A Hypothesis about Lukewarm Feeling In Japanese Firms

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Abstract: Japanese companies often criticize themselves on their own “nurumayu [lukewarm] nature.” Takahashi (1989) states that, in reality, however, the lukewarm feeling felt by organization members can be explained through the effective temperature hypothesis. The organization’s propensity to change as a system is measured as system temperature, while the member’s propensity to change as an organization person is measured as body temperature. The lukewarm feeling that the member feels can be explained using effective temperature, which is defined as the system temperature minus the body temperature. The effective temperature hypothesis was tested using the JPC Survey conducted every year from 1990 to 2000, where \( N = 10,356 \). The results show the coefficient of determination of 0.9886 with a surprisingly neat straight line, demonstrating a direct relationship wherein the lukewarm feeling ratio drops as the effective temperature rises. This paper also shows the possibility that the lukewarm feeling and effective temperature are leading indicators of the economic recession.

Keywords: nurumayu, lukewarm feeling, thermometer, organizational climate, organizational culture, leading economic indicator

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1. Introduction

Japanese companies often self-ridicule their “nurumayu [lukewarm] nature” as being one of their faults. If we look up the phrase “nurumayu ni tsukeru [to soak in lukewarm water]” in a Japanese dictionary, for example the Kōjien (6th edition) published by Iwanami Shoten, it is defined as, “to live comfortably off one’s present circumstances without further aspirations or ambitions.” Not too simplistically associating this nurumayu nature with organizational climate and organizational culture, this lukewarm feeling could be explained by somehow measuring the temperature in this bathtub analogy.

The propensity to change is defined as the propensity neither to accept the present situation nor to spend an easygoing time and to challenge the status quo. Here, “water temperature” was measured by the propensity to change. The label system temperature¹ is applied to the propensity to change as a system, namely, the indicator that represents the degree to which the organizational system positively reacts to or stimulate changes among its members.

However, this lukewarm feeling cannot be explained by system temperature alone. The next thing that was noticed was the difference in body temperature. Biologically, all humans have roughly the same body temperature, around 36–37°C, but as an organization person, the body temperature differs for each person. Accordingly, whether water feels hot or warm depends on the effective temperature relative to the body temperature, rather than the absolute temperature of the water. This body temperature was

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¹ This term was initially called the “water temperature”; however, many people interpreted this as the temperature of those around them. Takahashi (1989) thus decided to call this “system temperature” to emphasize that it is the temperature of the system, not the temperature of the surrounding people.
then measured as the degree to which organizational members desired to change their present circumstances. Simply put, the effective temperature was defined as the system temperature minus the body temperature. Takahashi (1989) used data provided by 525 people from 11 companies in 1987 to conduct the first test on the effective temperature hypothesis that “those who feel the workplace atmosphere is lukewarm have a lower effective temperature than those who feel it is hot.”

The scale for measuring system temperature and body temperature were further refined, and from 1990 onwards, a refined effective temperature thermometer was put into use. The JPC Survey has been repeated annually for 11 years; this refined version of the scale showed a clear link among the lukewarm feeling, the economy and staff turnover. Kenkyusha’s New Japanese–English Dictionary (5th edition), published by Kenkyusha, translates the phrase “nurumayu-teki jōkyō [lukewarm circumstances]” as “a hothouse existence, an overly relaxed situation and complacent circumstances.” However, simply translating these words into English cannot accurately convey nurumayu’s true meaning (Takahashi, 1992b). In fact, the survey data and the effective temperature hypothesis indicate that this is not actually the case for Japanese company employees who have this “lukewarm feeling.”

2. Refinement of the “Thermometer”

In 1990, the following 10 questions were selected to be used for the

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2 Propensity to change of an agent also plays an important role in a multi-agent computer simulation model by Kuwashima, Takahashi, and Tamada (2005).

3 Kondo (1992) uses the concepts of nurumayu and propensity to change when linking Takahashi (1992a) and Kawai’s (1992) theory on organizational activation to Axelrod’s (1984) theory on the evolution of cooperation.
refined effective temperature thermometer.

**System Temperature**
S1. Have high performing individuals been consistently promoted and given raises? (1 = yes; 0 = no)
S2. Is avoiding failure considered more important than improving performance through trial and error? (1 = no; 0 = yes)
S3. Is the atmosphere one which welcomes challenging new jobs? (1 = yes; 0 = no)
S4. Is adopting the corporate culture more important than developing your own individuality? (1 = no; 0 = yes)
S5. Is the atmosphere a competitive one in which members strive to achieve their goals? (1 = yes; 0 = no)

**Body Temperature**
B1. Do you constantly seek improved ways of doing your jobs better than the others? (1 = yes; 0 = no)
B2. Do you do your job in the way you want regardless of the way it was done in the past? (1 = yes; 0 = no)
B3. Do you go out of your way to do new jobs before they are assigned to some sections? (1 = yes; 0 = no)
B4. Do you believe you are able to cut your own way to success even at another company? (1 = yes; 0 = no)
B5. Do you obey the orders of your superiors even if you disagree? (1 = no; 0 = yes)

Out of these 10 questions, a response of “yes” to S2, S4 and B5 scored 0, while “no” scored 1; a response of “yes” to the other seven questions scored 1, while “no” scored 0. The sum of scores of questions S1–S5 measured the *system temperature* (SINDEX), while the sum of scores of questions B1–B5 measured the *body temperature* (BINDEX). Using these defined indexes, the effective temperature hypothesis was refined as follows:
Effective Temperature Hypothesis. Effective temperature \((T)\) is defined as:

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T = SINDEX - BINDEX.
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Then the lukewarm feeling ratio of a group is in reverse proportion to its mean of the effective temperature.

Here the lukewarm feeling ratio is the ratio of people that answered ‘yes’ to the following question:

Q1. Do you feel that the atmosphere at your work place is lukewarm (‘nurumayu’)?

This refined effective temperature thermometer was used to analyze JPC (Japan Productivity Center) Survey data. JPC Survey data refers to data from the annual Survey for Organizational Activation given to the companies of participants in the ‘Organizational Development’ course (called the ‘Organizational Reform’ course from 1993 onwards) at the JPC Academy of Management Development, targeting the white-collar division. Takahashi (1997b) provides more detail on the specific manner of implementation of the JPC Survey, but only refers to data from 1996 and earlier. The present paper includes a further four years of data, up until 2000. From 1990 to 2000, we selected 385 organizational units of 46 major Japanese companies from the following industries: construction (4), petroleum products (2), chemical products (1), pharmacy (2), textile mill products (1), computer (3), machinery (4), heavy industries (1), motor vehicles and equipment (3), cement (1), tobacco (1), electric service (1), telecommunication (1), railways and

\(^4\) The questionnaires for the JPC Survey contained more than 50 questions each time, not only on the effective temperature, but also for other purposes. For example, Takahashi (1997a, 2002) and Ando (2002) also base analyses on the JPC Survey data.
road passenger transportation (4), banking (8), life insurance (1), retail trade (1), hotels (1), consultant (1), real estate development (2), security (1), service (2). Of these, 14 companies were investigated twice or more but their organizational units were different in each survey.

All members of the selected 385 organizations were surveyed. The questionnaires were distributed among all members at the same time.
each year, on a Wednesday falling between August 25 and September 8. They were then collected the following Monday after they were filled in. Out of the 12,218 distributed surveys, 10,916 were collected, giving a response rate of 89.3%. Of all members, 78.4% were male and 20.2% were managers. The average age of members was 36.4 years.

The refined effective temperature thermometer was tested by using the data of $N = 10,536$, from which missing values were eliminated (Takahashi, 2001). The graph in Figure 1 shows the results of the analysis (Takahashi, 2001, Figure 4). Where the effective temperature reads $-5$, 92% of the respondents felt *nurumayu*; where the effective temperature reads 0, 60% of the respondents felt *nurumayu*. The graph, which is based on data provided by around 10,000 people, forms a surprisingly neat straight line. We perform a regression analysis on the data, using the coefficient of determination $R^2 = 0.9886$ as shown in Table 1. There is a direct correlation between the lukewarm feeling ratio and the effective temperature—as the effective temperature increases, the lukewarm feeling ratio decreases (Takahashi, 2001, Table 4).

3. Lukewarm Feeling as a Leading Economic Indicator

Figure 2 shows a correlation between this lukewarm feeling and the recession with reference to the JPC Survey. This figure shows the annual lukewarm feeling ratio as a bar graph and the effective temperature as a line graph. Here we can see that the effective temperature axis is inverted; the higher up the axis, the lower the effective temperature. It is immediately noticeable that the effective temperature and lukewarm feeling ratio are linked.

It is clear by looking at this graph that there was a high lukewarm feeling ratio in 1992 and 1995. The so-called economic bubble burst in 1992; in the post-bubble recession, the lukewarm feeling ratio
reached 74.1%. Incidentally, although the word “bubble” was used at the time, to the best of the author’s knowledge, no researchers or economists ever suggested that the bubble would burst. Consequently, it was not known at the time that the bubble would burst; however, it did.

In 1995, the government made the decision to raise consumption tax from 3% to 5% (it actually went up in 1997). The economy began to lose momentum and then everything deflated, collapsed and crashed. Furthermore, the lukewarm feeling ratio during this time, went up to 75.3%.

In reality, compared with system temperature, body temperature is quite stable with a certain degree of constancy. Let us look at the coefficient of variation from the JPC Survey, derived by dividing the standard deviation by the mean, we see the coefficient of variation of the body temperature is 0.03, which is only one third of that of the

Figure 2. The changes in the lukewarm feeling ratio and effective temperature
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system temperature of 0.09. Therefore, we see the same trends occurring in effective temperature as we do in system temperature, against time. Apart from the JPC Survey, we have the sampling data taken in 1989 and 1991 showing a similar trend from a company in the cosmetics and toiletries industry through a two-year corporate identity activity: the system temperature rose considerably in the two years, while the body temperature altered little to none.

If body temperature has homeostasis and remains constant, then the effective temperature phenomenon (the effective temperature making us feel hot or lukewarm) is much like the phenomenon experienced when driving a car. When we step on the accelerator, our bodies feel as if they are being pulled back; when we step on the brake, our bodies feel as if they are pushed forward. Physical science explains this phenomenon as the human body trying to move in a linear motion at uniform velocity, the law of inertia pulls the body back or pushes it forward in the event of sudden acceleration or deceleration.

Actually, the bubble economy era was a very busy time. New work would come up daily, while organizations and personnel were frequently changed. Everyone was on business trips; the bullet train was always full and hotels everywhere were fully occupied with business guests. New positions could be rapidly acquired, and newcomers would steadily come in. But that was not enough, and mid-career recruitment was carried out frequently. However, when the economy worsened, all that disappeared and changes became rare. There was a decrease in personnel changes, job transfers, business trips, and new work. No one was promoted and no newcomers came in. There were no organizational changes—in short, there were no more changes in the world around us. The system temperature, or the system’s propensity to change, rapidly dropped. However, body temperature does not change so easily. Even if the company slows down when we apply the brakes, the human body,
subject to inertia, feels like it is suddenly falling forwards. This induces the lukewarm feeling. In this sense, it is most precise to call this the propensity to change.

Conversely, data from 1998 (taken in September) indicated that the Japanese companies surveyed were stepping hard on the accelerator. Since the late 90s, there were frequent media reports on industry reshuffling, large-scale mergers, and restructuring schemes. The system temperatures of companies must have risen rapidly and accordingly the lukewarm feeling must have dropped. This was of course no guarantee that the economy would improve. What we do know is that the company foot was now on the accelerator. A little bit further and we shall see this reflected in company performance. Perhaps this will appear in the annual accounting figures in the next half-year or full year. In retrospect, when the first “lukewarm feeling” survey was conducted in 1987 right before Japan’s unprecedented bubble economy took off, the low lukewarm feeling ratio of 55.4% was most likely an indicator of an economic turn.

In other words, the lukewarm feeling could be a possible leading indicator of the economy. Accordingly, the author has boldly gone on record to predict the economy by means of the lukewarm feeling. This took place at the Career Development Committee meeting of the Institute of Management Studies (Japan) on October 17, 2000, officially recorded in the “Meeting Minutes” (Takahashi, 2000). The author proposed the following, taken from page 12 of “Meeting Minutes.”

In the past two years, the effective temperature has been dropping and the ‘lukewarm feeling’ has been increasing. Based on this, I believe that the economy is slowing down and entering a recessionary phase.

As we see in Figure 2, the data clearly showed that Japanese companies were stepping on the brakes. What was actually taking
place? The start of “Section 1: From Short Recovery to Another Recession” in “Chapter 1: Preconditions to Strong Recovery of the Economy” of the Economic and Financial White Paper of 2001, published more than a year after the author’s statement, states the following.

Exactly when the economy entered a phase of recession can be determined by statistical methods later. However, judging from various indicators, the economy is highly likely to have entered a recession phase sometime between the second half of 2000 and the first half of 2001. In short, the economic recovery did not even last two years, most likely the shortest phase of economic recovery in post-war Japan (Cabinet Office, Government of Japan, 2001).

Furthermore, the start of “Section 1: Background on the Bottoming Out of the Economy” in “Chapter 1: Overview of the Capacity for Economic Recovery” of the Economic and Financial White Paper of 2002 designates the peak of the economy at October 2000; “the Japanese economy entered a recession phase after hitting a peak in October 2000” (Cabinet Office, Government of Japan, 2002). In other words, the author’s prediction was completely “on the mark.”

We must explicitly clarify that in October 2000, when the author stated that the economy was “entering a recessionary phase”; there was not even a hint of recession in the air. As the statement “the shortest phase of economic recovery in post-war Japan” suggests, at the time, it was not logical that the economy was going to slow down again because it is cyclical. Nobody was predicting a recession; on the contrary, it was the middle of the “IT bubble” and the country was inundated with the business method patent boom triggered by the IT bubble. It was in the spring of 2001 that most people noticed this boom was ending. In other words, the only factors influencing the author’s prediction were the lukewarm feeling ratio and the effective temperature.
4. The Ending of a Hot Water Company

For both Figure 1 and Table 1, respondents with an effective temperature of five were excluded when the regression analysis was done. This is not simply because it would create a clear divergence from the straight line, but because out of more than 10,000 people surveyed there were only nine respondents with an effective temperature of five (perhaps feeling hot) a mere 0.1%. Only 94 respondents had an effective temperature of four. The combined total of respondents with an effective temperature of four or five comes to only 103 people, or 1.0% of the whole group. In fact, only 991 people, 9.4% of all respondents, had an effective temperature of two or higher. This means that very few respondents had high effective temperatures.

We could also question whether this is the fault of the thermometer. However, various studies have come to show that if a situation is very hot, people will not be able to stay there for very long. For example, the author conducted a separate study on employees at all 27 branches of a financial institution, Bank K, in 1992. In the JPC Survey, very few companies had a lukewarm feeling ratio lower than 50%, but Bank K had a lukewarm feeling ratio of only 48.0%. In fact, the mean body temperature at Bank K was very much the same as that of the JPC data; nevertheless, there was a high effective temperature simply because the system temperature was high. With such figures, we could almost hear the employees screaming in the heat. This company has had an annual staff turnover rate of 12–15% for the past 10 years, which is apparently higher than that of normal Japanese financial institutions. The personnel department at first thought these employees were resigning as they were incompetent and that it was better to replace them early. However, at the time of the survey, even core employees thought to be the backbone of the company were resigning. Thus, it is not good for a company to create
an environment so hot that its employees leave. In fact, Bank K closed down in 2000.

References


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