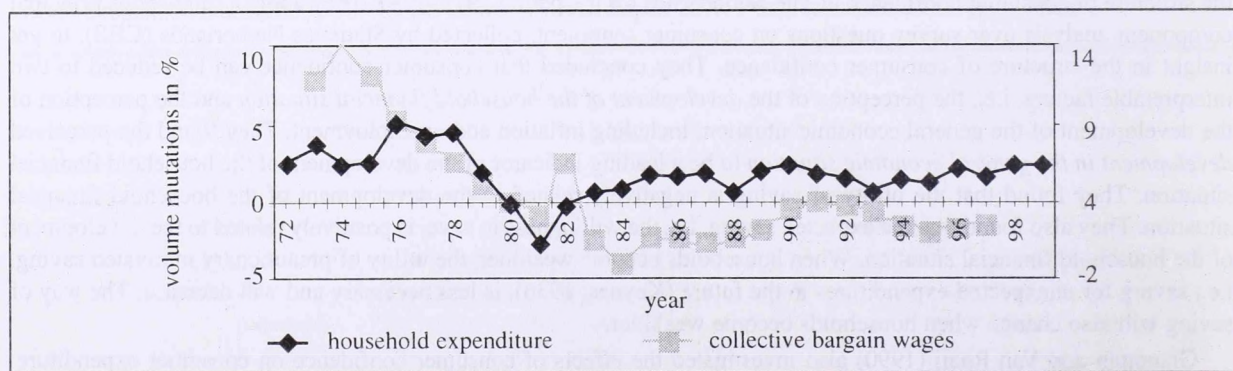
Consumer confidence is supposed to influence household expenditure, as it influences the *willingness to save*, and thus the willingness to spend as well. Besides the ability to save -and thus the ability to spend- the willingness to save is considered to determine saving behaviour of households. The relation between the willingness to save and consumer confidence -positive of negative- depends on the specific *motives* to save. Awareness of the various driving forces, or motives, behind saving and therefore buying decisions, is necessary to understand the *composition* of the various components of consumer confidence and their effects on retail output.

Besides the *ability to buy*, also consumer confidence affects household expenditure. This is indicated in Figure 1, showing that the growth in real household expenditures fluctuates more than real wages. This indicates that not all variance in the growth of household expenditures can be explained by the growth of wages, which we consider to be a good proxy of the *ability to buy*. Furthermore, an increase in the growth rate of wages does apparently not always lead to an increase in household expenditures. And a decrease in the growth rate of wages does not always lead to a decrease in household expenditures. If the ability to buy would have been the only important determinant of household expenditure, the growth in real wages should have been a *leading indicator* for the growth in real household expenditures.

Clearly, recessions influence expenditures and wages negatively. Real growth in total consumption of households decreased considerably in the recession years around 1981. Also the recession years around 1988 and around 1993 show diminished growth. This presumably is the a consequence of the lower willingness to buy (consumer confidence) and lower ability to buy during a recession<sup>1</sup>.

figure 1

Growth household expenditures and wages



\* The left vertical axis gives the values of the growth rate of household expenditure.  
The right axis gives the values of the growth rate of collective bargain wages

Below we define the motives to save and types of expenditures as defined by Keynes (1936) and Katona (1975). The motives to save will help us interpret the components of consumer confidence (section 3), as the relationship between the willingness to save and consumer confidence depends on the specific motive to save. The type of



expenditure will help us to understand the relationship between the components of consumer confidence to be identified and retail output (section 4).

#### *Motives to save*

Keynes (1936) distinguishes three saving motives:

1. Precaution: Saving to hedge against unexpected expenditures or to spread wealth in case expected income in the future is lower<sup>2</sup>. This is also called buffer saving.
2. Transaction: Saving to be able to do large expenditures in the future. This is also called goal saving.
3. Speculation: Saving to increase wealth (wealth management).

According to Katona (1975), the speculation motive is not dominant. Hardly any consumer mentions saving for the purpose of increasing wealth (Van Raaij and Gianotten, 1990). The driving force of speculative saving, is to accelerate the yield of putting aside money. However, the choice where to allocate the money to be saved, is not a motive to save. It is the motive how to save most efficiently. Transaction and precaution might therefore be the dominant motives to save money. Savings with a speculative motive should primarily be seen as efficient allocation of savings with a transaction or precaution motive. This does not mean that the speculative motive cannot be a motivation to save. Increasing wealth might be useful for *potential* transactional purposes, which are still latent.

#### *Types of buying*

Katona (1975) distinguishes two types of expenditures:

1. Discretionary goods: Free spending
2. Non-discretionary goods: Contractual spending and basic necessities

Non-discretionary expenditures cannot easily be postponed or canceled. Contractual spending includes rent, mortgage and energy use. Basic necessities include the basic spending on food, clothing and transportation. Discretionary expenditures are free spendings, which can be postponed easily. They include vacation trips and spending on luxury goods, like recreation equipment, cars and household durable goods.

#### **The structure of consumer confidence: Data and Methodology**

Van Raaij and Gianotten (1990) investigate the structure of consumer confidence over the period May 1972–December 1987 by performing a time-series principal component analysis on ten survey questions on consumer sentiment in The Netherlands. The score on a question is determined by deducting the percentage of unfavourable answers from the percentage of favourable answers. Neutral answers and the category 'don't know' are left out of consideration. We re-estimate the model of Van Raaij and Gianotten (1990) over both the time period May 1972–December 1987 and January 1987–July 2000. Re-estimation over the 1972–1987 period is valuable, as Van Raaij and Gianotten (1990) apply a different estimation technique. They use the linear structural equations model LISREL, in which factor analysis and multiple regression analysis are combined.

The survey data are from Statistics Netherlands (CBS). We use the survey questions on consumer confidence that Van Raaij and Gianotten (1990) used, and add question 8. Like Van Raaij and Gianotten, our sample frequency for the 1972–1987 period is one datapoint per question per tetramester (four-month period). Thus we obtain a total of 46 datapoints. For the 1987–2000 period, survey data are available on a monthly basis. The sample frequency is one datapoint per question per month for this period. Thus we obtain a total of 163 datapoints. The complete questions and response categories are given in Van Raaij and Gianotten (1982). The content of the survey questions included in the model is as follows:

1. Evaluated development of the economic situation (last 12 months).
2. Expected development of the economic situation (next 12 months).
3. Evaluated development of the household financial situation (last 12 months).
4. Expected development of the household financial situation (next 12 months).
5. Evaluation whether it is a good or bad time to buy durable goods.



- 6. Expected price increases (inflation) (next 12 months).
- 7. Expected development of unemployment (next 12 months).
- 8. State of household finances now; present-day household wealth.
- 9. Expected ability to save (next 12 months).
- 10. Utility (rationality) of saving.

After re-estimation we expand the model by including three extra survey questions on planned (expected) expenditures. The three new questions we include are:

- 11. Planned purchase of durable goods.
- 12. Planned investment in housing.
- 13. Planned investment in housing (conditions).

We re-estimate the expanded model over the period January 1987 to September 2000.

**The structure of consumer confidence: Empirical results**

The goal of principal component analysis is to reduce an original set of variables into a smaller set of interpretable uncorrelated components or factors that represent most of the information found in the original variables. Principal component analysis transforms a set of correlated variables into a set of uncorrelated variables or factors. Linear combinations of the correlated variables are formed such that this linear combination, called a factor or component, maximizes the amount of variance explained.

Table 1 shows the (Pearson) correlation coefficients between the survey scores of questions, we want to include in the principal component analyses. The correlation coefficients with respect to the 1972–1987 period are at the over-diagonal triangle. Question 8, present-day household wealth, is not significantly correlated (0.10 level, two-tailed test) to any of the other variables. Therefore we leave Question 8 out of the principal component analysis over the 1972–1987 period<sup>3</sup>. The correlation coefficients with respect to the 1987–2000 period are at the under-diagonal triangle. All questions correlate significantly to at least one other question, which implies that it makes sense to include all questions in a principal component analysis.

Table 1

Correlation matrix\*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	<b>1.00</b>	0.93	0.28	0.56	-0.12	0.72	0.95	-0.10	0.56	0.45			
2	0.85	<b>1.00</b>	0.13	0.42	-0.13	0.76	0.88	-0.26	0.35	0.37			
3	0.61	0.29	<b>1.00</b>	0.89	0.81	0.04	0.23	-0.23	0.64	-0.42			
4	0.82	0.62	0.80	<b>1.00</b>	0.58	0.31	0.53	-0.10	0.76	-0.15			
5	0.67	0.48	0.69	0.75	<b>1.00</b>	-0.23	-0.16	-0.44	0.20	-0.76			
6	0.35	0.48	-0.05	0.16	0.04	<b>1.00</b>	0.66	-0.05	0.41	0.45			
7	0.94	0.74	0.68	0.85	0.75	0.24	<b>1.00</b>	-0.05	0.54	0.47			
8	0.32	0.20	0.55	0.53	0.76	-0.33	0.42	<b>1.00</b>	0.20	0.36			
9	0.09	0.04	0.38	0.38	0.56	-0.49	0.19	0.85	<b>1.00</b>	0.21			
10	0.19	0.25	0.12	0.31	0.32	-0.28	0.15	0.54	0.66	<b>1.00</b>			
11	0.22	0.12	0.34	0.30	0.02	0.19	0.21	-0.02	-0.05	-0.13	<b>1.00</b>		
12	0.32	0.29	0.15	0.37	0.52	-0.10	0.34	0.52	0.49	0.47	-0.15	<b>1.00</b>	
13	0.27	0.21	0.37	0.42	0.66	-0.28	0.36	0.78	0.74	0.54	-0.12	0.54	<b>1.00</b>

\* The correlation coefficients with respect to the 1972–1987 period are at the over-diagonal triangle. The correlation coefficients with respect to the 1987–2000 period are at the under-diagonal triangle.



Table 2 shows the results of the time-series principal component analysis of the re-estimation of Van Raaij and Gianotten (1990) for both the periods 1972–1987 and 1987–2000, as well as the results for the expanded model. We only present the solutions with varimax rotation. Rotation transforms the initial matrix of factor loadings, i.e., the correlation of a variable with the factor, into one that is easier to interpret. The varimax rotation we perform, attempts to minimize the number of variables that have high loadings on a factor, which enhances the interpretability of the factors. Factors are extracted as long as the eigenvalues are above unity. In Table 2, loadings above 0.60 in absolute value are preseted in bold. With a factor loading above 0.60 in absolute value, the variable has a significant influence on the component and contributes to the variance explained by the component.

Table 2

Rotated Component Matrix<sup>ab</sup>

period question	1972–1987		1987–2000		1987–2000		
	F1	F2	F1	F3	F1	F2	F3
1	<b>0.96</b>	0.14	<b>0.97</b>	-0.03	<b>0.91</b>	0.31	0.16
2	<b>0.90</b>	0.03	<b>0.83</b>	-0.13	<b>0.92</b>	-0.02	0.09
3	0.16	<b>0.97</b>	<b>0.69</b>	0.40	0.34	0.80	0.34
4	0.48	<b>0.84</b>	<b>0.88</b>	0.31	<b>0.67</b>	0.53	0.38
5	-0.28	<b>0.91</b>	<b>0.74</b>	0.51	0.55	0.34	<b>0.64</b>
6	<b>0.82</b>	-0.07	0.45	<b>-0.69</b>	<b>0.64</b>	-0.11	-0.52
7	<b>0.94</b>	0.10	<b>0.94</b>	0.11	<b>0.81</b>	0.41	0.25
8			0.37	<b>0.85</b>	0.12	0.29	<b>0.88</b>
9	0.59	0.54	0.12	<b>0.94</b>	-0.09	0.14	<b>0.91</b>
10	<b>0.61</b>	<b>-0.61</b>	0.14	<b>0.68</b>	0.11	-0.25	<b>0.73</b>
11					0.08	<b>0.70</b>	-0.24
12					0.35	-0.24	<b>0.67</b>
13					0.15	0.07	<b>0.85</b>

<sup>a</sup> Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

<sup>b</sup> The percentage of the total variance explained by the unexpanded model is 87% for the period 1972–1987 and 77% for the period 1987–2000. The factors resulting from the expanded model explain 78% of the total variance.

In subsection 4.1 we discuss the results of the principal component analysis for the 1972–1987 period. In subsection 4.2 we discuss the results of the principal component analysis for the 1987–2000 period.

**The structure of consumer confidence in 1972–1987**

We consider the results of the time-series principal component analysis over the period 1972–1987. A high positive loading implies a positive judgment, whereas a high negative loading implies a negative judgment. There appear to be two independent components of consumer confidence:

F1. Development of the general economic situation.

F2. Development of the household financial situation.

The composition of the factors are about the same as Van Raaij and Gianotten (1990) found. This is not surprising as only the estimation method differs. Van Raaij and Gianotten label F2 the household financial situation. As the present-day household financial situation (question 8) appears to be unrelated to F2, we rather label F2 the *development* in the present-day household financial situation. Including question 8 in the analysis leads, as forseen from the correlation matrix, to an extra factor on which only household wealth has a high loading. Question 8 does not share a common factor with other variables during the 1972–1987 period. Factor 2 (F2) represents the evaluated *development in the household financial situation*, as question 3, 4, and 5 have high loadings on this factor. Question 10 loads



moderately but negatively on F2, which gives an indication for F2 to relate to the *utility of precautionary saving*. The utility of precautionary saving is lower in the *expected ability to buy* (spreading wealth) and is higher in the uncertainty around that expectation (hedging). A perceived increase in the household financial situation increases, *ceteris paribus*, the possibilities to buy from future income and therefore diminishes the utility of saving.

The perceptions about whether it is a good or bad time to buy durable goods (question 5) and the perceived utility of saving (question 10) have high but opposite loadings. This again indicates that saving is mainly precautionary motivated in the 1972-1987 period. A decrease in the motivation to save for precaution, i.e. a decrease in the motivation to postpone spending, should imply an increase in the utility of buying at present-time indeed.

Factor 1 (F1) represents the perceived *development in the general economic situation* as questions 1, 2, 6, and 7 have high loadings on this factor. These questions relate to perceptions about developments in general economic variables. Apparently an expected decrease in inflation<sup>4</sup> or unemployment increases optimism about the development of the general economic situation. The utility to save has a moderate loading on F1, just above 0.60. According to Ward and Pickering (1979) a high utility of saving means that consumers lack confidence in the economy. Nevertheless the loading of the utility of saving (question 10) on F1, which is an indicator of confidence in the economy, is even positive. Apparently, our findings do not support Ward and Pickering's hypothesis. F2 suggest that a high utility of saving indicates that consumers lack confidence in their *ability to buy in the future*, which apparently can deviate from the degree of optimism over the general economic situation. The positive loading of the utility to save (question 10) on F1 also indicates that saving is precautionary motivated. If the economic climate is favourable, households have the incentive to save for less favourable times in the future. Note that F2 is related to saving in order to hedge against unexpected expenditures, while F1 is related to the saving in order to spread wealth. Unlike Keynes, Katona (1975) explicitly distinguishes these two kinds of precautionary saving.

#### *The structure of consumer confidence in years of recession*

As an exercise, we consider the 1978-1984 period, a subsample of the 1972-1987 period. From Figure 1 it can be seen that this period concerns exactly one business cycle. It captures the years of economic downswing before 1981 and the years of economic upswing after 1981. The recession of this period was a severe one, leading to a considerable fall of household expenditure. Therefore we consider this subsample appropriate to analyse the possible different structure of consumer confidence in an unstable economic climate.

The principal component analysis over the 1978-1984 period results again in two components of consumer confidence, presented in the first column of Table 3. These components are labeled F1 and F2 again, as the questions with high loadings on the factors and their signs, are about the same as for the 1972-1987 period. Nevertheless the utility and ability of saving (question 9 and 10) load much higher on F2 in absolute terms. This is not surprising, as the correlation coefficient with respect to question 9 and 10 is -0.72 in the 1978-1984 period, while only 0.21 in the 1972-1987 period. Apparently the business cycle seems to manifest itself in a discrepancy between the utility to save and expected ability to save. Households are willing to save but expect not to be able to do so in years of perceived economic recession. Households expect to be able to save but are not willing to do in years of a perceived economic upswing<sup>5</sup>. Unlike the 1972-1987 period, in the 1978-1984 period the expected development of the household financial situation (question 4) is significantly negatively correlated with the utility of saving (question 10). This might be due to the diminished importance of the utility of saving to spread wealth compared to the utility of saving to hedge against unexpected expenditures or developments in income in the future. Uncertainty about the ability to buy in the future, is presumably relatively high in years of unstable economic conditions. This explanation corresponds with the observation that questions 9 and 10 do not load at all on F1 in the 1978-1984 period.

As a second exercise we consider the 1978-1981 period, i.e., only the years of the economic recession. The principal components analysis results in only one component, presented in the second column of Table 3. F1 and F2 seem to be combined into this single factor. All variables which have high absolute loadings on F1 or F2 in the estimation for the 1978-1984 period, have high loadings on this single factor. Unlike the 1978-1984 period, the evaluated development in the household financial situation (question 3) is positively related to the perceptions about the general economic situation. This might be the consequence of including only years of economic downswing in the sample and thus leaving out the turning point<sup>6</sup> in the business cycle. At the turning point of the business cycle, the evaluated development in the household financial situation diverges from the expected development in the general economic situation. When the economy moves from a downswing into an upswing, households are optimistic about



**Rotated Component Matrix<sup>ab</sup>: structure of consumer confidence in a period of recession**

Question	1978-1984		1978-1981
	F1	F2	F1
1	<b>0.93</b>	0.29	<b>0.99</b>
2	<b>0.98</b>	0.07	<b>0.87</b>
3	0.08	<b>0.97</b>	<b>0.94</b>
4	0.17	<b>0.94</b>	<b>0.97</b>
5	-0.07	<b>0.91</b>	<b>0.95</b>
6	<b>0.84</b>	-0.18	<b>0.68</b>
7	<b>0.81</b>	0.43	<b>0.88</b>
8			
9	0.13	<b>0.91</b>	<b>0.89</b>
10	-0.03	<b>-0.89</b>	<b>-0.78</b>
11			
12			
13			

Table 3 the economic conditions but their financial situation has been decreasing<sup>7</sup>. Also just after the turning point, the evaluated development of the household financial situation might still diverge from the development in the economic conditions. The speed of adjustment of wages to productivity is finite due to inertness of the collective bargaining process.

Note that only if we take the 1978-1984 period, present-day household wealth (question 8) is significantly (negatively) correlated with the expected development in the general economic situation (question 2). This opposed to the full sample (1972-1987) and the sample with only the years of economic downswing (1978-1981), where present-day household wealth is not correlated with other variables. An explanation for this negative relation for the 1978-1984 period might be that this period covers both years of economic upswing (1981-1984) as well as years of economic downturn (1978-1981). At the beginning of an economic upswing, household wealth is generally low, because the development in the household financial situation has been negative. Vice versa, at the beginning of an economic downturn, household wealth is high, while the expected development of the economic situation is negative. Inclusion of question 8 in the principal component analysis has no influence on prior results without question 8, except that question 8 is negatively loaded on F1 with a loading of -0.75.

<sup>a</sup> Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

<sup>b</sup> The percentage of the total variance explained by is 87% over the period 1972-1984 and 79% over the period 1972-1981.

**The structure of consumer confidence in 1987-2000**

We consider the results of the time-series principal component analysis for the period 1987-2000. For this period we have estimated two models. The first model is identical to the model estimated for the 1972-1987 period. Unlike the 1972-1987 period, question 8 (household wealth) appears to be significantly related to many other questions in the 1987-2000 period (see Table 1). Therefore, we show the results in which we include question 8 in the model.

The second model is an expansion of the first model. Three survey questions on consumer sentiment are added, viz. question 11, 12 and 13. The results of the expanded and unexpanded model are not contradicting. The expanded models give insights complementary to the results of the first model. The components of consumer confidence we derive from the models are:

- F1. Development of the general economic situation.
- F2. Evaluated development of the household financial situation.
- F3. Household wealth.

Unlike the 1972-1987 period, there is a third factor of consumer confidence (F3), representing *household wealth*. The first two factors, F1 and F2, are not new. They are similar to the components of consumer confidence of the 1972-1987 period. However, the composition of the factors has changed, and therefore the interpretation. We discuss the factors below.

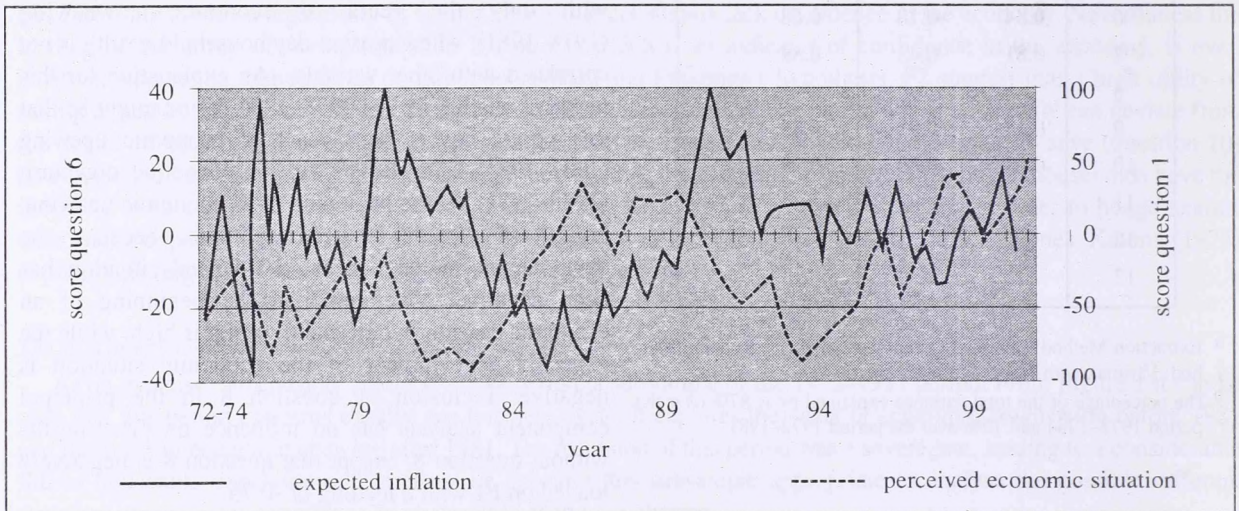
Like in the 1972-1987 period, the first factor (F1) represents the perceived development of the general economic situation. The questions related to perceptions about developments of general economic variables (questions 1, 2, 6 and 7), have high loadings on this factor. However the composition of F1 differs in some respects from F1 of the 1972-1987 period. Unlike the 1972-1987 period, in the 1987-2000 period, inflation expectations (question 6) appear



to be not an important element anymore in the perceptions about the development of the general economic situation. This may be due to increased policy towards price stability in this period, i.e., less price fluctuation, to meet the demands of the EMU. From Figure 2 can be seen that since the end of 1992, expected fluctuations of inflation are smaller than before, indeed. It may also be due to a decrease in importance of the business cycle compared to other determinants of economic growth. The recession around 1993 is much less severe than the recession around 1981 indeed<sup>8</sup>. The relative impact on the growth of household expenditures decreases. From Figure 2 can be seen that before 1994, expected inflation clearly moves (opposite) with the perceptions with respect to the economic condition. However, since 1994 this is not the case anymore. This indicates that from around 1994, the general economic condition is not associated anymore with the business cycle, and therefore with inflation.

figure 2

### Expected inflation and the general economic situation



In the unexpanded model, questions 3, 4 and 5 have high loadings on F1. This is not the case for the 1972–1987 period. This might be due to a diminished importance of precaution as a motive to save. The correlations between question 3 and 10 and between questions 5 and 10 are not significantly negative anymore. Negative correlations would have indicated that the dominant motivation for saving is still precautionary (see page 9 for an explanation). We come back to the possibility of changed motives to save more extensively, when discussing the composition of F2 and F3.

Besides a diminished importance of precautionary saving, a diminished importance of the business cycle on the general economic situation, which is suggested by the lower loading of expected inflation (question 6) on F1, might contribute to the high loadings of questions 3 and 4<sup>9</sup>. As already mentioned, at the turning point of business cycles the expected and evaluated household financial situation diverges from the expected and evaluated development in the general economic situation.

A third explanation for the high loadings of the perceived development in the household financial situation (questions 3 and 4) in the 1987–2000 period, might be that (income from) shareholding has become more important in the nineties. This implies a greater dependency of income on the degree of optimism about the general economic situation.

Like in the 1972–1987 period, the second factor (F2) represents the perceived development of the household financial situation. However, the composition of F2 has changed considerably. Only the questions 3 and 11 have a high loading on this factor. F2 remains invisible in the unexpanded model. Not surprisingly, as question 11 is an important element of F2 but not included in the unexpanded model. The different composition is apparently due to a change in the motivation to save, which we explain below.

The utility to save (question 10) has not a high (negative) loading on F2 anymore during the 1987–2000 period. This suggests that the precautionary motive for saving has become less important. This is also indicated by the correlation matrix. The correlation coefficient between questions 3 and 10 is only 0.12, while it is -0.42 for the 1972–1987 period and even -0.86 for the 1978–1984 period. An increase in the household financial situation does not



have an important effect anymore on the perceived *ability to buy* in the future. Less importance of precautionary motives to save might be explained by the considerable increase in household wealth during the period 1987–2000 compared to the period 1972–1987. Wealthy households tend to buy from current income rather than from savings. Current income is sufficiently high to pay for the expected expenditures.

Question 11, the planned purchase of durable goods, has a high positive loading on F2. The increase of planned purchases of durable goods in the perceived development of the household financial situation, indicates that saving has a *transactional* motive. When the financial situation of households becomes better, the ability to do large expenditures, viz. to buy durable goods without further saving, increases. The time discount rate of consumption is negative in general. Therefore, an evaluated increase in the household financial situation will lead to an increase in planned purchasing of durable goods in case the goal of saving is to be able to do large expenditures in the future. Note that as the dominant motive for saving appears to be transaction in the 1987–2000 period, F2 can be interpreted as the perceived ability to buy from prior *savings*. This opposed to the 1972–1987 period, in which F2 can be interpreted as the expected ability to buy from future *income*, saving being dominantly precautionary motivated.

The third identified component of consumer confidence, is F3. F3 represents *household wealth*, as in both the expanded and unexpanded model, question 8, 9 and 10 have high loadings on this factor. Whereas during the 1972–1987 period the savings questions (questions 9 and 10) are related to the *development* of household wealth (questions 3 and 4), during the 1987–2000 period they are related to the *level* of household wealth (question 8). The relationship between household wealth and ability to save (question 9) turns out to be positive. This is opposed to the 1972–1987 period. In this period there appeared to be no relationship and in the subsample 1978–1984, the relationship appeared to be even negative. An explanation for this is the diminished impact of the business cycle on household wealth in the 1987–2000 period, as recessions are less severe and the level of household wealth increased considerably. Also the separate influence of economic restructuring and developments in the information technology, on wealth, might make the impact of the business cycle less important. The recession in the early eighties had a considerable negative impact on perceived household wealth, while in the early nineties the recession only led to a flattening in the increase in perceived household wealth, not to a decrease.

The positive loading of question 10 indicates that the transaction motive to save dominates the precaution motive during the 1987–2000 period. Consumption *increases* in household wealth, as the time discount rate in general is negative. The marginal utility of consumption however *decreases* in the quantity of the goods. This implies that the utility of saving for expensive goods not affordable without saving, increases in household wealth. This motive is precisely the transaction motive (goal saving). Note that from the composition of F2, we derived already an indication for the transactional motive to dominate the precaution motive during the 1987–2000 period.

The expanded model gives some new insights with respect to F3. F3 is positively related to planned investment in housing (-conditions), which concern questions 12 and 13. Investment in housing therefore seems to be an important substitute for saving. This might have a speculative motive, as throughout the 1987–2000 period real estate prices have been increasing continuously. Moreover, if housing (conditions) would have been only a substitute for other goods, we would expect question 11 to have a high loading too, which is not the case. The *speculative motive* of saving and investing, apparently has increased in importance during the 1987–2000 period. To accelerate the yield of putting aside money for transactional purposes, more consumers buy bonds and stocks.

#### *Development of the factors of consumer confidence over time*

In Figures 3a and 3b, the identified components of consumer confidence are plotted for the 1972–1987 and the 1987–2000 periods. We also plot present-day household finances (question 8), as this question does not share a common factor with the other questions in the 1972–1987 period. First we consider the 1972–1987 period (Figure 3a). Clearly, the oil embargo in the winter of 1973–1974 led to a decrease in both components of consumer confidence and in household finances. The increase in (cost-push) inflation (see Figure 2) and a considerable fall of aggregate demand in the oil-importing countries (Scharpf, 1991, p. 42), lead apparently to a negative perceived (growth of) purchasing power<sup>10</sup>.

F1, the perceived development in the general economic situation, seems to be a *leading indicator* of F2 in the beginning of the eighties, when the economy recovered from the recession. F1 starts its upward trend in 1982 (the beginning of a new government in The Netherlands), whereas F2, the perceived development of household finances, increased in 1983. The perceived household finances, question 8, starts to increase even later, in 1985. The upward trend of F2 starts presumably later because of the opposite directions in which *expected* developments and *actual*



figure 3

Components of consumer confidence 1972–1987

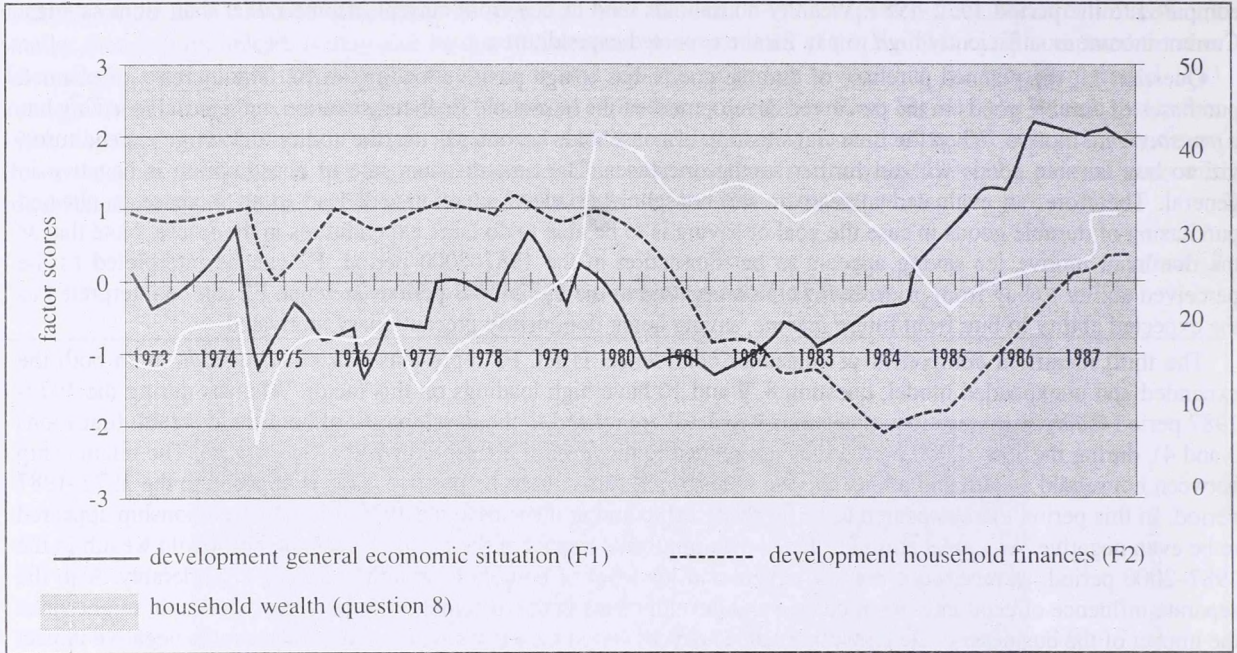
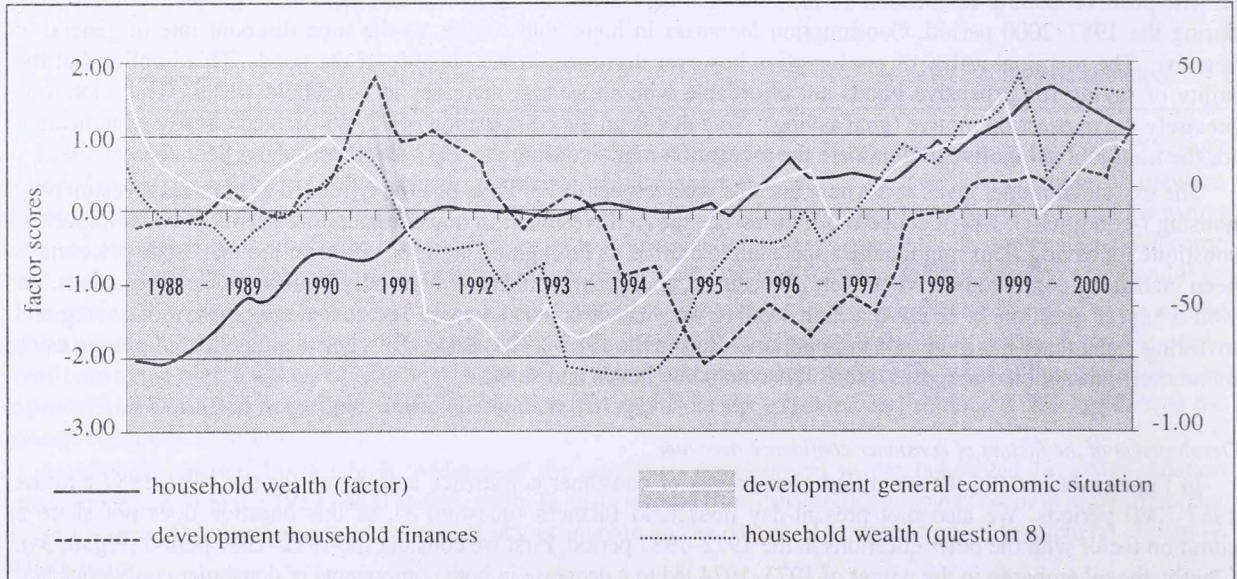


figure 3

Components of consumer confidence 1987–2000



developments move at the turning point of the business cycle. We argued before that at the turning point of the business cycle, the evaluated development of the general economic situation and household financial situation, diverges from the expected development of the general economic situation (see page 8). The scores on questions 1 and 2 appear to be opposite indeed during these years.

Unlike the upward trend, F1 and F2 seem to start their downward trend preceding the recession in 1981, *simultaneously*. This downward trend apparently started at the end of 1978<sup>11</sup>. The oil price increased considerably in this year. This might be the reason that the downward trends of F1 and F2 start at the same time in this case. Expectations are in line with evaluations. Unlike the years of recovery (beginning of the eighties) the scores on



questions 1 and 2 have the same signs indeed during these years. Surprisingly, the perceived household wealth is increasing considerably at the end of 1978. From Figure 1 we do not observe a considerable increase in actual household income. The perceived increase might be related to the decrease in unemployment during this period and the unemployment reducing measures of the government, starting in 1977.

Now we consider the 1987–2000 period (Figure 3b). Interestingly, while actual household wealth is still moving with the perceived development of the general economic situation, the perceived household wealth is increasing throughout the whole time-period. This might be due to the relatively high level of household wealth in the 1987–2000 period and therefore the relatively low impact of the business cycle on the *relative* change in household wealth. Perceptions do not change that much. Like we observe for the 1972–1987 period, F1 seems to be a leading indicator for F2. While F1 starts its downward trend in 1989, F2 starts its downward trend in 1990. While F1 starts its upward trend in 1993, F2 starts its upward trend in 1995.

\* \* \*

We conclude that the perceived development of the general economic situation (F1) is an independent component of consumer confidence in both the 1972–1987 and the 1987–2000 periods. However, expected inflation does not correlate with the perceived development of the general economic situation anymore in the 1987–2000 period. This might be due to the increased price stability as a consequence of the fight against inflation to fulfill the EMU requirements. It might also be due to a diminished impact of the business cycle on the growth in the expenditures, as a consequence of increased flexibility in labour and product markets.

The development of the household financial situation (F2) is an independent component of consumer confidence for both the 1972–1987 and the 1987–2000 periods. For the 1972–1987 period, this concerns the expected ability to buy from current *income*. It reflects the saving decisions made in years of economic instability, in order to hedge against unexpected expenditures in the future. It reflects the saving decisions to spread wealth if the financial situation is expected to change.

During the 1987–2000 period, the development of the household financial situation concerns the expected ability to buy from *savings*. It reflects the increase in the ability to do large expenditures from prior savings. Clearly, the transactional motive to save has replaced the precautionary motive. This might on the one hand be due to the increased household wealth. Households tend to buy from current income rather than from savings. On the other hand this might be due to the diminished impact of the business cycle on household wealth during the 1987–2000 period.

Household wealth (F3) is an independent component of consumer confidence only during the 1987–2000 period. Unlike the *development* of household wealth, related to the ability and utility of saving for *precaution*, household wealth is related to the ability and utility to save for *transactions*.

During the 1987–2000 period, investment in housing (conditions) appears to be (partly) motivated by speculation and therefore an important substitute for saving.

The perceived development of the general economic situation seems to be a leading indicator of the perceived development of household finances, except for the start of economic downswing in 1978. At this time, oil prices started to increase considerably.

### Firm output growth in the retail industry: Data and Methodology

We investigate the determinants of the monthly percentage change of retail output of small to medium sized firms during the 1987–2000 period by performing an ordinary least squares (OLS) regression analysis. At given retail technology, changes in output of retailers are determined by changes in demand and changes in competition. Below we explain how we model the changes in (the determinants of) demand and changes in (the determinants of) competition.

We distinguish two categories of determinants of demand, i.e., the *willingness to buy* and the *ability to buy*. The ability to buy is a necessary condition for a positive willingness to buy to lead to actual purchases and retail output, respectively. We consider the factors (identified by time-series principal component analysis) of consumer confidence as indicators of the monthly percentage change of the willingness to buy. We consider the monthly percentage change of collective bargain wages as an indicator of the monthly change of the ability to buy.

Output decreases through the intensity of competition. For oligopolistic markets, three determinants of the intensity of competition output per firm can be distinguished: the *number of competitors*, the *conjectural variations* (strategy)



of competitors, and the relative *efficiency* of competitors. As markets in the retail industry are transparent<sup>12</sup> and geographically bounded, changes in strategies of firms will be detected quickly, and efficiency differences between firms of identical type will be relatively small. Therefore we consider (the efficiency of) firms of the same type to be approximately identical and the conjectural variations to be constant. This implies that entry and exit flows within a shoctype, that do not change the actual number of firms in the market, have no effect on firm output per firm. The number of firms is the remaining relevant determinant of the intensity of competition in retail markets. We consider changes in the number of firms through *net entry*, to be an important determinant of competition induced changes of retail output. Net entry influences profitability and firm output, as total demand has to be divided between more firms.

The empirical analysis is carried out through an *error correction model* (ECM) in which retail output converges *ceteris paribus* (at unchanged demand) to a shoctype specific long-run output. Both demand and supply factors determine the speed of error correction. Concerning supply, we consider the difference between actual output and a long-run shoctype specific equilibrium output to be an indicator of net entry and therefore of net entry induced changes in output per firm. The intuition is as follows. Following the Kirznerian notion that net entry originates from the existence of disequilibria characterized by the existence of profit opportunities (Ikeda, 1990; Kirzner, 1973, 1979), we may define the difference between actual output and long run equilibrium output both as an indicator of profit opportunities and of net entry. As output per firm decreases in the number of firms, the difference between actual output and long-run equilibrium output is a proxy for the difference between the long-run equilibrium number of firms and the actual number of firms. We could have modelled the effect of net entry on firm output directly by incorporating a measure of net entry, but we have no monthly data on net entry rates.

Concerning demand, we consider the difference between actual output and a long-run shoctype specific equilibrium output also to be an indicator of the discrepancy between perceived wealth and actual wealth. If perceived wealth is higher than actual wealth, consumer demand is higher than structural demand. Inevitably, demand growth will be negative in the future, if consumer confidence in the past was too high. If positive perceptions do not render an increase of income sooner or later, an initial increase of demand has to be compensated by a decrease. We consider the *speed of adjustment*, i.e. the elasticity of the percentage discrepancy between retail output and the long-run equilibrium output with respect to the monthly growth in retail output, to be constant. However, in fact, it is an average of the speed in which misperceptions concerning the three components of consumer confidence disappear and the speed in which the equilibrium number of firms moves to the actual number of firms in the market.

The equation to be estimated (40 shoctype dummies included) is:

$$\frac{\Delta Q_{i,t}}{Q_{i,t-1}} = \varepsilon \frac{\Delta I_t}{I_{t-1}} + \varphi_1 F_{1,t} + \varphi_2 F_{2,t} + \varphi_3 F_{3,t} + \sum_m \beta_m + \gamma \frac{Q_{i,t-1} - Q_i^*}{Q_{i,t-1}} \quad (1)$$

with  $i \in [1,41]$ ,  $t \in [1987:1,1998:12]$ ,  $m \in [1,12]$ , and where

- $Q_{i,t}$  = real firm output of shoctype  $i$  in period  $t$
- $Q_i^*$  = real firm output in the long-run equilibrium
- $F_{i,t}$  = factor  $i$  of consumer confidence in period  $t$
- $I_t$  = collective bargain wages in period  $t$  (in 1980 prices)
- $\varepsilon$  = income elasticity of output growth
- $\varphi_i$  = factor elasticity of output growth with respect to factor  $i$
- $\beta_m$  = month specific effect on output growth with respect to month  $m$
- $\gamma$  = speed of adjustment of output to the equilibrium output

If income does not change and consumers perceive no changes in household wealth and in the general economic situation ( $\Delta I$ ,  $F_1$  and  $F_3$  are equal to zero), output of shoctype  $i$  moves to the equilibrium output (the dummie value) with a speed equal to  $\gamma$  percent points error correction per month. The  $\gamma$  has to be between zero and one. A coefficient  $\gamma=1$  means that complete adjustment takes place within one month, at least if the other variables are equal to zero. A coefficient of zero implies no adjustment at all<sup>13</sup>.



The difference between actual output and equilibrium output is one period lagged. We assume that (potential) retailers do not react immediately on profit opportunities, as congestion is present. Congestion might be the consequence of, for example, institutional barriers or the scarcity of retail locations and capital, potential entrepreneurs are confronted with.

The components of consumer confidence refer to judgements of consumers at the *beginning* of the month. Therefore only F3 is one period lagged. We assume that an increase of the willingness to buy increases demand on average within one month. However, F3, perceived household wealth, is one period lagged. We assume the positive relation between perceived household wealth (F3) and expenditures, to be stronger if household wealth is lagged (and this appears to be so). These assumptions are made because expenditures and firm output, respectively, and household wealth are simultaneously determined. Expenditures are not only (positively) influenced by household wealth, but household wealth is also (negatively) influenced by expenditures. Since F3 has to be exogeneous in (1), we take lagged values and avoid a simultaneity bias.

We assume a change of income to affect expenditures immediately, as it increases the ability to buy. Expenditures of those consumers, who are willing to buy but partly unable to do so (binding budget constraint), increase immediately if the budget constraint becomes non-binding. Therefore the percentage change in income is not lagged.

### Sources

The data on wages are from Statistics Netherlands (CBS). The data on average (nominal) retail output are from an ongoing panel of independent, mainly small to medium Dutch retailers (interfirm comparison system) of EIM Business and Policy Research. We distinguish 41 different shoetypes. We correct for the influence of new firms in the panel on average retail turnover per firm by using data on the yearly change in turnover of only those firms, which are in the market in both month  $t$  and month  $t-1$ . We deflate nominal retail output with consumer price indices of Statistics Netherlands, which are available on a monthly base. We use consumer price indices of five different product categories. These product categories are:

1. Food, beverages and tobacco.
2. Clothing(material) and shoes.
3. Household goods.
4. Education and recreation.
5. Other goods and services.

Nominal retail output is deflated with the consumer price index of the product category, of which the products capture the largest part of shoetype output. The period we investigate is 1987–1998. For the years 1999 and 2000 data on average nominal retail output with a sample frequency equal to the survey sample frequency (per month or per tetramester) are not available.

The data on components of consumer confidence are the results of time-series principal component analysis over the 1987–1998 period on the survey questions on consumer sentiment.

### Firm output growth in the retail industry: Empirical results

Table 3 shows the results of the regression analysis. In the first column, the results are presented taking all observations into account. In the second column, the results are presented including only food shoetypes in the sample. In the third column, the results are presented including only non-food shoetypes in the sample. In the fourth and fifth column, non-food shoetypes are split into shoetypes selling non-durable goods and shoetypes selling mainly durable goods. In the last column, the results are presented when not allowing month-specific growth in firm retail output.

Clearly, the perception about the development of the general economic situation (F1) has positive influence on the (average) retailers' output. In both the full sample and the subsamples  $\phi_1$  appears to be significant at the 1% level. This is what we expect as the correlation between the perceived development in the general economic situation and the perceived development in the household financial situation is strong and positive<sup>14</sup>. The household financial situation is perceived to develop more favourable when the general economic situation is perceived to develop more favourable. This implies that the utility to buy from current income increases, *ceteris paribus*, in the development of the general economic situation, as the marginal utility and the time discount rate of consuming are both positive.



Note that questions concerning the planned spending on durables (questions 11, 12, 13) do not have high loadings on F1, while F1 has a significant positive effect on *actual* spending on durables. One explanation might be that a favourable perceived development of the general economic situation does not only increase planned spending, but also reduces the *time lag* between planned spending and actual spending. The speed in which planned spending lead to actual spending may go up if the general economic situation is perceived to become or have become more favourable. Consumers might perceive prices to have developed favourably or the ability to buy might have increased. This explanation is in line with the relatively high and positive loading of the perceptions about whether it is a good or bad time to buy (question 5) on F1.

Van Raaij and Gianotten (1990) find that F1, the perceptions about the development of the general economic situation, does not contribute to the explanation of consumer expenditure<sup>15</sup> during the 1972–1987 period. This is not in line with our findings with respect to the explanation of retail output for the 1987–2000 period. The explanation of these findings might be found in the opposite correlations between the evaluated development of household finances (question 3) and the perceived development of the general economic situation (questions 1 and 2) during both time periods. During the 1972–1987 period the correlation coefficients are negative while during the 1987–2000 period the correlation coefficients are strongly positively (see Table 1). This difference suggests that during the 1972–1987 period, a perceived favourable development of the general financial situation influences expenditures only *indirectly*, viz. through the perceived favourable development of the household financial situation. This explains why we find F1 to contribute significantly to the explanation of retail output during the 1987–2000 period, whereas Van Raaij and Gianotten (1990) do not find F1 to contribute to total expenditures during the 1972–1987 period. Another explanation might be that during the 1972–1987 period the extend to which the general economic climate reduces the time lag between planned and actual spending is probably relatively unimportant. As household wealth is relatively low during the 1972–1987 period compared with the 1987–2000 period, the effect of the perceived development of the general economic situation on the perceived *ability to buy* is presumably more important than the effect on the perceptions about whether it is a good *time to buy*. This explanation is in line with the relatively low loading of the perceptions about whether it is a good time to buy (question 5) on F1 during the 1972–1987 period.

An increase of the perceived development of the household financial situation (F2) appears to have no effect on output growth of retailers. In both the full sample and the subsamples,  $\phi_2$  is small and not significant at the 10% level. This is not surprising. F2 is strongly related to the planned purchase of durables. In general the time between the willingness to do large expenditures (like a car or real estate) and actual purchasing is longer than one month, as *search costs* are larger. This might explain why the relation between planned expenditures and actual expenditures is not visible in the regression results. Van Raaij and Gianotten (1990), however, find a significant positive effect of the development of the household financial situation on consumer expenditures on durables during the 1972–1987 period. This is not in line with our findings with respect to the 1987–2000 period. The explanation can be found in the different (dominant) saving motive in the 1972–1987 compared to the 1987–2000 period. Unlike the 1987–2000 period, saving is *precautionary* motivated during the 1972–1987 period. F2 relates to the extent planned purchases are or are not postponed to the future to hedge against unexpected expenditures (the utility to buy now compared to buying in the future). The precautionary motive of saving is about the *distribution* of spending money now and in the future, not about the absolute level of spending. If the transaction motive is absent, *planned* spending on durables does not change, although *actual* spending changes.

In the 1987–2000 period, saving is transactionally rather than precautionary motivated. Opposite to the precaution motive, the transaction motive relates to the *absolute* level of planned spendings rather than the *distribution* of planned spendings. Therefore an increase of the perceived ability to do large expenditures in the future does increase the amount of planned spending. We argued before that an increase of *planned* spending might not be visible in the regression results. In general, the time lag between planned and actual spending is longer than one month, if it concerns large expenditures like a car or real estate. One may argue that spending on durables should increase in F2, even if the precaution motive is absent, because the ability to buy increases. Binding budget constraints become non-binding. However, F2 is related to the *evaluated* perceived changes of the household financial situation (question 3), not the *actual* perceived changes.

In both the full sample and the subsamples,  $\phi_3$  appears to be significant at the 1% level. Clearly when households perceive their financial situation more favourably, growth in firm output is higher. This is what we expect. The marginal utility of consumption is positive and the time discount rate is in general negative<sup>16</sup>. Note that the factor coefficients  $\phi_1$  and  $\phi_3$ , are highest for the subsample in which only durables are included (column 5). This suggests that the share of durables in total consumption increases in the components of consumer confidence (?). As total



expenditure is positively related to consumer confidence, this result is in accordance with the declining share of non-durables in total expenditures (HBD, 2000).

We turn to the estimation of the other parameters. The speed of adjustment to the equilibrium output,  $\gamma$ , is estimated to be almost 0.15 for the full sample. This means that almost fifteen percent of an initial disequilibrium is corrected for within a one-month period. It implies that within seven months initial overcapacity or undercapacity, respectively, has disappeared, either through adjustment of supply or through adjustment of demand. The estimated coefficient values do not differ much between the subsamples. However the speed of adjustment turns out to be highest for durable goods (column 5)<sup>17</sup>. An explanation might be that durable goods are more expensive than non-durable goods. As durable goods are more expensive than non-durable goods, a plausible explanation might be that the *timing of a purchase* is more important determinant of the expenditures on durable goods than for non-durable goods. In that case positive perceptions lead to a one-time increase in demand and adjustment takes place within one period. When an increase in demand is mistakenly perceived to be structural, because the (future) ability to buy is mistakenly perceived to increase, the speed of adjustment is might take several periods (?).

The income elasticity of output growth,  $\epsilon$ , is just significant at the 10% level for the full sample. The positive effect of monthly salary growth on output growth seems only to be the case for the food shoptyes and shoptyes selling durable goods. The significant effect in the sample of shoptyes selling durable goods suggests that the actual purchase of durable goods is held up by binding budget constraints. An increase in income reduces the time lag between planned spending and actual spending. The relationship seems to be negative for the shoptyes in the nonfood segment selling non-durables. It might be the case that high expenditures on durables are partly at the expense of expenditures on nondurable goods.

Month-specific growth appears to be present in four months. In January, month-specific output growth is negative. In June, November and December, month-specific output growth is positive. Christmas and Saint Nicolas might contribute to the relatively high output growth in November and December and the fall to normal levels in January. Holiday bonuses in June might contribute to the relative high growth in June. This component of monthly salary growth may not be captured fully by when a larger part is spent immediately compared to other sources of salary income growth than the holiday bonus. This explanation is in line with the increase in importance of the income elasticity  $\epsilon$ , if we exclude month-specific growth. The income elasticity captures the effect of a *holiday bonus* in June and an *end of year bonus* in December, otherwise captured by the beta's.

Structural trends in shoptye demand not related to the willingness or ability to buy, may be present as a consequence of structural shifts of demand from certain shoptyes to other shoptyes. In the food segment several shoptyes lose market share on a structural basis to supermarkets. The estimation results do not change considerably if we include shoptye dummies to account for structural trends in shoptye relative demand. Only the speed of adjustment is somewhat lower. Therefore we do not present the results in Table 3<sup>18</sup>.

\* \* \*

We summarise the most important results from the factor analysis and regression analysis. From the factor analysis we conclude that the perceived development in the general economic situation (F1) is an independent component of consumer confidence for both the 1972–1987 and 1987–2000 periods. The development of the household financial situation (F2) is an independent component of consumer confidence for both the 1972–1987 and 1987–2000 periods. The transactional motive to save replaced the precautionary motive. Household wealth (F3) is only an independent component of consumer confidence for the 1987–2000 period. For the 1987–2000 period, investment in housing (conditions) appears to be (partly) speculatively motivated and therefore an important substitute for saving.

The perceived development of the general economic situation seems to be a leading indicator of the perceived development of household finances. One exception being the downswing in 1978, when oil prices started to increase considerably.

An important conclusion from the regression analysis is that the perceptions about the development of the general economic situation and about household wealth have a positive influence on monthly output growth of retailers. Furthermore, in January, June, November and December, month-specific output growth is present. Holiday bonuses at the end of the year and in June seem to explain partly the month-specific growth. Income growth turns out to have some positive influence on retail output for the shoptyes selling food or durable goods. This seems to be at the expense of retail output of shoptyes selling non-durable goods.



Regression results with respect to equation (1)

Variable	period 1987-2000					
	total	Food	nonfood			no growth
			total	non durables	durables	month specific
$\varphi_1$	0.019 (8.2)	0.014 (4.0)	0.018 (6.2)	0.018 (5.3)	0.021 (4.1)	0.016 (6.9)
$\varphi_2$	0.002 (0.8)	0.001 (0.3)	0.004 (1.6)	0.003 (1.0)	0.003 (0.6)	0.002 (0.8)
$\varphi_3$	0.027 (11.3)	0.013 (3.8)	0.022 (7.3)	0.019 (5.4)	0.051 (8.6)	0.028 (12.0)
$\varepsilon$	0.209 (1.8)	0.330 (1.9)	-0.060 (0.4)	-0.449 (2.6)	0.565 (2.1)	0.372 (3.3)
$\gamma$	-0.149 (13.9)	-0.111 (6.2)	-0.134 (10.1)	-0.135 (8.6)	-0.208 (8.6)	-0.143 (18.7)
$\beta_1$	-0.065 (5.9)	-0.032 (1.9)	-0.346 (25.0)	-0.334 (20.1)	-0.049 (1.9)	
$\beta_2$	-0.003 (0.3)	-0.006 (0.4)	-0.009 (0.7)	-0.008 (0.5)	-0.011 (0.4)	
$\beta_3$	0.011 (1.0)	0.010 (0.6)	0.007 (0.5)	0.010 (0.6)	0.002 (0.1)	
$\beta_4$	0.007 -	0.003 -	-0.002 -	0.008 -	0.002 -	
$\beta_5$	0.011 (1.0)	0.005 (0.3)	0.002 (0.1)	0.008 (0.5)	-0.002 (0.1)	
$\beta_6$	0.025 (2.4)	0.008 (0.5)	0.021 (1.6)	0.031 (2.0)	0.006 (0.2)	
$\beta_7$	0.021 (2.0)	0.008 (0.5)	0.010 (0.8)	0.020 (1.3)	0.003 (0.1)	
$\beta_8$	-0.003 (0.3)	-0.011 (0.7)	-0.009 (0.7)	-0.011 (0.7)	0.003 (0.1)	
$\beta_9$	-0.001 (0.1)	-0.004 (0.3)	-0.003 (0.2)	0.002 (0.1)	-0.012 (0.5)	
$\beta_{10}$	-0.002 (0.2)	0.000 (0.0)	0.000 (0.0)	0.009 (0.6)	-0.014 (0.6)	
$\beta_{11}$	0.023 (2.2)	0.009 (0.6)	0.021 (1.6)	0.027 (1.7)	0.013 (0.5)	
$\beta_{12}$	0.037 (2.8)	0.021 (1.3)	0.034 (2.6)	0.043 (2.7)	0.027 (1.1)	
$R^2$	0.137	0.082	0.249	0.260	0.191	0.124
Adj. $R^2$	0.129	0.063	0.241	0.251	0.178	0.117
S. E. regression	0.166	0.111	0.186	0.175	0.210	0.167
N	5852	1144	4707	2991	1716	5852

\* absolute t-values are between brackets



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Footnotes

1 The recessions around 1988 and 1993 were much less severe and less lengthy than the recession in the beginning of the eighties. This might be due to increased flexibility of the economy through increased competition and the penetration of the ICT technology.  
 2 Expected income is for example lower in periods of economic slowdown or after retirement. Spreading income to diminish fluctuations in the ability to buy is in fact first written down by Friedman. He called this the Permanent Income Hypothesis (Friedman, 1957).  
 3 If a question is not correlated to any other question, it makes no sense to include the question in the principal component analysis. Only correlated questions are clustered by factor analysis. In case of uncorrelated questions, the number of components would be equal to the number of questions. Then the variables do not share common factors.  
 4 In general an economic upswing leads to inflation, which would imply a negative loading of question 6 on F1. An explanation for the positive loading might be the perceived negative effect of competition (and innovation) on prices in an economic upswing.  
 5 Note that in the 1972–1987 period the expected development in the household financial situation (question 4) is strongly correlated with the expected ability to save (question 9) but not strongly with the utility to save (question 10). This might be explained by the positive relation between favourable economic conditions.  
 6 The *turning point* in the business cycle is the year in which an economic downswing turns into an upswing and vice versa. Concerning the 1978–1984 period, this seems to be 1981. In

1981, the grow in household expenditures turns from a downward into an upward trend.  
 7 This explains why question 3 still is not positively related to the questions 1 and 2 in the results with respect to the subsample 1978–1984, which includes years of economic upswing (1982, 1984, 1984) as well as years of economic downswing (1978, 1979, 1980).  
 8 This possibly due to increased flexibility of markets through increased competition and integration of information technology. This would imply that business cycles are smaller and shorter.  
 9 Note that in general uncertainty is relatively high in an unstable economic climate. This is in line with the idea that both the importance of the business cycle and precautionary saving diminished in the 1987–2000 period.  
 10 Also actual purchasing power decreased during this period, from 754.1 to 688.7 in 1996 thousand guilders (Statistic Netherlands)  
 11 Note however that Van Raaij and Gianotten (1990) found in this period F1 to be a leading indicator of F2 too.  
 12 In the retail sector, markets are characterized by a relatively low complexity and a high transparency. This implies that firms are able to react relatively fast upon changes in strategies of competitors and keeping knowledge secret to competitors is relatively difficult (see Porter, 1976, p. 13/14). Therefore we consider retail firms of the same shoptype to be relatively similar, i.e. efficiency differences are small.  
 13 The higher the entry and exit barriers and the lower the relative market attractiveness, the lower the speed of adjustment  $\gamma$ . As entry and exit barriers are relatively low in all shoptypes in the retail industry, we restrict the speed of adjustment to be equal across shoptypes.  
 14 The correlation coefficient between questions 1 and 3 is 0.61. The correlation coefficient between questions 1 and 4 is 0.82. The correlation coefficient between questions 2 and 4 is 0.62.  
 15 Note that unlike the 1987–2000 period, in the 1972–1987 period no positive correlation between the perceived development in the general economic situation (questions 1 and 2) and the evaluated development in the household financial situation (question 3) exists. The correlation between question 3 and the questions 1 and 2, are negative. This presumably is (partly) due to the recession years in the eighties, as the correlation between question 3 and the questions 1 and 2 appears to be positive for the 1972–1980 period.  
 16 However not all extra household wealth will be spent, as marginal utility decreases in quantity. This is reflected in the positive loading of questions 9 and 10 on F3.  
 17 Nevertheless this high speed of adjustment appears to be very sensitive to leaving out certain branches.  
 18 Note however that significant negative trends in demand growth turned out to be present in several shoptypes like butcher's shops, confectioners, men's clothing stores and women's clothing stores and sewing stores. The do-it-yourself shops turned out to be the only shoptype with a significant positive structural trend in output growth. This might be the consequence of economies of scale rather than structural shifts in relative demand.