A Study about How Reference Groups were Determined[1]

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Abstract

This study provides the evidence on who are the Joneses in standard of living comparison, and interprets the result according to social phenomenon and psychological theory. We show that majority people will compare to their neighbor instead of average people in the nation, and it's generally true for females and rich people in Japan and US.

Keywords: reference groups, standard of living, nationwide comparison, routine standard
JEL classification: Z13

1. Introduction

People are inevitable to compare with others for the purpose of measuring their opinions and abilities (Festinger, 1954). Especially when objective measurement doesn't work, reference groups will be used for self-evaluation, self-enhancement, and self-improvement.

How did reference group work in Economics? Duesenberry (1949) contributed to relative income hypothesis, which developed an interdependent consumer behavioral theory, or so-called interdependent preferences. In this model, an individual's utility is not only based on his/her own income and consumption, the income and consumption from a peer group will also affect one's utility. In the studies about happiness (Easterlin, 1974; Easterlin 1995), the incomprehensible results in happiness and absolute income triggered so many studies about relative income to a given reference group and welfare. In finance, Abel (1990) introduced relative consumption model by using aggregate consumption per capita to solve the equity premium.

What kind of reference groups did we use in Economics? There are several ways to define a reference income or consumption in previous studies as follows:

1) Macroeconomic indicators like aggregated income or consumption of the whole nation

2) Objective Reference Groups

Taking average income or consumption of people who are similar to each other, such as similar age, same occupation, same education and so on.

3) Subjective Reference Groups[2]

Using interview or survey data with self-reported reference groups, such as friends, neighbor, classmates, work colleagues, etc.

Mangyo and Park (2011) mentioned that subjective reference groups may be much more salient because these kinds of reference groups are the ones people social contact with frequently. However, in most studies about finance and macroeconomics, the macroeconomic indicators are used as relative income and consumption, which implicitly assume that people compare with the whole nation as their reference group.

How did people choose their subject reference group? Clark and Senik (2010) provided some evidence on 'Who compares to whom?' of income comparison. They found that colleague is the most cited reference group in income comparison. They also contributed some evidence on who will or will not compare with a specific reference group.

Even there are many studies in social psychology about reference groups, whom do individuals compare to and why do they compare to such peer group in Economics is still

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[2] Those names of objective and subjective reference groups stemmed from objective and subjective status in psychology introduced by Hyman (1942).

shrouded in mystery.

This study will show the distribution of reference groups in standard of living. And the result shows that it is inappropriate to use macroeconomics indicators as reference point in Japan, USA and China. It is also incongruous to use the average level from objective reference groups, because whom people are interacting with in reality are the subjective ones. Probit regression and multinomial logit regression are conducted in this study to provide the evidence that rich people and females will be less likely to compare with the whole nation.

2. The Preference Parameters Study

Preference Parameters Study (PPS) of Osaka University was used in this research. The PPS has been conducted in Japan since 2003, and in USA since 2005. The survey for China urban areas, only conducted in 6 cities, were not available until 2009.

There are two main questions in the questionnaire that will be used in the following research. Taking the Japan 2011 Preference Parameters Study for example, question 15 asked 'How does your standard of living compare with that of the people around you', followed by the question about 'In Q.15, with whom did you compare your standard of living'. The respondents could select one and only one among the 13 choices listed in the questionnaire.

3. Direction and Determination of Reference Groups

3.1. With whom did you compare?

Table 1 shows the distribution of the reference groups. Over 35% respondents compare standard of living with neighbor. In Japan and US, 'average people in nation' was second major comparative subject, while only 5.8% Chinese compare with the whole country.

Panel B shows male and female's reference groups. For both male and female in Japan, US and urban China, majority chose 'neighbor' instead of 'average people in the nation'. But there are some obvious distinctions in gender for reference groups. For example, American and Japanese men choose classmates more than women do, while American and Japanese women compare themselves to relatives more frequently than men do. Japanese and American men inspect the whole nation more than women do, but women have greater interest in taking their friends as the reference group. The extraordinary high percentage of 'Mama friend' in Japan female subsample is due to the Mama Caste System[3] experienced by mothers whose children are friends or classmates.

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[3] Mama Caste System refers to a kind of ranking system, which is ranked by household income, children's learning ability, husband's occupation, etc.

Table 1 Distribution of reference groups in Japan, USA and China

Panel A:

Country	Japan	USA	China Urban
	Total Perc.	Total Perc.	Total Perc.
Neighbor	37.53	35.10	39.59
Classmate	10.84	4.63	12.62
Relative	5.77	12.90	15.08
Mama Friend	8.05	1.99	1.31
SCAG	5.30	5.68	9.06
SCSJ	9.16	3.99	5.44
ACAG	1.11	0.74	2.83
ACSJ	1.60	0.55	2.83
Avg. nation	13.90	16.28	5.80
Avg. world	0.18	1.73	0.15
Friend	4.76	10.86	5.22
Others	0.51	1.41	0.00
DK	1.29	4.14	0.07
Total	100.00	100.00	100.00
Obs.	4,871	4,735	1,379

Panel B:

Country	Japan		USA		China Urban	
	Male Perc.	Female Perc.	Male Perc.	Female Perc.	Male Perc.	Female Perc.
Neighbor	38.07	37.05	35.36	34.88	36.87	42.32
Classmate	12.19	9.66	5.57	3.85	12.63	12.61
Relative	3.79	7.50	10.82	14.62	15.82	14.35
Mama Friend	2.95	12.50	1.41	2.46	1.45	1.16
SCAG	7.83	3.08	5.76	5.62	9.87	8.26
SCSJ	9.11	9.20	3.98	4.00	4.93	5.94
ACAG	1.98	0.35	1.08	0.46	3.63	2.03
ACSJ	2.90	0.46	0.47	0.62	3.34	2.32
Avg. nation	16.07	12.00	18.45	14.50	6.82	4.78
Avg. world	0.26	0.12	2.06	1.46	0.00	0.29
Friend	3.21	6.12	9.65	11.85	4.64	5.80
Others	0.57	0.46	1.50	1.35	0.00	0.00
DK	1.06	1.50	3.89	4.35	0.00	0.14
Total	100.00	100.00	100.00	100.00	100.00	100.00
Obs.	2,272	2,599	2,135	2,600	689	690

Notes:
a. 2011 USA, 2011 JAPAN and 2012 CHINA survey.
b. Drop those who choose 'Families of your children's classmates' with no children.
c. Those who didn't answer the previse question about 'how does your standard of living compare with that of the people around you' are excluded in the sample.
Classmates: Your own classmates when you were in school
Mama Friend Families of your children's classmates
SCAG: Worker in your company who is in your age group, has similar academic background, or who started working in the same year
SCSJ: Worker in your company who is assigned to a similar job as yours, regardless of their age, academic background, year in which he or she joined the company
ACAG: Worker in another company in the same industry who belongs to the same age group, has similar academic background, or who started working in the same year
ACSJ: Worker in another company in the same industry who is assigned to a similar job as yours, regardless of his or her age, academic background, and year in which he or she joined a company
Avg. nation: Average person in USA / Japan / China
Avg. world: Average person in the world
Friend: Friend or acquaintance excluding above choices
DK: I don't know

Why do majority people compare to their neighbor? Firstly, the questionnaire is asking about standard of living, which is a kind of overall comparison instead of just focusing on income or consumption. Besides, Mussweiler and Rüter (2003) provided the idea about routine standards, which is the checkpoint, have been used frequently spontaneously for social comparison. We might notice the new car our neighbor owns, next tourist place they might go for the vacation, their latest TV sets or branded handbags inadvertently. Because we compare with our neighbor unintentionally and frequently, then people follow this routine in selecting the reference group of standard of living.

3.2. Who will / will not compare with the whole nation

Table 2 presents Probit result by taking those who choose to compare nationwide as '1', and those who choose the other 12 reference groups as '0'. For both Japan and US sample, female are less likely to compare with average people in Japan or US than male. Both Japanese and Americans who are over 60 years old are more likely to do nationwide comparison than those who are less than 30 years old. Log of annul household income is included in the regression, and it shows that the richer Japanese and Americans are, the less likely for them to compare to average people in the country.

Table 2 Who will / will not compare with the whole nation (Probit regression)

	Japan			US		
	(1)	(2)	(3)	(4)	(5)	(6)
	all	female	male	all	female	male
Female Dummy	-0.1454***			-0.1903***		
	(0.05)			(0.05)		
Age Group (omitted: less than 30)						
[30, 60)	0.1570	0.1511	0.1830	0.0835	0.0360	0.1058
	(0.14)	(0.20)	(0.20)	(0.09)	(0.14)	(0.12)
Over 60	0.3188**	0.2590	0.3847*	0.3142***	0.2396*	0.3589***
	(0.15)	(0.20)	(0.21)	(0.10)	(0.14)	(0.13)
Education (omitted: College or above)						
Not reach high school	-0.2417**	-0.0806	-0.3349***	-0.1235	0.0557	-0.2587
	(0.10)	(0.15)	(0.13)	(0.13)	(0.19)	(0.18)
High school	-0.1794***	-0.1328	-0.1770**	0.0441	0.1567**	-0.0539
	(0.06)	(0.10)	(0.07)	(0.05)	(0.08)	(0.07)
Marital Status (omitted: currently unattached, widow or widower)						
Have a spouse	-0.1374	-0.2042*	0.1069	-0.0076	0.0752	-0.1278
	(0.09)	(0.11)	(0.17)	(0.07)	(0.09)	(0.11)
Single	-0.0973	-0.0797	0.1127	-0.0409	-0.0464	-0.0920
	(0.12)	(0.16)	(0.20)	(0.08)	(0.12)	(0.13)
Log household income 2010	-0.1062*	-0.1842**	-0.0117	-0.0927**	-0.0925	-0.0976
	(0.06)	(0.08)	(0.09)	(0.04)	(0.07)	(0.06)
Constant	-0.8194***	-0.8316***	-1.2187***	-0.9324***	-1.1946***	-0.8074***
	(0.19)	(0.25)	(0.31)	(0.13)	(0.18)	(0.19)
Observations	4329	2273	2056	4017	2172	1845
Pseudo R^2	0.012	0.012	0.010	0.014	0.013	0.013

t Statistics in parentheses
* p<0.1; ** p<0.05; *** p<0.01
Notes:
a. Annul household income is category data with 12 categories range from 'Less than 1 million' to '20 million or more' and 'Less than $10,000' to '$200,000 or more' in Japan and US dataset, respectively.
b. Drop those who choose "Families of your children's classmates" with no children.
c. Those who didn't answer the previse question about "how does your standard of living compare with that of the people around you" are excluded in the sample.

In Table 3, we excluding minority people who choose 'Average people in the world', 'Others' and 'I don't know', and combine 'SCAG', 'SCSJ', 'ACAG' and 'ACSJ' and colleagues. Table 3 suggests that females are less likely to compare to average person in the nation but more likely to compare to neighbor, relatives, mama friends and friends. Japanese female are less likely to compare with colleague than average person. On the contrary, American female are more likely to compare with colleague. Employment status might account for this result. In the 2011 PPS dataset, 34.49% Japanese female are full-time and 40.78% are part-time, while 47.78% American female are full-time and 35.41% are part-time. Unlike full-time worker who are interacting with almost the same bunch of colleagues all the time, part-time worker might adjust

their schedule with their free will or work place's needs. Also, less working time together decrease the opportunities to communicate with the others, which will lead to lower possibility to compare with the colleagues.

Table 3 Who will / will not compare with the whole nation

(Multinomial logit regression. Omitted category: Average person in Japan / US)

	Japan				US			
	Neighbor	Classmate	Colleague	Relatives, Mama Friend and Friend	Neighbor	Classmate	Colleague	Relatives, Mama Friend and Friend
Female Dummy	0.2222**	0.0014	-0.3414***	1.1466***	0.2628***	0.1374	0.3444***	0.5698***
	(0.10)	(0.13)	(0.12)	(0.12)	(0.10)	(0.17)	(0.13)	(0.10)
Age Group (omitted: less than 30)								
[30, 60)	1.2750***	-1.2845***	0.0030	0.2547	0.5875***	-1.5454***	-0.1434	-0.3112
	(0.41)	(0.29)	(0.31)	(0.35)	(0.21)	(0.24)	(0.22)	(0.19)
Over 60	1.4736***	-1.9548***	-1.0956***	-0.4295	0.2947	-2.4771***	-1.2584***	-0.7011***
	(0.42)	(0.32)	(0.33)	(0.37)	(0.22)	(0.31)	(0.25)	(0.20)
Education (omitted: College or above)								
Not reach high school	0.6095***	-0.2487	0.4870**	0.2101	0.2152	-0.6605	-0.3302	0.3500
	(0.19)	(0.30)	(0.23)	(0.24)	(0.26)	(0.58)	(0.42)	(0.27)
High school	0.3449***	0.2568*	0.3202**	0.3964***	-0.1260	-0.4391**	-0.1950	0.0550
	(0.12)	(0.15)	(0.13)	(0.14)	(0.11)	(0.18)	(0.13)	(0.11)
Marital Status (omitted: currently unattached, widow or widower)								
Have a spouse	0.3579**	0.0771	0.0189	0.3772*	0.1125	-0.0932	-0.0504	-0.0123
	(0.17)	(0.25)	(0.20)	(0.20)	(0.13)	(0.31)	(0.19)	(0.14)
Single	-0.1620	0.7542**	0.3261	-0.2134	-0.2022	0.7939**	0.4739**	0.0047
	(0.24)	(0.30)	(0.27)	(0.28)	(0.17)	(0.33)	(0.22)	(0.18)
Log household income 2010	0.2012*	0.1181	0.4936***	-0.0498	0.0758	0.3256**	0.6448***	0.1698*
	(0.12)	(0.16)	(0.14)	(0.14)	(0.09)	(0.16)	(0.12)	(0.09)
Constant	-1.3024***	0.6107	-0.3221	-0.9230**	0.1307	-0.3011	-0.9602***	0.3227
	(0.49)	(0.46)	(0.44)	(0.46)	(0.28)	(0.45)	(0.35)	(0.28)
Observations	4247				3750			
Pseudo R^2	0.067				0.046			

t Statistics in parentheses
* p<0.1; ** p<0.05; *** p<0.01
Notes:
a. Annul household income is category data with 12 categories range from 'Less than 1 million' to '20 million or more' and 'Less than $10,000' to '$200,000 or more' in Japan and US dataset, respectively.
b. Drop those who choose "Families of your children's classmates" with no children.
c. Those who didn't answer the previse question about "how does your standard of living compare with that of the people around you" are excluded in the sample.
d. Excluding those who choose 'Average people in the world', 'Others' and 'I don't know'.

Compare to those who have bachelor degree or above, those who finished high school are more likely to compare to neighbor, classmates, colleagues, relatives, mama friends and friends, but less likely to compare to the whole nation. However, for Americans who have finished high school education, they are less likely to compare to their classmates than the whole nation.

We also find that for Japanese who are married and have a spouse are more likely to compare to an informal reference group, which is a group of people they interact with at more personal level. While for single Americans, they compare more to a formal reference group who has a specific goal or structure, such as classmate and college, than the whole nation.

Table 3 demonstrate the result in Table 2 that the richer the Japanese and Americans are, the less likely will they compare to average person in Japan and US.

4. Conclusion and Discussion

This study has focus on the direction of reference group in standard of living comparison. Standard of living is an overall measurement about living circumstance, not only about the income level, but also evaluating a more general physical and mental satisfaction. Unlike what previous literatures implied that the Joneses are the ordinary people across the whole country, we find the evidence that subjective reference groups such as neighbor, relatives, and classmates are what people compare to actually. Especially for females and rich Japanese and Americans, they are less likely to consider the national average level as their checkpoint.

Abel (1990) used the word 'catching up with' to assume that people might care about the lagged aggregate level. Temporal comparison in psychology also mentioned that individuals would also compare to the old themselves. Not only the subjective reference groups matter a lot, but also the past myself will influence our present life satisfaction.

The direction to whom to compare with is an extremely complicated process. The questionnaire required the respondent to choose one and only one from the 13 choices. The way and the alternatives we asked in the survey might divergent from respondent's real intention, because in reality, people might take more than 1 candidate to compare to.

Since the subject reference groups are salient than the objective ones, this study might provide a much wider way to solve the economic puzzles in the future.

Reference

Abel, A. B., 1990. Asset prices under habit formation and catching up with the Joneses. The American Economic Review 80, 38-42.

Clark, A. E., & Senik, C., 2010. Who compares to whom? the anatomy of income comparisons in europe*. The Economic Journal 120, 573-594.

Duesenberry, J. S., 1949. Income, saving, and the theory of consumer behavior. Oxford University Press, Oxford, UK

Easterlin, R. A., 1974. Does economic growth improve the human lot? Some empirical evidence. Nations and households in economic growth 89, 89-125.

Easterlin, R. A., 1995. Will raising the incomes of all increase the happiness of all?. Journal of Economic Behavior & Organization 27, 35-47.

Festinger, L., 1954. A theory of social comparison processes. Human relations 7, 117-140.

Mangyo, E., & Park, A., 2011. Relative deprivation and health which reference groups matter?. Journal of Human Resources 46, 459-481.

Mussweiler, T., & Rüter, K., 2003. What friends are for! The use of routine standards in social comparison. Journal of Personality and Social Psychology 85, 467.