Household Consumption Awareness and Employment Environment in Japan

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【要旨】

日本の家計消費意識と雇用環境

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ライフサイクル仮説に拠れば、家計消費は生涯の家計所得に依存する。それゆえに、家計所得が予測できれば、消費は急激な変動に直面することはない。しかし、将来に数多の不確実性が存在する場合、家計は消費を削減し、将来的な変化を予防するためにも貯蓄と低リスクの投資に振り向けるだろう。それらは近い将来の長期的収入の保証を意味し、雇用環境の安定性は家計消費に対する意識に大きく影響を与えるであろう。本稿では、日本の家計消費に対する意識と2000年代の雇用環境の変化の現状について、その関係性を踏まえながら分析を行った。

結論としては、雇用環境は家計消費の意識に対して大きな影響力を有している。とりわけ消費行動に影響を与えている雇用環境の変化は、循環構造である。すなわち、低迷する日本経済の下では、固定支出は企業にとって重い負担であり、したがって支出構造が不合理であることが示される。経営上の減益は、企業に労働者の削減を余儀なくさせる。よって、失業率が上昇すると同様に、失業者数が増加するであろう。同時に、失業者の累積数ゆえに、求職意識の低下に影響を与えることは明白であり、就業率は徐々に低下する。高い失業率と低い就業率という二重負担は、さらなる雇用環境の悪化を招き、それは収入の不安定化へとつながる。そして、予防意識の強化に伴い、家庭における消費意識は低下する。最終的には、実際の家庭支出が低下する。以上より、家計消費の意識改善の前提には雇用環境の改善が必要であり、それは雇用政策を調整し、雇用状況の安定を図ることである。

1. Introduction

Since the bubble burst and the 1990s, the Japanese economy has experienced a long-period of decline. In particular, citizen consumption, which plays an important role in the economy (GDP) and serves as a major pillar in the economy, should have critical effect on economic recovery. However, the economy has remained sluggish for a long time. Meanwhile, the Japanese labor market worsened after the financial crisis in 2008 although the labor market gradually began to revive in 2005. Young people have difficulty finding jobs while jobless people are not reemployed. The rate of workers with informal employment increased while the employment environment remains unstable.

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According to the life cycle hypothesis, household consumption depends upon lifetime household income. Therefore, if household income is predictive, consumption will not face sharp fluctuations, but if a great many uncertainties appear in the future, households will cut future consumption and turn to savings and investment with low risk in order to prevent changes in the future. This infers a guarantee of long term income for the foreseeable future, so stability of the employment environment will greatly affect household consumption awareness. This paper analyzes the present situation of Japanese household consumption awareness and changes in the employment environment from 2000 to 2010 and the relationship between the two.

This paper will first examine the actual household consumption expenditure structure in Japan for an overview of the overall changes of monthly actual consumption expenditure in the average household since 2000, and then analyze features in household consumption. Based on this foundation, changes of household consumption awareness will be researched by analyzing major factors affecting the Japanese consumer attitude index. Besides, based on multiple regressions, four indexes of consumer awareness influencing the consumer attitude index will be analyzed quantitatively to confirm the relationship between employment environment and household consumption awareness.

Furthermore, this paper will study changes in the Japanese labor market from 2000 to 2010. On the one hand, this paper will interpret changes of three employment situations, which are employment, unemployment and not in the labor force in the labor market, through flow data. On the other hand, it will break down corporate expenditure structures in corporations in terms of labor requirements so as to further understand the nature of the employment situation. Finally, this paper will summarize the influence of changes of the employment environment on consumption behaviors and consumption awareness.

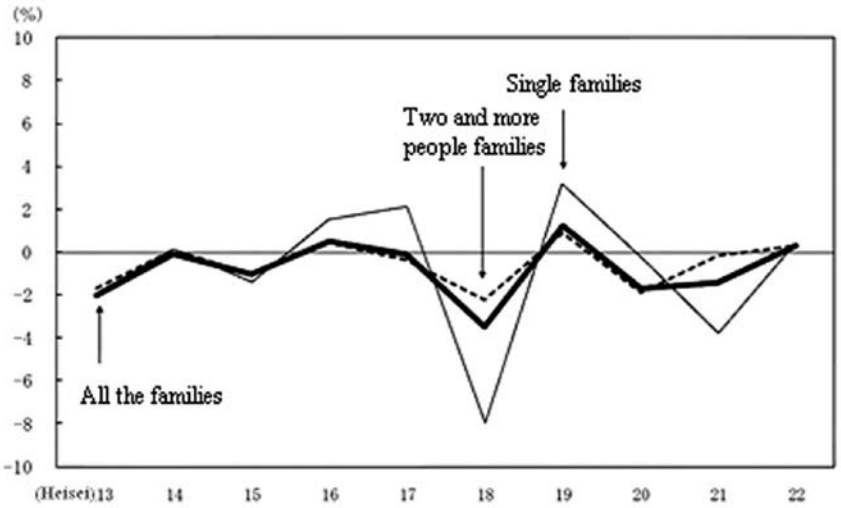
2. Research on household consumption awareness

2.1 Present conditions of actual consumption expenditure in families

According to the *Annual Report of Family Investigation in 2010* published by the Japanese Ministry of Internal Affairs and Communications, actual monthly expenditures of Japanese families are shown in Figure 1. For overall standards, the annual growth rate of Japanese actual household consumption expenditure was frequently negative from 2001 to 2006. Since 2007, the rate started to increase to 1.2%. However, the rate fell continuously in 2009 and 2010. In 2010, related consumption expenditures were comparably up in entertainment, homes, furniture, living products and the like. The rate increased by 0.3% as compared to the same period of the last year. As shown in Figure 1, household consumption expenditure in Japan was sluggish and made no improvement.

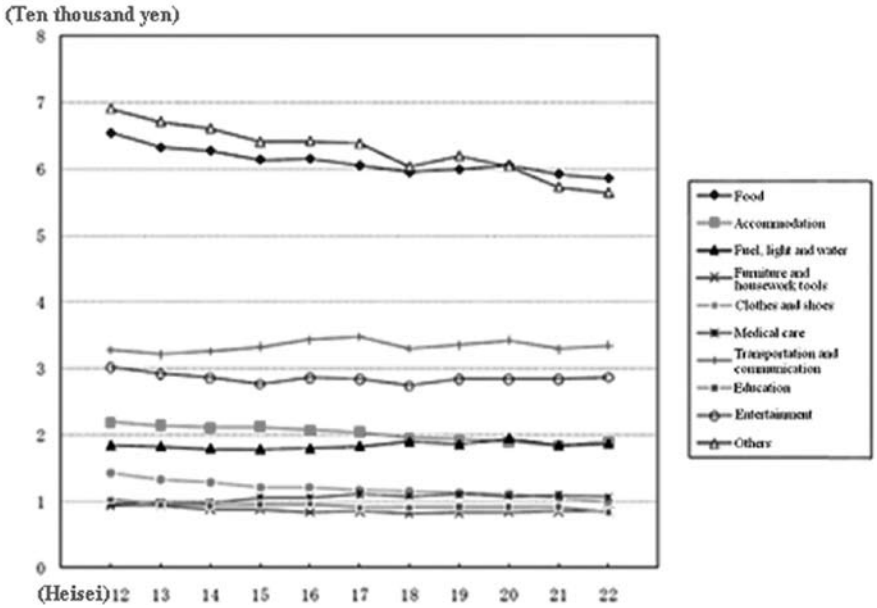
Figure 2 shows changes in actual household consumption expenditure in accordance with categories of commodities. The majority of families reduced expenditures in living necessities. In particular, food and clothing expenditures continuously declined in the last ten years. As a result, it can be inferred that corporations can expand to employ more workers in a sluggish economy in Japan, which will worsen the employment environment. At the same time, the real income of workers does not grow but falls, which is a relative decrease for some, and households tend to save and consume less.

Figure 1. Increasing rate of household consumption expenditure in Japan on year-to-year basis



Source: *Annual Report of Household Investigation in 2010* published by the Japanese Ministry of Internal Affairs and Communications

Figure 2. Tendency of consumption expenditure in accordance with categories (a whole family)



Source: *Annual Report of Household Investigation in 2010* published by the Japanese Ministry of Internal Affairs and Communications

2.2 Consumption awareness and its influencing factors

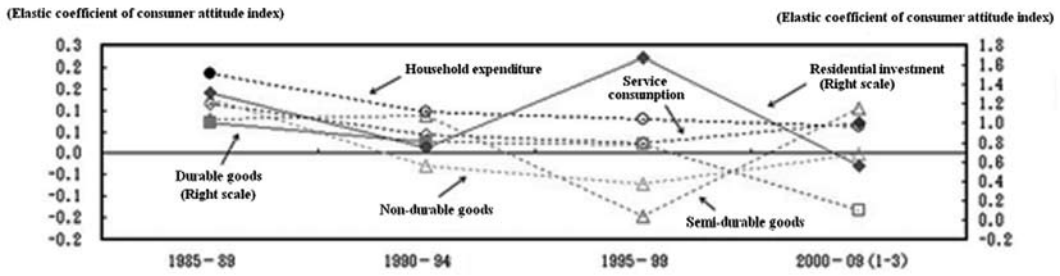
2.2.1 Consumption awareness and consumption behaviors

Consumption awareness is a major subjective factor that affects consumption behaviors. A household would not only

consider present income, but would also make a corresponding decision on the premise of predicable future income when it consumes. Based on this information, household consumption behavior reflects a household's prediction for the future economic environment, one of which is consumption awareness. There are many statistics reflecting consumption awareness. This paper adopts the consumer attitude index from *An Investigation on Consumption Tendency* published by the Japanese Cabinet Office. The consumer attitude index shows household consumption awareness in the next half of the year. We should know future household consumption tendency through observing its changes.

As in Figure 3, which shows the relationship between consumption awareness and consumption behavior, the indicator is the elastic coefficient of overall household expenditure growth rate for consumer attitude index and the elastic coefficient of consumption growth rate including durable goods, semi-durable goods, non-durable goods, service consumption and residential investment for the consumer attitude index. These indicators represent the correlation between consumer attitude index and various consumption expenditures. First, overall household consumption expenditure was closely related to the consumer attitude index before the economic bubble burst. However, although the correlation continues, to some extent, for the long term, it gradually loses influence after the economic bubble burst. Meanwhile, this trend is generally due to the changes in daily consumption expenditure arising from the decreasing correlation between consumption of non-durable goods, semi-durable goods and service consumption and consumer attitude index. Second, high consumption in the nature of investment such as durable consumer goods and investment in real estate is closely related to consumer awareness. For instance, consumption of some home appliances, such as ultra-thin televisions, continues to grow even as family income decreases. It is worth noticing that the high correlation between the consumption of durable goods and consumer attitude has sharply decreased since 2000.

Figure 3. Elastic coefficient of consumer attitude index as time changes



Source: *Economic and Fiscal Report in 2009* by the Cabinet Office

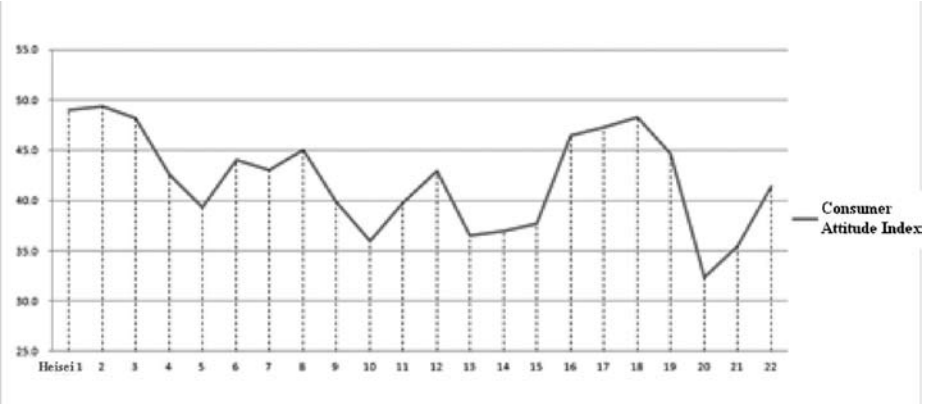
2.2.2 Variables of Consumer Attitude Index

The consumer attitude index is made up of four indicators: housekeeping, income increase, employment environment and purchase decision of durable goods. The specific calculation process is to survey the normal family's expectations for the four items in the next half of the year and divide it into five grades -- improved, slightly

improved, no changes, and slight changes -- which is equivalent to 1, 0.75, 0.25 and 0 in terms of the evaluation score and then multiply the figure with the corresponding constituent ratio and the total sum will be the value for various consumer awareness indicators. The figures in this paper, which have been seasonally adjusted, are from the Statistic Bureau.

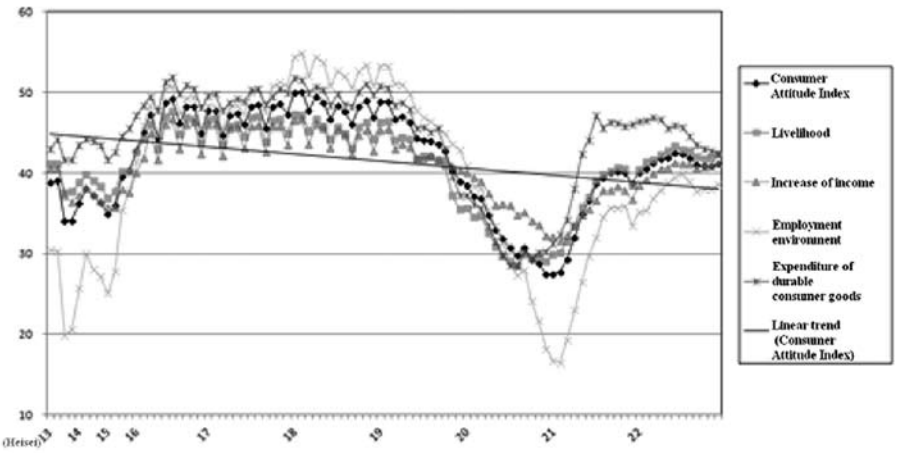
As in Figure 4 and Figure 5, since 2000, there were two troughs in the consumer attitude index. During the two sharp falling, the lowest level of consumer attitude index also keeps falling. The Japanese economy recovered gradually after 2001, which enabled the consumer attitude index to maintain relatively stable after a period of sharp

Figure 4. Changes of Consumer Attitude Index



Source: *Family Consumption Trend in 2010* by the Statistics Bureau of the Japanese Ministry of Internal Affairs and Communications

Figure 5. Changes in Consumer Attitude Index and Consumer Awareness Indicator



Source: *Family Consumption Trend in 2010* by the Statistics Bureau of the Japanese Ministry of Internal Affairs and Communications

rising. The economy then experienced another sharp fall after the end of 2007 when hit by economic crisis but finally gradually recovered in 2009. During the past decade, the consumer attitude index had ups and downs, but the linear trend is decreasing.

Among the four consumer awareness indicators, the household's expectation for employment environment fluctuates the most. In particular, in September 2001 and February 2009, it fell to 19.9 and 16.5, which is an unprecedented low, and shows that changes in the employment environment created huge pressure on the consumer attitude index.

Next is the quantitative measurement of the impact of the four indicators of Japanese household consumption on the consumer attitude index between 2000 and 2010. The result is shown in Table 1 that the standard regression coefficient of four consumption awareness indicators can be generated after multivariable regression analysis. From the result, the standardized regression coefficient of employment environment is 0.422, much higher than the other three items. Therefore, Japanese household consumption awareness is, to a great extent, influenced by the employment environment, and this awareness changes with the changes in the employment environment.

Table 1. Impact of Consumption Awareness on Consumer Attitude Index

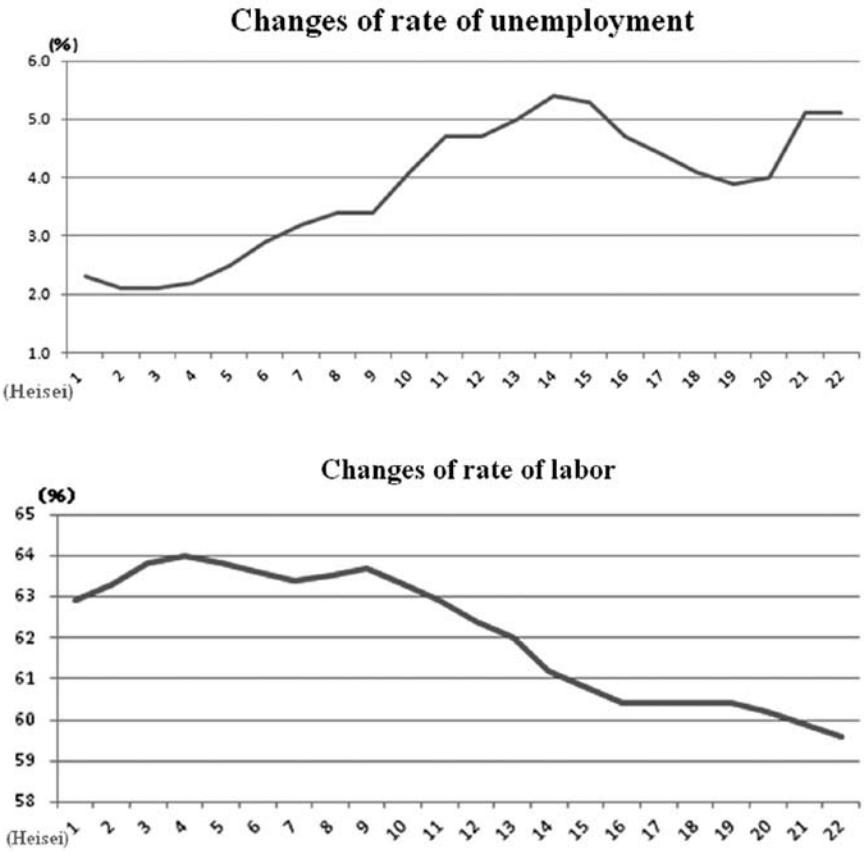
Variable	Livelihood	Increase of income	Employment environment	Expenditure of durable consumer goods
Standardized regression coefficient	0.216	0.164	0.422	0.252

3. Analysis on employment environment

In order to further understand the relationship between changes in household consumption behavior and the employment environment in Japan, this paper researches changes in the Japanese labor market for the first ten years in the 21st century. The rate of unemployment is the most representative index in relationship to employment. The rate of unemployment keeps increasing for over ten years according to the statistics of labor investigation. The rate reached its highest point in 2002, in which the unemployment population was up to 3,590,000. Since 2008, the rate of unemployment sharply increased after the rate of employment increased for a short period. That is, in the past ten years the Japanese labor market has not eliminated the high rate of unemployment. At the same time, in terms of changes of rate of labor, since 2000 the high rate of unemployment was reduced, step by step, in Japan. Alternatively, changes of labor have a direct relationship to changes of unemployment. Therefore, this paper will analyze the rate of unemployment and the rate of labor at the same time so as to explore changes in the labor market from a dynamic perspective.

The behavior of worker flows is crucial to the understanding of labor market dynamics. Workers move between states of employment, unemployment, and not in the labor force. These movements of workers determine aggregate

Figure 6. Changes of rate of unemployment and rate of labor in Japan



Source: *Labor Force Survey (LFS)* published by the Japanese Cabinet Office

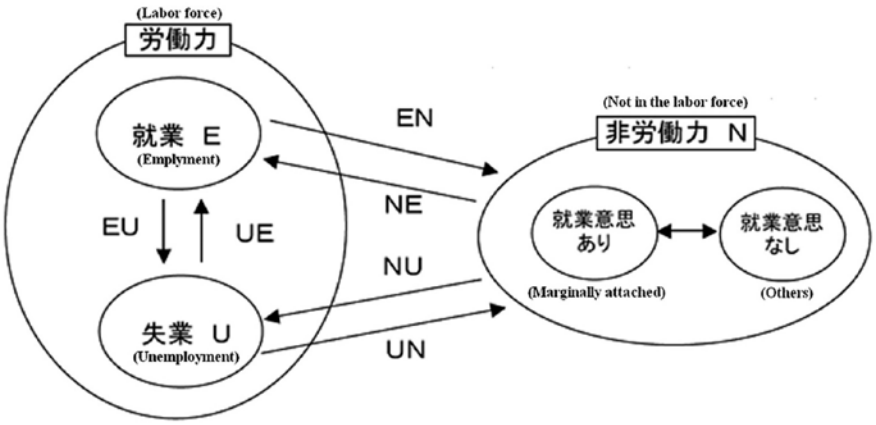
labor market indicators, such as unemployment and employment. Worker transitions are also an important determinant of unemployment and employment fluctuations over business cycles. While the size and cyclical pattern of gross worker flows have been studied in the U.S. and Europe, there are few studies on Japanese worker flows. In this paper I will establish a set of stylized facts about worker flows and unemployment dynamics in Japan.

3.1 The concept of flow data

Until now the traditional analytical approach to researching the labor market has been to utilize the rate of unemployment or the rate of labor during some period of time, by gathering the stock data. However, the dynamic situation between employment, unemployment and not in the labor force is unknown. Ota (2005) points out that the claim that the increasing rate of unemployment in Japan is just because of "lack of requirements" has no significance. That is, the three kinds of employment flow information cannot be attained from observing a tendency of the labor market obtained through the stock data, such as the population of employment, unemployment and not in the labor force. This would lead to a false understanding of the present and mistakes in constituting policies.

As shown in Figure 7 in the Labor Force Survey (LFS), an individual aged 15 and above is classified into one of three categories: employed (E), unemployed (U), and not in the labor force (N). The stock data is E, U, N at one point in time. In contrast, flow data is divided into nine categories: the worker flows from E, U, N to E, U, N in a given period. Flows between these states are to be denoted by two consecutive capital letters. For example, EU is the worker flows from employment to unemployment. By matching workers across the two periods, 9 gross flows can be constructed. Flows rates are calculated as the sum of the relevant flows between period t-1 and t divided by the sum of the number of observations on the relevant status at t-1[1]. For example, the flow rate from unemployment to employment is obtained by $\frac{UE_t}{U_t - 1} = \frac{UE_t}{UE_t + UU_t + UN_t}$.

Figure 7. Concept graph of Flow Data



Source: Kuroda, S. (2003), *Analysis of Changes in Japan's Unemployment Rate Using Gross Flow Data*, P156

The flow between E and U has a direct effect on changes in rate of employment. Under a recession, an increase between E and U or a decrease between U and E will generate a high rate of unemployment. The flow between U and N will show a loss of the appeal for searching for work and an increase of labor. The loss of appeal in searching for work refers to the unemployed giving up finding a job during a recession. Consequently UN increases during this period. An increase of labor refers to those who do not belong to labor and begin to search for work during this time and the flow between N and U increases. The flow between E and N will be a fully structured variable. For instance, changes of the retired are shown in EN while changes of those who just graduated from school are demonstrated in NE. Therefore, a structural change in the labor market, like the young population and the older population, greatly influences EN and NE[2].

In this paper, the data are constructed from the monthly Labor Force Survey (LFS) conducted by the Statistics

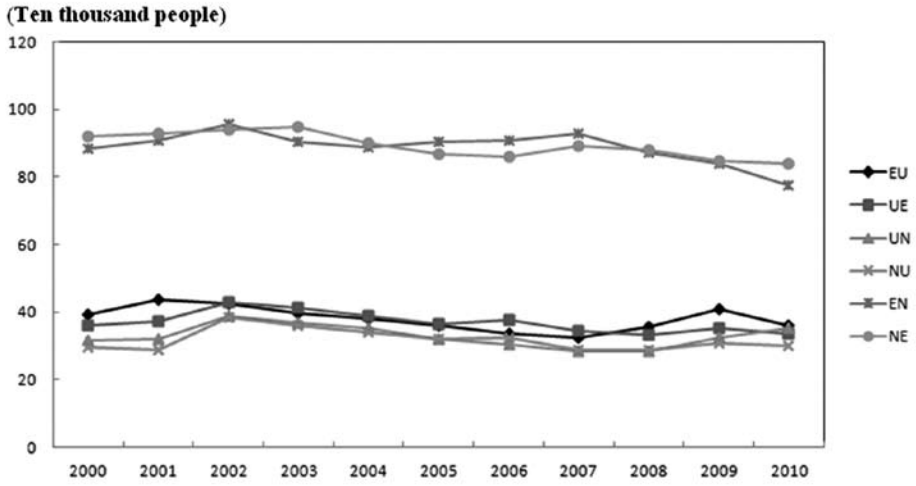
1 Ching-Yang Lin and Hiroaki Miyamoto (2010.6), Gross Worker Flows and Unemployment Dynamics in Japan.

2 Kuroda, S. (2003), Analysis of Changes in Japan's Unemployment Rate Using Gross Flow Data.

Bureau and the Director-General for Policy Planning[3]. I corrected the margin error using the adjustment method of the Ministry of Labor (1985). After correcting the margin error, I seasonally adjusted the series using the Census Bureau's X12 filter. Then, in order to remove excess volatility that may stem from measurement errors, these monthly series are converted to yearly frequency by simple averaging. It is worth noticing that flow data in this paper cannot separate the flow between different situations for a number of reasons. As a result, the flow data cannot distinguish two kinds of unemployment, such as the retired who belonged to not in the labor force and the unemployed who have given up trying to find a job. Moreover, there is no data to separate male from female, so flow data cannot investigate changes of employment awareness and employment situation of different genders.

3.2 An analysis on variables in the Japanese labor market

Figure 8. Changes of the flow in all employment states



Source: *Labor Force Survey (LFS)* published by the Japanese Cabinet Office

In this section, I will analyze variables in the Japanese labor market through flow data. First, I will observe the flow directly from these figures. Then, I will analyze the relationship between the flow and stock data using two approaches, which analyze the influencing factors, and will use the annual average value of flow data that are gathered from values in one year.

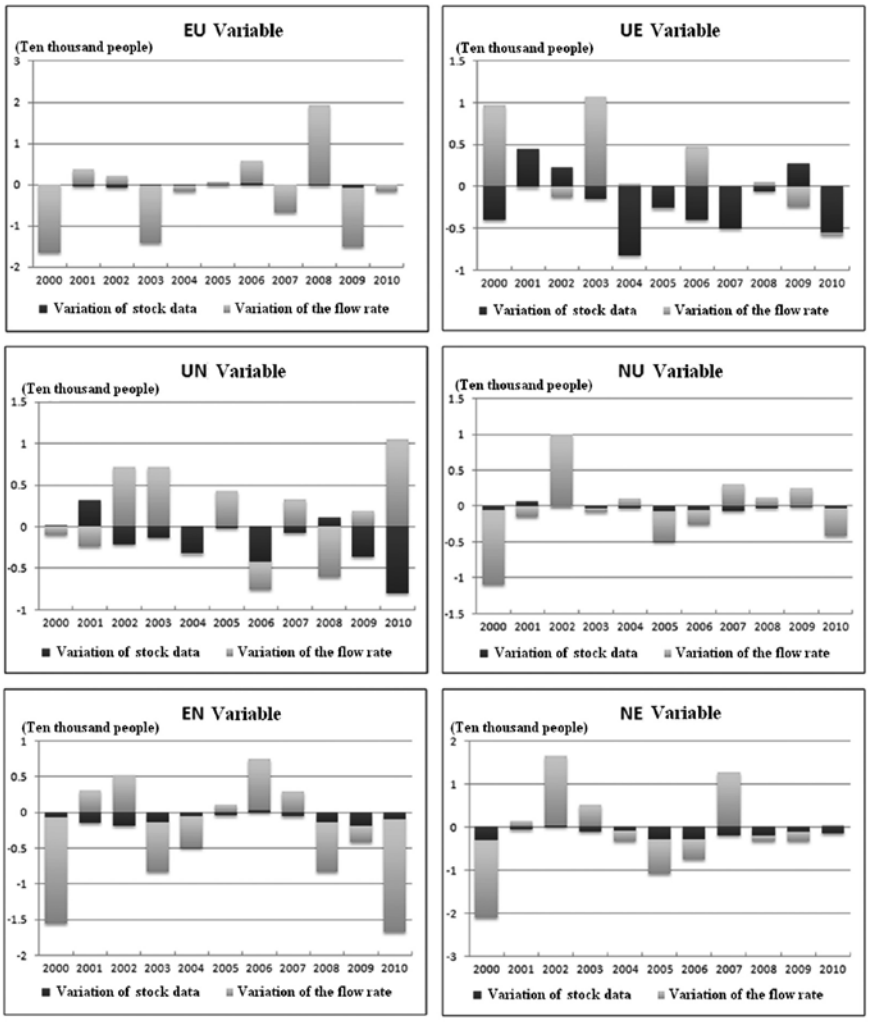
3 The LFS is a rotating panel in which each household participates in a sample for four consecutive months, leaves the sample for the following eight months, and joins the sample for four months in the following year. Half of the sample households is replaced every month. Thus half of the sample is surveyed over two consecutive months. By matching workers across the two months, six gross flows can be constructed. Due to sample rotation, missing observations, and errors in responses, transition information of a substantial subset of the sample is not available. This failure to match individual workers across month is referred to as margin error. Because of the margin error, the stocks that are obtained by adding flow data are not consistent with the officially reported stocks of workers.

As in Figure 8, all kinds of flow gradually reduced after an increase for a short time from 2000 to 2002. Since 2007 EU again greatly increased. At the same time, UN was beyond a large number of NU again after 2008, and UN tended to increase. It showed that the effect of abandoning the attempt of finding a job in the Japanese labor market increased the effects of other problems which arose from living in a recession after the 2008 financial crisis. EN and NE represent a decrease during the ten years. Therefore, this infers that the population loses its appeal searching for work increases under a recession.

3.2.1 Analyzing influencing factors of flow variables

The flow could be shown as an arithmetic product of the stocks and flow rates. This section will separate the flow variation into the influence of the stock and the influence on the flow rate of the former relationship. Furthermore, analyzing the changes is accomplished through variation of the flow rate or by variation of stock data, like the

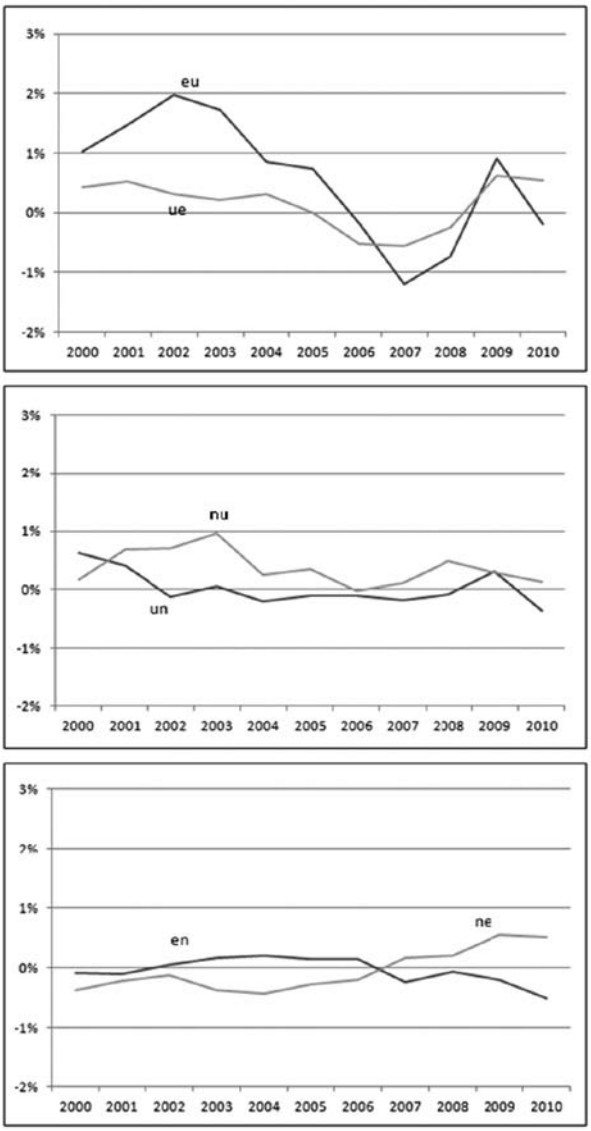
Figure 9. Analyzing influencing factors of flow variation



population of employment, unemployment, not in the labor force and the like. The specific approach is shown as follows: if UN = un × U, then the variation of UE during some time could be expressed as $\Delta UN = un_1 \times (U_2 - U_1) + U_2 \times (un_2 - un_1)$.

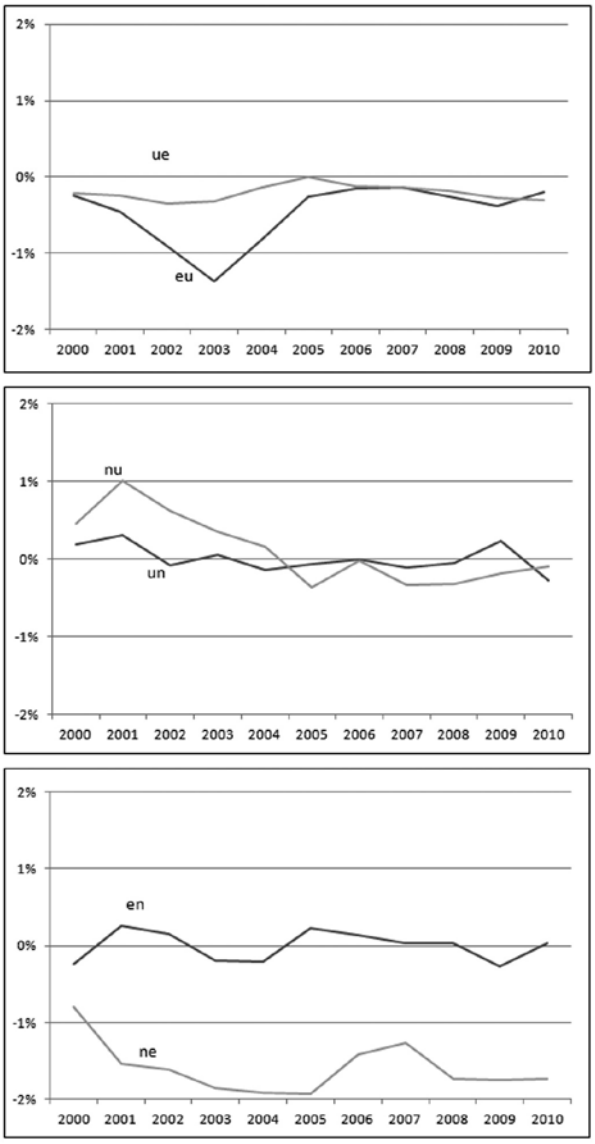
UE and UN greatly depend upon the stock data among all variations of flows while EU, NU, EN and NE greatly rely on the rate of the flow. From the variation of unemployment, changes of EU and NU are generated by the flow from the population of employment and not in the labor force to unemployment. However, according to changes of UE and UN, the effect of the variation of unemployment population is mainly negative while the effect of UN and UN is positive. As a result, two factors have a contrary effect. Specifically, there was high rate of unemployment and

Figure 10. Influences of all flow rates on rate of unemployment



difficulty finding a job in a sluggish economy from 2001 to 2002 and from 2007 to 2009. EU and NU increased with an increase of flow's rate. Thus the increase of the unemployed will be counteracted by UE and then the flow of UE will be up with an increase of the unemployed. Alternatively, as for the UN showing resignation over the chances of finding a job, the change is also influenced by the changeable rate of the flow and changes of the unemployed. The variation of UN under a recession is because of an increase in the flow rate and the counteractive effect of reducing the unemployed.

Figure 11. Influences of all flow rates on rate of labor



3.2.2 An analysis of influencing factors of stock variables

Flow rate would have an effect on the stocks from all directions. For example, according to the above mentioned result, eu and nu do not only have a great effect on the variation of the stock U, which shows the population of the unemployed, but eu and nu also influence the variation of the stock N, which demonstrates the population of not in the labor force. Therefore, we analyze the flow rate influences on the stocks. That is, I should analyze influencing factors of all flow rates. This paper will examine the reason the rate of unemployment and rate of labor change at the same time.

This section will utilize the same analytic approach as Sakura (2005). All kinds of flow rates influencing the rate of unemployment are shown in Figure 10. At first, eu has the major effect on rate of unemployment. Then ue and nu have a prominent effect. The influence of the three other rates influences is small. It is noticeable that the effects of eu and ue are asymmetric.

The following is to observe the influencing factors of labor's rate. At first, the variation of eu and ue lead to a decrease of labor's rate. The influence of eu is larger than ue. They have the same effect on the rate of unemployment. We can explain two changes of flow rate, which generate an increase of the unemployed. At the same time, the flow of UN leads to an expansion of N. Furthermore, the variation of nu will lead to an increase of labor's rate but the effect of eu and ue counteract the increase.

Alternatively, the variation of en and ne has the same effect on the labor rate. The variation of en will lead to an increase of the labor rate while ne's variation will generate a reduction of the labor rate. Their effects can be counteracted. At the same time, note that the flow between E and U is asymmetric. The variation of eu has a greater influence on ue, and the rate of eu and the flow of EU have a dominant role in the flow between E and U. Why the flow rate between E and N greatly changes is relatively complicated. It is greatly influenced by population structure, as the variation of gender structure and age structure will generate a major change. Thus a more accurate judgment on the effects of the variation needs to be further analyzed, which is a future topic to be researched.

The variation of all flow rates, which is used to analyze changes in labor market in relationship to Figure 2, shows that two increases of the rate of unemployment are mainly because the rate of eu increases and the rate of ue greatly declines, as well as a reduction in the rate of un in a recession. For a long period the unemployed population continuously increases. With a reduction of ne, an increase of nu is a reason that the rate of unemployment increases. In particular, a larger influence from nu could demonstrate a prominent effect of the labor increase. At the same time, young people cannot be successful finding a job after graduation and become unemployed, which is comparatively serious.

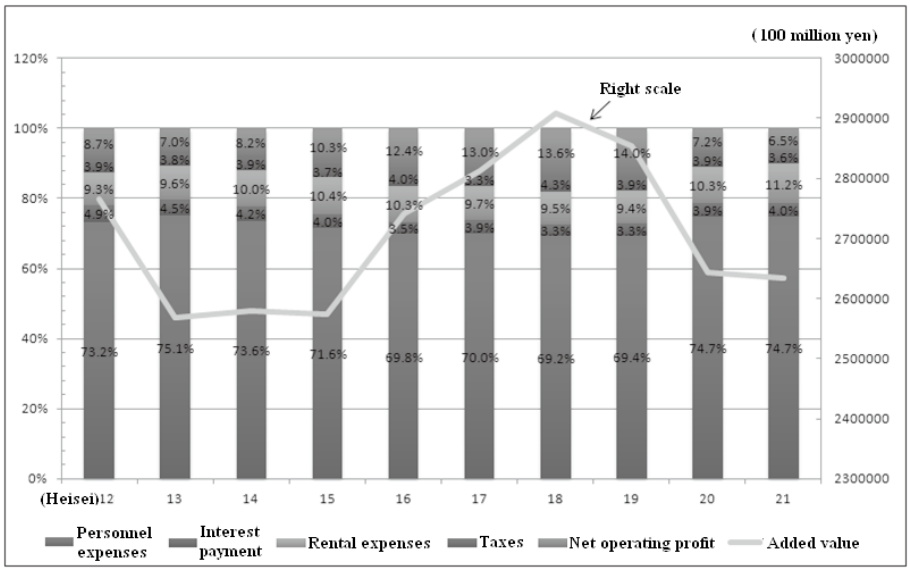
Table 2. Changes of flow rate (%)

Year	ee	eu	en	ue	uu	un	ne	nu	nn
2000	98.02	0.61	1.37	11.33	78.72	9.95	2.27	0.73	97.00
2001	97.90	0.68	1.41	11.12	79.38	9.51	2.24	0.70	97.07
2002	97.81	0.67	1.51	12.13	76.92	10.96	2.23	0.91	96.85
2003	97.93	0.63	1.43	11.76	77.81	10.43	2.22	0.84	96.95
2004	97.99	0.60	1.41	12.25	76.60	11.15	2.09	0.79	97.12
2005	97.94	0.57	1.43	12.32	76.82	10.85	2.01	0.79	97.26
2006	98.01	0.53	1.43	13.53	75.56	10.91	1.98	0.74	97.28
2007	98.04	0.51	1.45	13.41	75.60	10.99	2.05	0.66	97.29
2008	98.08	0.65	1.37	12.69	76.49	10.81	2.00	0.66	97.33
2009	98.01	0.65	1.34	10.53	79.63	9.75	1.92	0.69	97.39
2010	98.17	0.58	1.25	10.89	77.74	11.37	1.89	0.68	97.43

The main reason for the rate of the labor reduction is the effect of giving up trying to find a job. This is because the unemployed who belong to the not in the labor force are facing the worsening employment environment. The reason is not that the unemployed gradually lose their eagerness to search for work but that a great many people become unemployed. Furthermore, they become not in the labor force through unemployment whose population increases. In the light of influencing factors for the rate of labor, the variation of eu and ue has a noteworthy effect on the labor rate.

The rate of those who are the unemployed from not in the labor force increases in a recession, as well as an

Figure 12. Allocation of Added Value in Corporations



Source: *Annual Statistics Report of Corporations in 2010* published by the Policy Research Institute of the Financial Ministry of Japan

increase in the rate of unemployment. This represents the effect of the labor increase. At the same time, the variation of nu indicates an increase in the labor rate. However, this increase is counteracted by eu and ue.

3.3 Problems of cost structure in corporations

According to the *Annual Statistics Report of Corporations in 2010* published by the Policy Research Institute of the Ministry of Finance Japan, the rate of service fees in added value per year produced by operation in corporations is shown in Figure 12. The added value declined sharply during two recessions while the rate of service fee was as high as before. The long-term data demonstrates that the service fee occupies the major part of the fixed fee. Net profit attained by corporations did not increase. Alternatively, the fee structure in corporations did not basically improve. As a heavy burden, the fixed fee prevents corporations from providing more employment opportunities. Moreover, corporations have to reduce their size in order to guarantee an increasing profit so that the rate of unemployment continues to grow.

4. Conclusion

This paper examines the present condition and changes in the employment environment in the past ten years in Japan and consumption behaviors. The conclusion is that the employment environment has a great effect on household consumption awareness. Specifically, changes in the employment environment influencing consumption behaviors is a circular mechanism. In the sluggish Japanese economy, fixed expenditure becomes a heavy burden for corporations. Thus current expenditure structures are unreasonable. Declining operating profits requires that companies reduce labor demands. Therefore, the unemployment population increases, which leads to the higher rate of unemployment. Meanwhile, the influences of losing interest in finding a job become more prominent because of the accumulation of the unemployment population. Step by step, the rate of labor falls. The high rate of unemployment and the low rate of labor, which are double burdens, further worsen the employment environment. This environment leads to unstable predictive future incomes. Household consumption awareness is reduced while preventive awareness is enhanced. At last, actual household expenditure declines.

Therefore, the premise of improving household consumption awareness is to improve the employment environment, adjust employment policies and stabilize the employment situation. The characteristics of the employment environment changes in the recent 10 years are an increasing population of long-period unemployment and an increasing rate of not in the labor force generated by a reduction in the awareness of searching for work in accordance with analyzing results of flow data. In terms of the results analyzed in this paper, the government can carry out polices in accordance with the variation of eu, ue, nu and ne. The specific reason of flow rate changes will be further analyzed in the future.

Last but not least, two points in this paper are yet to be solved. First, this paper has not analyzed the data in accordance with different ages and genders in the employment environment. However, differences between age and gender certainly influence flow data. Therefore, the results will be accurate if the data from various ages and

genders are compared. Second, there is no detailed analysis of the relationship between the employment condition and consumption awareness. Providing that the employment condition is an explanatory variable and consumption awareness is an explained variable, we would have an explicit interpretation of employment and consumption awareness, which establishes a model of a cause-and-effect relationship that can be investigated. Furthermore, this proposed model will guide policy formulation.

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