

The Effects of Absolute and Relative Incomes on Job Satisfaction among Male Workers in Japan

Isao Takei

University of Texas at Austin

*Arthur Sakamoto**

University of Texas at Austin

Yoichi Murase

Rikkyo University, Tokyo

Using a series of cross-sectional surveys, we investigate the sources of job satisfaction among Japanese male workers from 1955 to 1985. Our analysis focuses on income and disentangles the net effects of absolute income versus relative income during a period of high economic growth. The results indicate that both absolute income and relative income have substantial effects on job satisfaction after controlling for the respondent's demographic characteristics, job position in the labor market, and year of the survey. This conclusion suggests the significance of both the traditional economic and sociological approaches to the study of well-being and job satisfaction.

Job satisfaction refers to the evaluation of the enthusiasm, pleasure, and contentment that a worker finds in his or her paid employment (Warr 1999). This social outcome is significant for several reasons. First, it is associated with overall life satisfaction in cross-sectional analyses (Kalimo and Vuori 1990; Loscocco and Spitze 1990; Melamed et al. 1995; Pugliesi 1995; Roxburgh 1996) and in longitudinal studies of workers changing jobs (Barnett et al. 1995; Karasek 1979; Martin and Wall 1989). Second, job satisfaction improves mental and physical health (Faragher, Cass, and Cooper 2005). Third, job satisfaction promotes more productive employment relations, including better job performance (Iaffaldano and Muchinsky 1985; Petty, McGee, and Cavender 1984; Shore and Martin 1989), reduced absenteeism (Farrell and Stamm 1988; Melamed et al. 1995; Spector, Dwyer, and Jex 1988), and lower turnover (Hom et al. 1992; Lee and Ashforth 1996).

Prior research has investigated how job satisfaction is affected by intrinsic factors such as whether job activities are inherently interesting, stimulating, meaningful, or

*Direct correspondence to Arthur Sakamoto at the Department of Sociology, University of Texas at Austin, 1 University Station A1700, Austin, Texas 78712-0118; sakamoto@mail.la.utexas.edu. This research was supported by grant 5-R24-HD042849 awarded to the Population Research Center at the University of Texas at Austin by the Eunice Kennedy Shriver National Institute of Health and Child Development.

appropriately challenging (Kalleberg 1977). Characteristics of jobs that researchers have studied include: variety and scope (Xie and Johns 1995), physical security (Campion 1988; Oldham and Fried 1987), opportunity for skill use (Campion and McClelland 1993; Sevastos, Smith, and Corderly 1992), personal control and autonomy (Spector and O'Connell 1994; Warr 1990), job demands and complexity (Melamed, Fried, and Froom 2001; Warr 1990; Williams, Gavin, and Williams 1996; Xie and Johns 1995), supportive supervision (Griffin, Patterson, and West 2001; Miles, Patrick, and King 1996), participatory management (Kim 2002), family-friendly work policies (Saltzstein, Ting, and Saltzstein 2001), labor unions (Bender and Sloane 1998; Heywood, Siebert, and Wei 2002; Schwochau 1987), gender segregation (Bender, Donohue, and Heywood 2005; Wharton, Rotolo, and Bird 2000), sexual harassment (Laband and Lentz 1998), and racial harassment (Shields and Price 2002).

In terms of extrinsic factors, the key variable that has been investigated is financial reward (Freeman 1978; Gruenberg 1980; Kalleberg 1977; Kalleberg and Loscocco 1983; Lincoln and Kalleberg 1990). Although this literature confirms the positive effect of income on job satisfaction, the issue that has not been adequately addressed is disentangling the effects of absolute versus relative incomes on job satisfaction. Previous research has simply investigated the net effect of income in general. Although useful, the latter approach is not specific about the particular process by which higher income increases satisfaction.

JOB SATISFACTION AND ABSOLUTE VERSUS RELATIVE INCOME EFFECTS

If people with higher incomes derive satisfaction primarily because of their increased power to purchase goods and services *per se*, then increases in incomes for a population will tend directly to increase satisfaction for everyone who enjoys any income growth. This sort of process is typically assumed by economists when they specify a utility function in which well-being is deemed proportional to one's absolute income. As stated by Firebaugh and Tach (2005:6), "this is called the absolute income effect because happiness depends only on one's own income, and not on the income of others."

On the other hand, many sociologists would argue that at least part of the satisfaction of having a higher income derives from its social significance. In particular, the capacity to consume more goods and services *relative to others in society* may be a significant factor in accounting for increased satisfaction. In this case, relative income increases satisfaction rather than absolute income *per se*. If relative income has a significant effect, then the total population-level increase in satisfaction due to economic growth will be discounted to the extent that relative incomes remain unchanged.

Although prior research has not distinguished between absolute and relative income effects in regard to job satisfaction, previous studies on overall life satisfaction have verified the significance of this distinction (Easterlin 1974; Firebaugh and Tach 2005; Frank 1997; Rainwater 1974; Scitovsky 1976). Firebaugh and Tach (2005:6) describe it this way:

[I]f richer people are happier because of what money can buy, then the unprecedented income growth of the past two centuries should have led to unprecedented growth in human happiness. The fact that subjective well-being or happiness has not increased as rapidly as material well-being worldwide over the past two centuries suggests that the slope of the absolute income by happiness curve is not very steep. . . . Indeed, many observers believe that the absolute effect of income on happiness is now close to zero in the United States and other rich countries.

Relative income is assumed to have no significant net effect, however, in the standard utility function that is the basis of contemporary economics (Pindyck and Rubinfeld 1992; Scitovsky 1976). Mainstream economists appear to resist the entire concept of social comparison as somehow representing a veiled normative claim against inequality (Cogan 1995). In any event, microeconomics simply assumes that income increases utility (i.e., subjective well-being, satisfaction, or happiness) and that all of this increase is due to the absolute income effect. Unfortunately, this assumption is usually taken as an a priori starting point for economic theory, rather than as a proposition that should be empirically verified and investigated.

In contrast, sociologists often err in the opposite direction. Although rarely discussed explicitly by sociologists, the implicit utility function that they seem to be using is that well-being is only a function of relative income, at least for developed nations (Rainwater 1974:24–25). That is, sociologists tend to ignore absolute incomes among countries where the standard of living is already high. This approach is most clearly evident in the sociological literature on social mobility in which occupation is almost exclusively used as the indicator of socioeconomic origins and destinations precisely because occupation exhibits a fairly consistent relative (i.e., ordinal) ranking across time and nations (Featherman and Hauser 1978; Treiman 1977), despite wide variation in absolute incomes. Any discussion about absolute incomes has been traditionally eliminated from sociological analyses of social mobility.

Summary statements of social stratification similarly emphasize income inequality in terms of the level of scale-invariant dispersion (e.g., the Gini coefficient) that effectively rules out the significance of absolute incomes (Kerbo 2006). Sociological analyses of racial, ethnic, and gender inequalities are usually considered in percentage terms (Farley 1996; Kilbourne, England, and Farkas 1994). A currently popular class theory argues that occupations are the core of social stratification, inequality, and exploitation (Grusky 2005). In these sociological investigations, absolute incomes are almost entirely ignored both empirically as well as theoretically.

In order to improve our understanding of the complex but important issue of job satisfaction, our primary theoretical objective is to estimate the net effects of absolute and relative incomes on job satisfaction. That is, we seek to estimate *the net effect of absolute income on job satisfaction controlling for relative income* as well as *the net effect of relative income controlling for absolute income*. There is no obvious reason to assume a priori that the net effect of absolute income is mutually exclusive with respect to the net effect of relative income. Both may be significant, at least to some degree. At the very least, this

issue should be empirically investigated, especially given its critical welfare and policy implications.

We investigate the sources of job satisfaction using Japanese data from cross-sectional surveys conducted in 1955, 1965, 1975, and 1985. These data provide an excellent opportunity to disentangle the net effects of absolute and relative incomes. Absolute incomes increased dramatically over this period, during which the Japanese economy experienced a great deal of development and expansion. The information provided by these data is, furthermore, highly compatible across these decades. Each cross-sectional survey is known to be of high quality, as well as nationally representative.

In defining relative income, however, the issue immediately arises as to which group an individual is compared. Because one's relative income refers to one's income as ranked or differenced in comparison to the incomes of others, the definition of who specifically constitutes the comparison group (i.e., who the "others" are) will affect the calculation of one's relative income—in short, income relative to whom? This issue is also known as the problem of determining the appropriate reference group (Festinger 1954; Hyman 1942; Merton and Kitt 1950; Pollis 1968; Shibutani 1955).

The study of reference groups has not received a great deal of research attention in recent years, but we suspect that previous studies are probably correct in surmising that individuals may have multiple reference groups (Liu and Sakamoto 2005; Merton 1957; Merton and Kitt 1950). The social psychological processes associated with multiple reference group comparisons are, however, undoubtedly highly complex. Unraveling these complexities is a task beyond the scope of this analysis, because the data that we use mostly refer to socioeconomic and demographic characteristics (rather than detailed information on social psychological responses).

Our approach is to use one of the most basic and widely relevant reference groups, namely, the entire national labor force. While there are obviously other possible reference groups (such as other workers with a similar age, education, occupation, or region), the entire national labor force is certainly relevant to most people including Japanese workers. Lacking much prior empirical research to build upon—indeed we know of no prior publication that shares our main research objectives in the study of job satisfaction—our investigation must necessarily begin with the most plausible and fundamental assumptions. Thus, our analysis is based on the entire national labor force as the comparison group. We do not rule out or preclude the possibility that comparisons to more specific reference groups may have additional effects, but we leave that more specialized research task for future studies that may build upon our efforts here.

CULTURE, WORK, AND JOB SATISFACTION IN THE JAPANESE CONTEXT

As explained below, our definition of relative income is based on the national male labor force. This gender-specificity is appropriate due to the low level of female labor force participation and the extremely high level of gender segregation in the Japanese economy during the period of our study when there were no legal protections against

gender discrimination in employment in Japan. From 1955 to 1985, female workers were almost exclusively relegated to dead-end jobs that were usually restricted to women but were supervised by men. A strong cultural norm also prevailed, requiring women to resign their employment when they married (Rohlen 1974). Indeed, traditional gender roles and gender segregation were so pronounced in Japan during this era that most of our survey data do not even include information on women as independent workers in the labor force. For these reasons, our calculation of relative incomes assumes that male workers are comparing themselves to other male workers, because during the middle part of the twentieth century in Japan, their reference group is unlikely to include female workers.

From a general cultural point of view, previous research has portrayed Japan as being (at least compared to the developed Western nations) a relatively closed society in which individuals have a higher sense of group identity and place a relatively lower priority on individual independence (Nakane 1970; Reischauer 1977; Smith 1983). Viewing itself as an “island country” (i.e., *shima kuni*), Japan has carefully guarded its borders and minimized and regulated foreign influences (Reischauer and Craig 1978). Immigration to Japan has historically been quite low, and recent studies observe a continuation of this trend, especially in comparison to the United States (Mouer and Kawanishi 2005). Until as late as the middle nineteenth century, Japan was essentially an isolated feudal society that lacked any experience of foreign conquest. In contrast to the history of modernization in Western societies, Japan has not undergone centuries of cultural evolution promoting the rights of the individual vis-à-vis the state or religious institutions. In sum, Japan has been widely regarded as a more group-oriented society that has maintained a significant portion of its traditional cultural values when compared to the United States.

Consistent with a greater proclivity toward group identity and community during the decades of our data, Japanese workers tended to place a greater emphasis on their companies, employment, and coworkers as sources of personal satisfaction (as compared to American workers). Male Japanese workers had long-term employment relations with their companies, particularly in larger firms where the “lifetime employment system” is most applicable (Cole 1972; Hashimoto and Raisian 1985). These long-term employment relationships facilitate a stronger and broader social bonding between workers and their companies (Dore 1973; Rohlen 1974). Accordingly, Takezawa and Whitehill (1981) surveyed workers in American and Japanese companies and found that Japanese workers were almost 3.5 times more likely than American workers to rate their company lives as equal to or greater in importance than their personal lives. Although the reported differential is not quite as high, the same basic conclusion is noted by Lincoln and Kalleberg (1990).

Associated with this greater emphasis on their work roles, Japanese workers probably also had greater expectations about their work, as well as a higher level of organizational commitment (Cole 1979; Lincoln and Kalleberg 1990). Cole (1979) argued that these greater expectations resulted in reduced job satisfaction. When workers are very motivated and committed with high expectations about their companies, fulfillment is harder to achieve. That is, high expectations may breed discontent in Japan

whereas Americans are typically easier to satisfy because for them work is more likely to be “just a job” that is not as important as their personal lives. Thus, several surveys have found that Japanese workers are significantly less satisfied with their jobs than American workers are (Lincoln and Kalleberg 1990).

This brief summary of work in Japan during the twentieth century generally assumes that Japanese culture is more traditional and group-oriented than American culture. While we believe that this assumption is largely valid for the period of our data, in recent years significant changes have taken place that could call into question the accuracy of this conventional description of Japanese society (Mouer and Kawanishi 2005). While one could certainly debate the extent to which Japan in the twenty-first century can still be characterized as being a more traditional society, for our purposes the essential characterization of Japanese culture as placing greater emphasis on group identity (at least relative to the United States during this same time frame) remains, however, a reasonable and relevant background consideration because our data refer to the period from 1955 to 1985.

Given the maintenance of a relatively more homogeneous and traditional culture that emphasizes group identity over individualism during this era in Japan (as compared to the United States), the issue arises as to whether absolute income has any effect at all on job satisfaction. That is, given the Japanese context of a highly group-oriented culture, one would expect the net effect of relative income to be greater than the net effect of absolute income. The significance of absolute income—though often ignored by sociologists—would be forcefully underscored if it has an important effect on job satisfaction even during this time period in Japan.

RESEARCH METHODS

As discussed above, our research objective is to estimate the net effects of absolute and relative incomes on job satisfaction among Japanese male workers. Investigating these effects with cross-sectional data is not, however, methodologically straightforward due to the problem of multicollinearity. For any given sample of individuals at a particular point in time, absolute income is highly correlated with relative income. To the extent that a person has a higher absolute income, then he will also necessarily have a higher income relative to others. Indeed, if one’s relative income is measured as one’s deviation from mean income (i.e., $X_i - \bar{X}$), then the inclusion of this term into a regression model that also includes X_i (i.e., absolute income) will not be statistically identified—it will be characterized by *perfect* multicollinearity—because $(X_i - \bar{X})$ is a linear function of X_i (i.e., it is subtracted by a constant to obtain relative income).

We overcome this methodological complication in two ways. First, instead of using the deviation from the mean, we use the cumulative percentile ranking associated with X_i to indicate relative income. For example, if one’s income is equal to the median income for the given year, then one’s relative income is defined as being equal to .50. Or, if one’s income is greater than or equal to the incomes of one-third of the

sample in the given year, then one's relative income is defined as being equal to .33. Although still highly correlated, the cumulative percentile ranking is not an exact linear function of absolute income (i.e., X_i) in contrast to the deviation from the mean. The cumulative percentile is also appropriate theoretically, because it indicates relative income by directly ranking one's income in relation to the incomes of others.

More importantly, our analysis uses cross-sectional data sets from four different decades over which absolute incomes tended to significantly increase. For this reason, an absolute income of given value will have a substantially different relative ranking depending on the year. For example, \$7,000 would be considered a high income (i.e., above the median) in 1955, but it would be considerably below median income in 1985, by which time the standard of living had substantially risen in Japan (Shikamata 1990). Thus, by including data from four different decades characterized by different average income levels, our analysis reduces the correlation between absolute income and relative income that is inherent at any one point in time. Previous research has been unable to follow this approach because comparable measures of job satisfaction and other relevant socioeconomic information are not so widely available for different years.

Data

The data that we use are the 1955, 1965, 1975, and 1985 Social Stratification and Mobility (SSM) Surveys of Japan. We can combine these data sets for the estimation of our statistical models because these surveys are generally compatible as they were designed with that consideration in mind by sociologists in Japan. The SSM data were obtained by multistage probability sampling methods (Ishida 1993). Table 1 shows the variables used in the analysis.

The dependent variable for our statistical models is *job satisfaction*. This variable is obtained from responses to the survey question, "If possible, do you want to change your current job, or are you satisfied with your current job?" The possible responses provided by the survey include "satisfied," "neither satisfied nor unsatisfied," or "unsatisfied." Due to the clear ordinal ranking of this dependent variable, we use the ordered logistic regression model to estimate the effects of independent variables (Powers and Xie 2000).

The analysis is restricted to men between the ages of 20 and 69 who were employed (students and the unemployed were deleted) and whose income data are not missing. Male workers of all economic classes are included (i.e., employees, self-employed, and family workers). After deleting students, unemployed men, and missing cases on personal income or job satisfaction, the total sample size is 6,252 (after combining all four cross-sectional data sets).

As has been discussed, the two independent variables of primary theoretical interest are absolute income and relative income. Absolute income refers to total personal income during the year prior to the survey and is adjusted by the Japanese Consumer Price Index to reflect 1985 prices (in terms of constant 1985 Japanese yen). Relative income, as discussed above, refers to the cumulative percentile ranking of absolute

Table 1. Description of Variables Used in the Analysis

Variable Names	Measurement and Description of Variables or Categories
Dependent variable	
Job satisfaction	Ordered categorical variable with 3 levels
Independent variables	
Absolute income prices	Personal absolute income in terms of 1985 prices
Relative income rank	Personal relative income in terms of cumulative percentage
Age	Years of age
Age squared	The square of age
Years of schooling	Years of schooling completed
Log of firm size	Log of total number of workers in firm
Married	Dichotomous variable with currently married = 1
<i>Occupation</i>	
Professional	Dichotomous variable with professional occupations = 1
Manager	Dichotomous variable with managerial occupations = 1
Clerical	Dichotomous variable with clerical/office occupations = 1
Sales	Dichotomous variable with sales occupations = 1
Miner	Dichotomous variable with mining occupations = 1
Farmer	Dichotomous variable with farmers, tenant farmers, fishing occupations, and forestry occupations = 1 (reference group = transport, skilled, security, and service occupations) ^a
<i>Class or employment type</i>	
Government worker	Dichotomous variable with government worker = 1
Self-employed	Dichotomous variable with self-employed = 1
Family worker	Dichotomous variable with family worker = 1
<i>Year</i>	
1955	Dichotomous variable with 1955 = 1
1965	Dichotomous variable with 1965 = 1
1975	Dichotomous variable with 1975 = 1 (reference group = 1985)

Source: Social Stratification and Mobility (SSM) Survey of Japan, 1955, 1965, 1975, and 1985.

^aReference group also includes production workers in the manufacturing sector.

income across male workers during the given year. In order to facilitate interpretation, we enter absolute income and relative income as standardized scores (Z scores) in the regression models, using the means and standard deviations for the entire sample across the four decades of data.

The other independent variables include age, age squared, years of schooling, marital status, occupational category, firm size, and economic class category or employment type. Age effects on job satisfaction have been found in previous research (Kalleberg and Loscocco 1983; Lincoln and Kalleberg 1990), including some evi-

dence for a nonlinearity (Oswald 1997). Regarding education, lower job satisfaction has been reported among Japanese workers with more schooling (Lincoln and Kalleberg 1990). Being a general demographic characteristic that may influence expectations about employment, marital status is included as a dichotomous variable. Additional dichotomous variables are used to indicate different occupational categories in order to allow for the effects of possible intrinsic sources of job satisfaction associated with different work skills. Particularly in the Japanese labor market, firm size for workers in the private sector has long been regarded as an important variable (Cole 1979; Hashimoto and Raisian 1985; Mouer and Kawanishi 2005). Another dummy variable is used to indicate government workers for whom firm size is not defined. In order to control for possible economic class (i.e., employment type) effects, dummy variables are also included for the self-employed and for family workers (with paid employees being the reference group for class).

Our regression model also controls for the survey year. Dichotomous variables are included to indicate 1955, 1965, and 1975 with 1985 serving as the reference category. We control for each year of data separately because our focus is on estimating the net effects of absolute and relative incomes per se. Job satisfaction may change over time if recent cohorts of workers have higher expectations than older cohorts of workers. These dummy variables furthermore control for all other period effects.

EMPIRICAL RESULTS

Descriptive Statistics

Table 2 shows the statistics for income and the frequency distributions for job satisfaction. As is evident in Table 2, mean absolute income for men has steadily increased in our data from 1,203,600 yen in 1955 to 4,164,600 yen in 1985. These figures are adjusted for inflation as they are in terms of constant 1985 Japanese yen. They indicate real growth in mean absolute income by a factor of 3.46. Although the real

Table 2. Annual Income Statistics and the Distribution of Job Satisfaction by Year

	Combined Sample	1955	1965	1975	1985
Satisfied	54.78	52.40	58.65	53.56	53.56
Neither	31.88	32.38	30.03	33.25	31.26
Unsatisfied	13.34	15.21	11.32	13.19	15.17
Mean absolute income ^a	2,778,100	1,203,600	2,216,300	3,362,600	4,164,600
Mean relative income	55.65	58.41	52.99	57.29	53.27
Sample size	6,252	1,124	1,758	2,388	982

Source: Social Stratification and Mobility (SSM) Survey of Japan, 1955, 1965, 1975, and 1985.

^aAbsolute income statistics are in terms of constant 1985 Japanese yen.

growth is higher when these figures are first converted into U.S. dollars using the official exchange rates of the period, we avoid this conversion due to inaccuracies created by major changes in the setting of exchange rates during this era.

In terms of relative incomes, their means by construction do not change much across these decades. That is, the mean for a distribution of cumulative percentiles (i.e., when scored exactly as 1, 2, 3 . . . 100) is necessarily 50.5 for any given year. The means on relative incomes, therefore, do not significantly change much across these decades. They are relatively constant and fluctuate only slightly around an overall mean of 55.65. The observed means are a little higher than 50.5 due to rounding errors and the number of tied scores on income (incomes that are measured as being exactly the same) that reflects the degree of precision with which income is measured in the particular survey year. In sum, the change in mean relative income across the decades is numerically trivial and derives only from rounding errors.

Table 2 also shows the frequency distribution of job satisfaction for Japanese men during these decades. The distributions are fairly stable throughout the period with slightly more than one-half stating that they are "satisfied" and about one-third stating that they are "neither satisfied nor unsatisfied" in each year. The remainder refers to those who are "unsatisfied" and they represent less than one-sixth in each year. The finding of slightly more than half of Japanese male workers reporting that they are satisfied with their jobs is consistent with the results from other Japanese surveys during this time period, although, as noted above, this figure is lower than what is typically found for American male workers during that era (Lincoln and Kalleberg 1990).

Additional descriptive statistics are shown in Table 3. The mean age for the four decades of data is about 40 years. The mean years of schooling completed are 10.50. At the time of the survey, 82 percent of the respondents were currently married while 8 percent were professionals, 6 percent were managers, 15 percent were clerical workers, 12 percent were sales workers, 1 percent were miners, 10 percent were farmers, and 49 percent of the workers were in the reference category for occupation (transportation, skilled, safety and service workers). About 7 percent were employed in governmental agencies and 15 percent were self-employed. Less than 2 percent of the sample consisted of family workers.

From an aggregate point of view, the results in Table 2 suggest the greater importance of relative income. Although mean absolute income increased substantially over this period, job satisfaction remained stable. Because relative income also remained stable, the aggregate pattern of job satisfaction more closely corresponds to the aggregate pattern for mean relative income than for mean absolute income. Scitovsky (1976:135) observed a similar pattern for aggregate income and aggregate self-reported happiness in U.S. data and commented that "the obvious explanation would be that one's happiness depends on where one stands in relation to the Joneses and not at all on one's absolute standard of living."

Scitovsky (1976) is quick to note, however, that this conclusion is probably overly simplistic, because individual sources of satisfaction are probably too complex to be accurately ascertained by the trend in a few aggregate statistics. A more multivariate approach at the individual level is needed in order to control for a richer set of rele-

Table 3. Descriptive Statistics

Variables	Mean	St. Dev.
Age	40.199	11.957
Age squared	1,758.900	1,023.040
Years of schooling	10.498	2.964
Married	0.823	0.382
Log of firm size	1.798	2.548
<i>Occupation</i>		
Professional	0.079	0.269
Manager	0.060	0.237
Clerical	0.146	0.353
Sales	0.119	0.324
Miner	0.007	0.085
Farmer	0.103	0.304
(transport, skilled, safety, service)	0.486	0.500
<i>Class or employment type</i>		
Self-employed	0.151	0.358
Family worker	0.017	0.130
Government worker	0.073	0.261
<i>Annual income</i>		
Absolute income	2,778,061	2,684,837
Relative income	55.652	28.100
1955	0.180	0.384
1965	0.281	0.450
1975	0.382	0.486
(1985)	0.157	0.364

Source: Social Stratification and Mobility (SSM) Survey of Japan, 1955, 1965, 1975, and 1985.

Notes: Reference categories are shown in parentheses. N = 6,252.

vant independent variables. For this reason, we estimated regression models that are facilitated by the use of individual-level data on job satisfaction.

Results for Logistic Regression Models

Results for the ordered logistic regression models are shown in Table 4. For reference purposes, Model 1 includes the respondent's absolute income and his relative income as the only independent variables. These variables are standardized in order to facilitate interpretations in terms of standard deviation units. The results for Model 1 indicate that controlling for relative income, a standard deviation increase in absolute income increases the odds of job satisfaction by 16.3 percent. Controlling for absolute income, a standard deviation increase in relative income increases the odds of job satisfaction by 30.8 percent.

Table 4. Estimates of Ordered Logistic Regression Models for Job Satisfaction

	Model 1	Model 2	Model 3
	Odds Ratio	Odds Ratio	Odds Ratio
Absolute income	1.163***	1.156**	1.338***
Relative income	1.308***	1.373***	1.251***
Age		0.943***	0.947**
Age squared		1.001***	1.001***
Years of schooling		0.986	0.969**
Married		0.950	0.939
Professional			1.504***
Manager			1.181
Clerical			1.100
Sales			1.031
Miner			0.811
Farmer			0.850
Log of firm size			1.028
Government worker			1.193
Self-employed			1.005
Family worker			1.448
1955			1.152
1965			1.563***
1975			1.232
Pseudo-R ²	0.018	0.022	0.027

Notes: Reported odds ratio refers to the anti-log of the estimated coefficient. The reference category for occupation includes workers in transportation, manufacturing, security, and services as well as other miscellaneous skilled workers.

*Significant at the 0.05 level; **significant at the 0.01 level; ***significant at the 0.001 level (two-tailed tests).

Demographic characteristics (i.e., age, schooling, and marital status) are included as control variables in Model 2 in Table 4. The odds ratios for the net effects of absolute income and relative income change only slightly. In Model 2, the net effect of absolute income is 15.6 percent, while the net effect of relative income is 37.3 percent. These results indicate (as does Model 1) that relative income has a larger net effect than absolute income (when considered in terms of standard deviation units) and that this conclusion is not explained away by basic demographic variables.

The full specification is Model 3 in Table 4. Net of the effects of income, demographic characteristics, firm size, government employment, self-employment, being a family worker, and year, professionals have substantially higher job satisfaction. Their odds of higher job satisfaction are 50.4 percent greater than among transportation, skilled, safety, and service workers. Because this figure represents a net effect that controls for all of the aforementioned variables, this result suggests that the intrinsic fea-

tures of professional work increase satisfaction. The net effects for the other occupational groups are not, however, statistically significant at conventional levels.

Other results for Model 3 indicate that an increasing age raises job satisfaction (i.e., the quadratic term for age is greater than unity and statistically significant). Job satisfaction is, in general, greater in 1965 than in 1975 and 1985, which were recessionary years. Net of the effects of income, occupation, and the other variables, more education slightly reduces job satisfaction. The coefficients for firm size, government employment, self-employment, and being a family worker are not, however, statistically significant.

The effects of absolute and relative incomes in Model 3 are somewhat different from those in Model 2. After controlling for demographic characteristics and labor market variables, the effect of absolute income is larger. Specifically, a standard deviation increase in absolute income increases the odds of job satisfaction by 33.8 percent (controlling for relative income and the other independent variables). However, the estimated net effect of relative income is smaller in Model 3 than in Model 2. Controlling for absolute income and the other covariates, a standard deviation increase in relative income increases the odds of job satisfaction by 25.1 percent.

In sum, the net effects of absolute income and relative income are both statistically and substantively significant (Models 1, 2 and 3). When controlling for demography, labor market variables, and year, then the estimated net effect of absolute income is slightly larger than the estimated net effect of relative income (Model 3). When labor market variables and year are not taken into account, however, relative income has a larger net effect than absolute income (Models 1 and 2).

CONCLUSIONS

Using a unique series of cross-sectional surveys, we have analyzed the sources of job satisfaction among Japanese male workers from 1955 to 1985. Focusing on income, our investigation disentangled the net effects of absolute income versus relative income during a period of high economic growth. The results indicate that both absolute income and relative income have positive effects on job satisfaction even after controlling for demographic characteristics, job position, and year of the survey. Although both net effects are substantively large and statistically significant, the estimated net effect of absolute income is slightly larger than that of relative income after controlling for year and labor market variables.

These results suggest the importance of the traditional approaches of *both* sociology and economics to the study of well-being and job satisfaction. Economists are usually interested in efficiency and focus on absolute income, while sociologists' concerns with inequality lead them to emphasize relative income. Rather than being mutually exclusive considerations, however, our results indicate that both aspects of income are significant for understanding job satisfaction in Japan.

What is perhaps most notable about our findings for sociologists is the significance of absolute income. The estimated effect of absolute income is substantively and statistically significant in each of our regression models. In the full specification, the net

effect of absolute income is actually larger than relative income. Although sociologists have traditionally ignored absolute income, our results bring into question whether it should simply be assumed to be irrelevant.

Furthermore, Japan during this period is often described as having a traditional culture that provides a stronger sense of a distinctive community, emphasizing group identification over individualism. That an important net effect of absolute income (after controlling for relative income) is still evident even in the Japanese context underscores the significance of this source of job satisfaction. This conclusion raises the issue as to whether absolute income might be even more important in individualistic cultures such as the United States that place greater emphasis on individual achievement and self-fulfillment.

Future research might extend our analysis to other countries. Other measures of relative income could also be considered. Because our measure is based on cumulative percentiles, it does not identify the monetary distances between workers at different rankings in the distribution of income. Our approach cannot determine how an increase in income inequality might affect the distribution of job satisfaction. This issue is important for future research, however, as income inequality is increasing in the United States and absolute income gains have been very unevenly distributed (Kim and Sakamoto 2008; Morris and Western 1999). Future research may build upon our efforts here to investigate how changes in absolute incomes and income inequality have affected job satisfaction.

Isao Takei is a doctoral candidate in the Department of Sociology at the University of Texas. His research interests include racial and ethnic relations, social stratification, and Japanese studies. Along with Jon P. Alston, he is the author of *Japanese Business Culture and Practices*.

Arthur Sakamoto is professor of sociology at the University of Texas. His research interests include social stratification and inequality, economic sociology, and racial and ethnic relations. He recently published (with ChangHwan Kimwan) in *American Sociological Review* "The Rise of Intra-Occupational Wage Inequality in the United States, 1983 to 2002." He is also a member of the editorial board for that journal.

Yoichi Murase is associate professor of sociology at Rikkyo University in Tokyo, Japan. His research interests include social stratification, political sociology, and quantitative methods.

REFERENCES

- Barnett, R. C., S. W. Raudenbush, R. T. Brennan, J. H. Pleck, and N. L. Marshall. 1995. "Changes in Job and Marital Experiences and Change in Psychological Distress: A Longitudinal Study of Dual-Earner Couples." *Journal of Personality and Social Psychology* 69:839–850.

- Bender, Keith A. and Peter J. Sloane. 1998. "Job Satisfaction, Trade Unions, and Exit-Voice Revisited." *Industrial and Labor Relations Review* 51:222–240.
- Bender, Keith A., Susan M. Donohue, and John S. Heywood. 2005. "Job Satisfaction and Gender Segregation." *Oxford Economic Papers* 57:479–496.
- Campion, Michael A. 1988. "Interdisciplinary Approaches to Job Design: A Constructive Replication with Extensions." *Journal of Applied Psychology* 73:467–481.
- Campion, M. A. and C. L. McClelland. 1993. "Follow-Up and Extension of the Interdisciplinary Costs and Benefits of Enlarged Jobs." *Journal of Applied Psychology* 78:339–351.
- Cogan, John F. 1995. "Dissent." Pp. 385–390 in *Measuring Poverty: A New Approach*, edited by Constance F. Citro and Robert T. Michael. Washington, D.C.: National Academy Press.
- Cole, Robert E. 1972. "Permanent Employment in Japan: Facts and Fantasies." *Industrial and Labor Relations Review* 26:615–630.
- . 1979. *Work, Mobility, and Participation*. Berkeley: University of California Press.
- Dore, Ronald. 1973. *British Factory–Japanese Factory: The Origins of National Diversity in Industrial Relations*. Berkeley: University of California Press.
- Easterlin, Richard A. 1974. "Does Economic Growth Improve the Human Lot?" Pp. 89–125 in *Nations and Households in Economic Growth: Essays in Honour of Moses Abramovitz*, edited by Paul A. David and Melvin W. Reder. New York: Academic Press.
- Faragher, E. B., M. Cass, and C. L. Cooper. 2005. "The Relationship between Job Satisfaction and Health: A Meta-Analysis." *Occupational and Environmental Medicine* 62:105–112.
- Farley, Reynolds. 1996. *The New American Reality*. New York: Russell Sage Foundation.
- Farrell, D. and C. L. Stamm. 1988. "Meta-Analysis of the Correlates of Employee Absence." *Human Relations* 41:211–227.
- Featherman, David L. and Robert M. Hauser. 1978. *Opportunity and Change*. New York: Academic Press.
- Festinger, Leon. 1954. "A Theory of Social Comparison Processes." *Human Relations* 7:117–140.
- Firebaugh, Glenn and Laura Tach. 2005. "Relative Income and Happiness: Are Americans on a Hedonic Treadmill?" Working Paper. Philadelphia: Pennsylvania State University.
- Frank, Robert H. 1997. "The Frame of Reference as a Public Good." *Economic Journal* 107:1832–1847.
- Freeman, R. B. 1978. "Job Satisfaction as an Economic Variable." *American Economic Review* 68:135–141.
- Griffin, Mark A., Malcolm G. Patterson, and Michael A. West. 2001. "Job Satisfaction and Teamwork: The Role of Supervisor Support." *Journal of Organizational Behavior* 22:537–550.
- Gruenberg, Barry. 1980. "The Happy Worker: An Analysis of Educational and Occupational Differences in Determinants of Job Satisfaction." *American Journal of Sociology* 86:247–271.
- Grusky, David. B. 2005. "Foundations of a Neo-Durkheimian Class Analysis." Pp. 51–81 in *Approaches to Class Analysis*, edited by Erik O. Wright. New York: Cambridge University Press.

- Hashimoto, Masanori and John Raisian. 1985. "Employment Tenure and Earnings Profiles in Japan and the United States." *American Economic Review* 75:721–735.
- Heywood, John S., Stanley Siebert, and Xiangdong Wei. 2002. "Worker Sorting and Job Satisfaction: The Case of Union and Government Jobs." *Industrial and Labor Relations Review* 55:595–609.
- Hom, P. W., F. Caranikas-Walker, G. E. Prussia, and R. W. Griffeth. 1992. "A Meta-Analysis Structural Equation Analysis of a Model of Employee Turnover." *Journal of Applied Psychology* 77:890–909.
- Hyman, Herbert. 1942. "The Psychology of Status." *Archives of Psychology* 269:5–91.
- Iaffaldano, Michelle T. and Paul M. Muchinsky. 1985. "Job Satisfaction and Performance: A Meta-Analysis." *Psychological Bulletin* 97:251–273.
- Ishida, Hiroshi. 1993. *Social Mobility in Contemporary Japan*. Stanford, CA: Stanford University Press.
- Kalimo, R. and J. Vuori. 1990. "Work and Sense of Coherence: Resources for Competence and Life Satisfaction." *Behavioral Medicine* 16:76–89.
- Kalleberg, Arne L. 1977. "Work Values and Job Rewards: A Theory of Job Satisfaction." *American Sociological Review* 42:124–143.
- Kalleberg, Arne L. and Karyn A. Loscocco. 1983. "Aging, Values, and Rewards: Explaining Age Differences in Job Satisfaction." *American Sociological Review* 48:78–90.
- Karasek, Robert A., Jr. 1979. "Job Demands, Job Decision Latitude, and Mental Strain: Implications for Job Redesign." *Administrative Science Quarterly* 24:285–308.
- Kerbo, Harold R. 2006. *Social Stratification and Inequality*. 6th ed. New York: McGraw-Hill.
- Kilbourne, Barbara-Stanek, Paula England, and George Farkas. 1994. "Returns to Skill, Compensating Differentials, and Gender Bias: Effects of Occupational Characteristics on the Wages of White Women and Men." *American Journal of Sociology* 100:689–719.
- Kim, ChangHwan and Arthur Sakamoto. 2008. "The Rise of Intra-Occupational Wage Inequality in the United States, 1983 to 2002." *American Sociological Review* 73: 129–157.
- Kim, Soonhee. 2002. "Participative Management and Job Satisfaction: Lessons for Management Leadership." *Public Administration Review* 62:231–241.
- Laband, David N. and Bernard F. Lentz. 1998. "The Effects of Sexual Harassment on Job Satisfaction, Earnings, and Turnover among Female Workers." *Industrial and Labor Relations Review* 51:594–607.
- Lee, R. T. and B. E. Ashforth. 1996. "A Meta-Analytic Examination of the Correlates of the Three Dimensions of Job Burnout." *Journal of Applied Psychology* 81:123–133.
- Lincoln, James R., and Arne L. Kalleberg. 1990. *Culture, Control, and Commitment: A Study of Work Organization and Work Attitudes in the United States and Japan*. New York: Cambridge University Press.
- Liu, Jeng and Arthur Sakamoto. 2005. "Relative Deprivation, Efficiency Wages, and Labor Productivity in Taiwanese Manufacturing Industries." *Research in Social Stratification and Mobility* 23:305–341.
- Loscocco, Karyn A. and Glenna Spitze. 1990. "Working Conditions, Social Support, and the Well-Being of Female and Male Factory Workers." *Journal of Health and Social Behavior* 31:313–327.
- Martin, Robin and Toby D. Wall. 1989. "Attentional Demand and Cost Responsibility as Stressors in Shopfloor Jobs." *Academy of Management Journal* 32:69–86.

- Melamed, Samuel, Yitzhak Fried, and Paul Froom. 2001. "The Interactive Effect of Chronic Exposure to Noise and Job Complexity on Changes in Blood Pressure and Job Satisfaction: A Longitudinal Study of Industrial Employees." *Journal of Occupational Health Psychology* 6:182–195.
- Melamed, S. I. Ben-Avi, J. Luz, and M. S. Green. 1995. "Objective and Subjective Work Monotony: Effects on Job Satisfaction, Psychological Distress, and Absenteeism in Blue-Collar Workers." *Journal of Applied Psychology* 80:29–42.
- Merton, Robert K. 1957. *Social Theory and Social Structure*. New York: Free Press.
- Merton, Robert K. and Alice S. Kitt. 1950. "Contributions to the Theory of Reference Group Behavior. Pp. 40–105 in *Continuities in Social Research: Studies in the Scope and Method of the American Soldier*, edited by R. K. Merton and P. F. Lazarsfeld. Glencoe, IL: Free Press.
- Miles, E. W., S. L. Patrick, and W. C. King, Jr. 1996. "Job Level as a Systemic Variable in Predicting the Relationship between Supervisory Communication and Job Satisfaction." *Journal of Occupational and Organizational Psychology* 69:277–292.
- Mouer, Ross E. and Hirosuke Kawanishi. 2005. *A Sociology of Work in Japan*. Cambridge, UK: Cambridge University Press.
- Morris, Martina and Bruce Western. 1999. "Inequality in Earnings at the Close of the Twentieth Century." *Annual Review of Sociology* 25:623–657.
- Nakane, Chie. 1970. *Japanese Society*. Berkeley: University of California Press.
- Oldham, G. R. and Y. Fried. 1987. "Employee Reactions to Workplace Characteristics." *Journal of Applied Psychology* 72:75–80.
- Oswald, Andrew J. 1997. "Happiness and Economic Performance." *Economic Journal* 107: 1815–1831.
- Petty, M. M., Gail W. McGee, and Jerry W. Cavender. 1984. "A Meta-Analysis of the Relationships between Individual Job Satisfaction and Individual Performance." *Academy of Management Review* 9:712–721.
- Pindyck, Robert S., and Daniel L. Rubinfeld. 1992. *Microeconomics*. New York: Macmillan.
- Pollis, Nicholas P. 1968. "Reference Group Re-Examined." *British Journal of Sociology* 19:300–307.
- Powers, Daniel A., and Yu Xie. 2000. *Statistical Methods for Categorical Data Analysis*. New York: Academic Press.
- Pugliesi, Karen. 1995. "Work and Well-Being: Gender Differences in the Psychological Consequences of Employment." *Journal of Health and Social Behavior* 36:57–71.
- Rainwater, Lee. 1974. *What Money Buys: Inequality and the Social Meanings of Income*. New York: Basic Books.
- Reischauer, Edwin O. 1977. *The Japanese*. Cambridge, MA: Harvard University Press.
- Reischauer, Edwin O. and Albert M. Craig. 1978. *Japan: Tradition and Transformation*. Boston, MA: Houghton Mifflin.
- Rohlen, Thomas P. 1974. *For Harmony and Strength*. Berkeley: University of California Press.
- Roxburgh, S. 1996. "Gender Differences in Work and Well-Being: Effects of Exposure and Vulnerability." *Journal of Health and Social Behavior* 37:265–277.
- Saltzstein, Alan L., Yuan Ting, and Grace Hall Saltzstein. 2001. "Work-Family Balance and Job Satisfaction: The Impact of Family-Friendly Policies on Attitudes of Federal Government Employees." *Public Administration Review* 61:452–467.
- Schwochau, Susan. 1987. "Union Effects on Job Attitudes." *Industrial and Labor Relations Review* 40:209–224.

- Scitovsky, Tibor. 1976. *The Joyless Economy*. New York: Oxford University Press.
- Sevastos, P., L. Smith, and J. L. Cordery. 1992. "Evidence on the Reliability and Construct Validity of Warr's (1990) Well-Being and Mental Health Measures." *Journal of Occupational and Organizational Psychology* 65:33–49.
- Shibutani, Tamotsu. 1955. "Reference Groups as Perspectives." *American Journal of Sociology* 60:562–569.
- Shields, Michael A. and Stephen Wheatley Price. 2002. "Racial Harassment, Job Satisfaction and Intentions to Quit: Evidence from the British Nursing Profession." *Economica* 69:295–326.
- Shikamata, Nobuo. 1990. "Fubyoudou no suusei to kaisou kotei kasetu" (The trend in inequality and the hypothesis of fixed stratification). Pp. 151–167 in *Gendai nihon no kaisoukouzou 1: Syakai kaisou no kouzou to katei* (The structure of stratification in contemporary Japan I: Structure and process in social stratification), edited by Yuu Naoi and Kazuo Moriyama. Tokyo: University of Tokyo Press.
- Shore, Lynn McFarlane and Harry J. Martin. 1989. "Job Satisfaction and Organizational Commitment in Relation to Work Performance and Turnover Intentions." *Human Relations* 42:625–638.
- Smith, Robert John. 1983. *Japanese Society: Tradition, Self, and the Social Order*. London: Cambridge University Press.
- Spector, P. E. and B. J. O'Connell. 1994. "The Contribution of Personality Traits, Negative Affectivity, Locus of Control and Type A to the Subsequent Reports of Job Stressors and Job Strains." *Journal of Occupational and Organizational Psychology* 67:1–11.
- Spector, Paul E., Daniel J. Dwyer, and Steve M. Jex. 1988. "Relation of Job Stressors to Affective, Health, and Performance Outcomes: A Comparison of Multiple Data Sources." *Journal of Applied Psychology* 73:11–19.
- Takezawa, Shinichi and Arthur M. Whitehill. 1981. *Work Ways: Japan and America*. Tokyo: Japan Institute of Labor.
- Treiman, Donald J. 1977. *Occupational Prestige in Comparative Perspective*. New York: Academic Press.
- Warr, Peter B. 1990. "Decision Latitude, Job Demands, and Employee Well-Being." *Work and Stress* 4:285–294.
- . 1999. "Well-Being and the Workplace." Pp. 392–412 in *Well-Being: The Foundations of Hedonic Psychology*, edited by Daniel Kahneman, Ed Diener, and Norbert Schwarz. New York: Russell Sage Foundation.
- Wharton, Amy S., Thomas Rotolo, and Sharon R. Bird. 2000. "Social Context at Work: A Multilevel Analysis of Job Satisfaction." *Sociological Forum* 15:65–90.
- Williams, L. J., M. B. Gavin, and M. L. Williams. 1996. "Measurement and Non-measurement Processes with Negative Affectivity and Employee Attitudes." *Journal of Applied Psychology* 81:88–101.
- Xie, Jia Lin and Gary Johns. 1995. "Job Scope and Stress: Can Job Scope Be Too High?" *Academy of Management Journal* 38:1288–1309.