The Effects of Sociodemographic Characteristics on

Smoking Participation among Japanese Men and Women

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Abstract

In Japan, as in other developed countries, smoking rates have been decreasing among men but it has been increasing among women. The prevalence of smoking may relate to accompanying gender differences in the labor market. The purpose of this paper is to empirically examine how occupation affects smoking behavior, with a particular emphasis on the differential effects for gender. The types of occupations have significant effects on smoking for both men and women, even after controlling for employment status, income, education, and demographic characteristics. Furthermore, the detailed classification of occupation reveals the stark difference in a response to the types of occupations among men and women, while showing the similarity in a response to cigarette price, income and education. The results suggest that smoking cessation policies should be designed more effectively with taking into consideration for gender differences of occupation on smoking.

Key words: cigarettes, smoking, gender, occupation

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Introduction

Do men and women smoke for different reasons? There are numerous works in the health economics literature on the differences in the price and income elasticities of smoking participation and consumption among men and women (Chaloupka, 1990; Hersch, 2000; and Bauer, Göhlmann, & Sinning, 2007). Recent research has focused on the gender differences in various anti-smoking policies (Chaloupka and Pacula, 1999), in the responsiveness to price (Hersch, 2000 ; Yen, 2005), and in risk perception (Lundborg and Andersson, 2008).

However, less attention has been paid gender differences in smoking behavior focusing on stress and pressure related sociodemographic characteristics. In public health literature, it has been shown a variety of reasons for gender differences in smoking behavior concerning these factors (for example, Fant et al. (1996)). It has uniformly been shown that women are more likely to use cigarettes to deal with their stress and to control their body weight more than men.

The goal of this paper is to test gender differences in smoking behavior focusing on occupation as a reflection of differences in stress and pressure at work place. There are two reasons why occupational stress and pressure lead to differences in smoking behavior among men and women. First, a particular occupation may have considerably different tasks and job environments across organizations and societies, leading to differences in coping strategies for managing stress and therefore yielding differences in smoking behavior. Smith (2008) conducted an extensive literature review covering the studies in Australia and the United States for 35 years and found that there are persistent disparities in smoking rates by occupation because of the differences in workload and customer

interaction. Consistent with this, for example, it has uniformly been found the high smoking rates for hospital nurses, even though they have certain knowledge about health risks caused by smoking. Tsuchiya et al. (2002) found that smoking rates are 24.5% in women and 54.5% in men as compared to the average of Japanese women's smoking rate, 13.7% and men's rate 53.5%.

Second, if there exists wage penalty in a particular occupation where the slimness is rewarded, workers in such occupation may have an incentive to use cigarettes as body weight control. Han et al. (2009) found that wage penalty exists for white and black women in occupations where obesity penalize workers for their obesity such as serving work (hair stylist or waiter/waitress), but no significant effect was found for men. The authors explained why wage penalty exists in some occupations: customer's discrimination against obese workers varies by occupation. In addition, employers may have distaste for obese employees due to a perception of their customers' preference for the looks of workers and their own preference for lean employees. If wage penalty put on pressure on workers in a particular occupation where the slimness is rewarded, then pressure towards slimness may induce workers in such occupation to smoke cigarettes.

From an economic point of view, the study of determinants of smoking prevalence is important for two reasons: 1) it enhances our understanding of individual smoking behavior; and 2) to formulate cessation policy more effectively, w need to understand better how occupational stress affects smoking behavior focusing on the difference among men and women.

From a policy perspective, it is important to know what factors affect differences in smoking behavior by gender. The knowledge may help to design smoking cessation

policies in a more efficient way. In Japan, over the past several decades, smoking rates have been decreasing among men but it has been increasing among women particularly in young cohorts. The smoking rates of Japanese women in their twenties and thirties jumped from 10.3% in year 1989 to 19.2% in 2007. In contrast, the smoking rates of Japanese men in the age segment decreased from 63.9% in 1989 to 51.7% in 2007 (MHLW, 2007). The difference of smoking prevalence may relate to accompanying gender differences in the labor market. If the effects of occupation on smoking prevalence differ by gender, we need to take into account of this difference for cessation strategies. Therefore, the question of whether occupation affects smoking behavior differently among men and women has led to widespread concern.

The volume of research on gender differentials of smoking focusing on sociodemographic characteristics has increased in recent years and consistently found that, for both men and women, blue-collar workers are more likely to smoke cigarettes than the white-collar (Hersch, 2000; Yen, 2005). These studies, however, have two limitations. Fist, they did not control for the endogeneity of the labor market status in the model of smoking behavior. Second, they only compared the differential effects of occupation between white collar and blue collar.

The purpose of this paper is to empirically examine how occupation affects smoking behavior, with a particular emphasis on the differential effects for gender. This paper makes two contributions to the literatures on the relationship between labor market status and smoking behavior. First, I use more detailed types of occupation compared to the earlier studies to attempt to identify the differences in occupational stress and pressure. Second, I include a rich set of control variables to attempt to solve an omitted variable

bias. The most noteworthy finding is that the detailed classification of occupation reveals the stark difference of the behavioral response to occupations of men and women, while finding the similarity in a response to cigarette price, income and education.

Conceptual framework

Hypotheses

This paper tests two hypotheses whether there is a gender differential effect of occupation on smoking prevalence. First, I hypothesize that the effects of occupational stress have a stronger on smoking prevalence for women than for men. If occupational stress is more likely to induce smoking for women than for men as shown in previous studies, the effects of occupation on smoking would differ among men and women.

Second, I hypothesize that workers in professional/technical, sales and serving occupations have higher probability of smoking compared to workers in clerical occupations. If there exists wage penalty for a particular occupation where the slimness is rewarded as shown in Han et al. (2009), the persons in such occupation may have more incentive to use cigarettes as a weight control than others. I assume that workers in occupations having more opportunity to interact and talk with customers are more likely to be subject to wage penalty. I also assume that workers in professional/technical, sales and serving occupations, compared to those in clerical occupations, have more opportunity to interact with customers and therefore more likely to be subject to wage penalty.

Endogeneity of occupations

One concern is that the presence of an omitted variable not only correlated with occupations but also with smoking behavior may cause bias estimates. Heterogeneity of individual discount rates may be a potential explanation how occupation affect smoking behavior. Individual discount rates may play a significant role in investment in all facets of human capital, resulting in a correlation between smoking behavior and occupation. For example, persons with low discount rates are more likely to invest in unhealthy activities, education and job training, creating the negative correlations between white-collar occupations and smoking. I attempt to address this potentially important factor by controlling parental education as the proxy variables for discounting.

Health condition is other possible explanation of the correlation between occupation and smoking behavior, if a health problem caused by smoking restricts a choice of occupation. Accordingly, I include self-evaluated health status to take care of this factor.

The correlation between occupation and smoking may in part reflect differences in workplace smoking restrictions among occupations. White-collar workers are more likely to be subject to workplace smoking restrictions, which may depress their smoking rates, resulting in the negative correlation between white-collar occupations and a choice to smoke. I control this potential correlation by including a firm size.

Methods

A cigarette smoking prevalence equation is estimated as a function of occupation. I estimate the following probit model for women and men respectively:

$$\Pr(\text{Smoker}_i = 1) = \alpha_1 + \text{Occupations}_{is}\alpha_2 + X_i\alpha_3 + Z_i\alpha_4 + e_i \qquad (1)$$

Occupations refer to the four types of occupations: professional/technical, clerical, sales, and serving (blue-collar is used as a reference). X_i refer to a vector of individual characteristics, Z_i refer to a vector of proxy variables for the omitted variables, e_i is a disturbance term, and the α s are estimated parameters. The subscript i refers to individual and s (s=1,...,4) refers to the four types of occupations.

First, to test the first hypothesis whether the effects of occupational stress have a stronger on smoking prevalence for women than for men, I compare four coefficients of the types of occupations for the signs and significance using a t-test among men and women.

Second, to test the second hypothesis whether workers in professional/technical, sales and serving occupations have higher probability of smoking compared to workers in clerical occupations, I compare the magnitude and significance between three groups respectively: 1) professional/technical and clerical occupations; 2) sales and clerical occupations; and 3) serving and clerical occupations. If there exist wage penalty for occupations in professional/technical, sales and serving compared to clerical occupations as expected, then workers in the former occupations are more inclined to smoke than the latter. In addition, to test whether there are any differential effects among occupations, I test the null hypothesis that $\alpha_{2\_professional} = \alpha_{2\_clerical}$, $\alpha_{2\_sales} = \alpha_{2\_clerical}$ and $\alpha_{2\_serving} = \alpha_{2\_clerical}$ using a chi-squared test with one degree of freedom respectively.

In the empirical implementation, I use proxy variables to control for potential endogeneity of occupations. Another solution to the omitted variables may be instrumental variables, which require two conditions: it is highly correlated with occupations, and orthogonal to the error terms in smoking behavior model. Weak

instrumental variables cause the estimation results biased back toward OLS or worse (Staiger and Stock, 1997). Given the lack of valid instrumental variables, I choose not to use instrumental variable estimation method.

Data

  This study used data from the first five waves of the Japanese General Social Surveys (JGSS) 2000-2003 and 2005, which is the repeated cross-section survey data over age 20 in Japan and is designed to gather political, sociological, and economic information.

  The entire sample includes 14,322 respondents. To focus on the effect of labor market characteristics on smoking behavior, I restrict sample to employed person aged 20-60, bringing the number of respondents down to 7,290. Finally, our sample was limited to the 6,272 respondents (3,150 respondents for men and 2,822 respondents for women) with valid observations for key variables related smoking behavior, types of occupations and education.

Dependent variable:Binary variable of current smoker or not

  Respondents were asked whether the individual were current smoker or not at the interview date. Those who currently smoke at the interview date are identified as smokers in the analysis. JGSS never ask respondents the number of cigarettes they smoke and therefore this study is focused on smoking prevalence. Smoking prevalence is 53.96% for men and 18.84% for women varying from 15.36% to 55.80% by occupation (see Table 1)

Key explanatory variables: Types of occupations

Types of occupations is classified based on occupational category of Labor Force Survey in Japan (the Statistics Bureau and the Director-General for Policy Planning), which has 8 categories: (1) professional and technical, (2) manager and official, (3) clerical, (4) sales, (5) serving, (6) agricultural, forestry and fishery, (7) worker in transport and communication, and (8) operative, driver. I collapsed the first two categories due to small sample size for manager and official. I also collapsed the last three categories to create the category of blue-collar (for more detailed information see Appendix A). Finally, types of occupations have 5 categories:

  i.   professional and technical (original categories (1) and (2));

 ii.   clerical (original category (3));

iii.   sales (original category (4));

 iv.   serving (original category (5));

  v.   blue-collar (original categories (6), (7), and (8), used as a reference category).

The most occupied occupation for men is blue-collar, in contrast to clerical occupations for women (see Table 1).

Other explanatory variables

Respondents are categorized by their employment status into one of four groups: exective/manager; regular; temporary/daily/part-time; and self-employed (see Table 2). Regular employee is used as a reference category. Differences in stress associated with unemployment may lead to differences in smoking prevalence by employment status.

Own earning is used to control income[1], which is based on 19 broad income categories. To provide a continuous measure for comparison to previous studies, I assign the midpoint of each income category. I calculate the real income by year using the 47 regional CPI as the price index. I also include an income missing variable to avoid the loss of a large number of observations.

The model includes the presence of young children to analyze whether smoking behavior alter in relation to responsibilities for the care of young children. The indicator variables are for the age categories under 3 years old, age 4-6, age 7-12, and age 13-18.

Years of education capture multiple effects relating to health knowledge and lifetime wealth. Age and age-squared is included to capture different effects of age on smoking behavior at different points in the lifecycle of individuals. The model includes marital status of individuals: married; divorce/widowed; never married (married individual is used as a reference category). Stressful life-cycle events such as divorce or widowed are predicted to lead to smoke. The size of municipality that the respondent is living in also includes to control for the accessibility of purchasing cigarettes and the community acceptability of smoking among one's peers.

The real price of cigarettes by year is calculated using average nominal price and the 47 regional CPI as the price index. In Japan, cigarette price is the same across regions, not leading to bias for cross-border purchases discussed in the study using US state data.

Proxy for omitted variables

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[1] I also performed the estimation using other income measure, family income, and the results were not altered.

Two dummy variables for the education of the parents (i.e. whether parents have more than a high school education or they have a high school education or less acting as a reference group). Self-evaluated health status is used to control for unobserved health conditions. Health status has five scales and the worst two is measured as poor health. Number of workers in the firm a respondent is working at is included to control the unobserved working place smoking restrictions.

Results

Overall, the results show that the types of occupations have significant effects on smoking prevalence, holding constant employment status, income, education, and other sociodemographic characteristics. Compared to workers in blue-collar, only for women, workers in particular occupations appear to have a higher probability of smoking.

Gender differential effects of occupation on smoking. Among men, the coefficients of professional/technical and clerical occupations have significant negative effects on the probability of smoking, compared to blue-collar as a reference category (Table 3). The coefficient of professional/technical occupation is greater in magnitude and significance than other occupations. On the contrary, among women, the coefficients of sales and serving are associated with a higher probability of smoking, compared to blue-collar as a reference category. Women in sales and serving work are more likely to smoke cigarettes compared to women in blue-collar work by 4.6 and 6.7 percentage points respectively. In addition, the coefficients of professional/technical and clerical have no significant effects on smoking prevalence.

Gender differential effects among occupations. Among men, the coefficients of sales and serving are slightly less negative than the coefficient of clerical, although large standard errors require caution in interpreting the results of sales and serving. It is only for the sales that a statistically significant difference compared to clerical was found at the 5% level (see the bottom of Table 3). In sharp contrast to men, women in sales and serving occupations have greater positive effects on the probability of smoking compared to blue-collar at the 5% and 1% significance level respectively. Furthermore, it is a statistically significant difference compared to clerical was found both in sales and serving.

Other findings. Employment status has no significant result except men in exective/mangaer status showing a higher probability of smoking compared to men in regular employee status, although the significant level is only 10 percent. Men are more sensitive to cigarette price than women, yielding elasticities of smoking participation for men and women of – 0.56 and – 0.24 respectively, which is consistent with some studies using US data that men are more price sensitive than women (Chaloupka, 1990; Hersch, 2000). The effects of the presence of children are surprisingly weak in magnitude and significance for both men and women, which is consistent with the study focusing on the presence of children (Hersch, 2000).

Discussion

In summary, these results indicate some evidence to support the hypotheses. First, women in sales and serving occupations are found to smoke significantly more than women in blue-collar occupations, while the smoking patterns for men are similar to the

previous studies that white-collar are less likely to smoke than blue-collar. These results indicate that female workers may be more inclined to smoke to manage their stress and avoid weight gain, which is quantitatively consistent with previous studies (Fant et al., 1996).

The findings in this paper imply that men and women smoke for different reasons, which is consistent with the findings of Stehr (2007) focusing on gender differential effects of cigarette price response. In sum, smoking cessation policies have to address women and men differently. The findings in this paper also imply that the targeted tobacco control activities in the workplace of sales and serving might be relatively more effective in reducing smoking prevalence among women than men. Thus, these policy measures may be designed more effectively with taking into consideration for gender differences of occupations.

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Appendix A. The classification of occupations (professional and technical)

Total	6,272	100		
Professional and technical	1,124	17.92	1,124	100
researchers in natural science			13	1.16
researchers in humanities			1	0.09
mechanical, electrical and chemical engineers			88	7.83
architectural and civil engineers			45	4.00
agricultural and forestry engineers			4	0.36
information technology engineers			85	7.56
other engineers and technicians			13	1.16
medical doctors(physicians)			12	1.07
dentists			9	0.80
pharmacists			13	1.16
midwives			3	0.27
public health nurses			3	0.27
dieticians			9	0.80
nurses			139	12.37
masseurs, acupuncturists, moxibustionis			17	1.51
other healthcare professionals			73	6.49
judges, publicprosecutors, lawyers			1	0.09
other legal professionals			5	0.44
certified public accountants, tax accountants			3	0.27
kindergarten teachers			7	0.62
elementary school teachers			59	5.25
junior high school teachers			18	1.60
highschool teachers			25	2.22
university professors			12	1.07
teachers for the blind and the deaf			12	1.07
other educational professionals			7	0.62
religious professionals			7	0.62
authors and writers			4	0.36
journalists/reporters, editors			12	1.07
sculptors, artisticpainters			6	0.53
designers			24	2.14
photographers			7	0.62
musicians			1	0.09
actors, dancers			6	0.53
nursery school teachers			61	5.43
social welfare service professionals			31	2.76
private instructors			84	7.47
business management consultants			13	1.16
radio and television announcers			1	0.09
librarians			2	0.18
otherprofessional/technical occupation			8	0.71
senior government officials			8	0.71
local parliament members			3	0.27
chief executives			42	3.74
senior officials			2	0.18
managers in companies/organizations			102	9.07
teachers(not further specified)			24	2.14

Appendix A. The classification of occupations cont. (clerical/sales/serving)

Clerical	1,517	24.19	1,517	100
other managerial occupations			4	0.26
general affairs/planning clerks			762	50.23
receptionists/information clerks			77	5.08
shipping/sorting clerks			44	2.90
sales clerks			252	16.61
other office clerks			53	3.49
accounting clerks			232	15.29
postal/communication clerks			19	1.25
bill collectors			11	0.73
other outside-duty clerks			8	0.53
transportation clerks			17	1.12
stenographers, typists, data-entry clerks			21	1.38
computer and other similar equipment operators			17	1.12
Sales	904	14.41	904	100
retailshop owners			105	11.62
wholesaleshop owners			15	1.66
restaurant owners			43	4.76
shopsales persons			383	42.37
peddlers, hawkers, street stall keepers			8	0.88
recyclable resource wholesalers/collect			3	0.33
merchandise intermediary occupations			3	0.33
door-to-door sales(excluding insurance)			189	20.91
insurance agents/door-to-door insurance			55	6.08
real estate agents/traders			22	2.43
other sales and sales-related workers			17	1.88
supermarket and other shop cashiers			61	6.75
Serving	602	9.6	602	100
housemaids, housekeeping service worker			90	14.95
barbers, hairdressers, beauticians			80	13.29
launderers			12	1.99
cooks			156	25.91
bartenders			1	0.17
waiters/waitresses			112	18.60
flight attendants			2	0.33
club hosts/club hostesses			6	1.00
entertainment facility service workers			33	5.48
tour guides			1	0.17
other personal service workers			5	0.83
inn owners/managers, hotel managers			1	0.17
boarding house/apartment/residence/dorm			17	2.82
otherservice workers			23	3.82
Self Defense Force officials			8	1.33
police officers, coast guards			8	1.33
fire fighters			19	3.16
prison guards, gate keepers			28	4.65

Appendix A. The classification of occupations cont. (blue-collar)

Blue-collar	2,125	33.88	2,125	100
other protective service workers			2	0.09
agricultural/sericultural workers			118	5.55
gardeners, landscape gardeners			13	0.61
livestock farming workers			16	0.75
forestry workers			6	0.28
other agricultural and forestry workers			1	0.05
fishery workers			25	1.18
train drivers/locomotive drivers			4	0.19
automobile drivers			214	10.07
ship engine drivers (excluding fishing			1	0.05
conductors			5	0.24
sailors			3	0.14
other transportation workers			8	0.38
telephone operators			13	0.61
mail carriers, telegraph deliverers			9	0.42
other quarry workers			1	0.05
potters, pottery painters			11	0.52
stone masons			5	0.24
glass/cement goods makers			10	0.47
other ceramic/earthen/stoneware makers			3	0.14
pig iron/steel makers, smelters			1	0.05
founders, casters, metal material maker			8	0.38
chemical product makers			44	2.07
metal machine tool makers, platers, met			62	2.92
iron workers, sheet metal makers			28	1.32
metal soldering workers			13	0.61
general mechanical equipment assemblers			112	5.27
electric machine and instrument assembl			116	5.46
automobile assemblers/automobile mechan			89	4.19
railway car assemblers/repairers			2	0.09
ship riggers (not elsewhere classified			2	0.09
aircraft assemblers/aircraft engine mec			2	0.09
bicycle assemblers/maintenance workers			2	0.09
other transportation vehicle assemblers			4	0.19
watch assemblers/repairers			1	0.05
optical machine/precision machine assem			26	1.22
grain refining/flour milling machine op			2	0.09
bakers, cake/noodle/tofu makers			41	1.93
miso/soy sauce/canned food/dairy produc			105	4.94
alcoholic beverage makers			1	0.05
silk mill operators and spinners			5	0.24
textile and weaving machine operators			17	0.80
bleachers, dyers			2	0.09
tailors (including kimono tailors)			17	0.80
sewers, cutters			49	2.31
sawmill operators, woodworkers			20	0.94
cabinet makers, furniture makers, joine			16	0.75
shipwrights			1	0.05
bucket makers, wood/bamboo/leaf/vine pr			4	0.19

Appendix A. The classification of occupations cont. (blue-collar)

paper/paper device/pulp/paper goods mak	12	0.56
printers, book binders	36	1.69
rubber/plastic goods makers	30	1.41
shoe makers/repairers, leather/leather	1	0.05
painters, drawers, signboard makers	29	1.36
lacquer painters, gold lacquer painters	1	0.05
mounters, liners	8	0.38
Japanese-style umbrella/lantern/fan mak	1	0.05
precious metal/jewelry/tortoise shell/a	2	0.09
seal carvers	1	0.05
bag makers	5	0.24
drafters, technical drawers	20	0.94
projectionists	1	0.05
other technical workers/production proc	57	2.68
boiler technicians, boilermen	1	0.05
crane/construction machine operators	18	0.85
other stationary engine operators	9	0.42
power station/substation workers	6	0.28
electricity/telephone construction work	53	2.49
construction work contractors	48	2.26
plasterers, scaffolding builders	30	1.41
bricklayers, pipe layers	31	1.46
tatami mat makers/layers	3	0.14
building construction laborers	66	3.11
railway track layers	2	0.09
work site foremen, other construction w	69	3.25
warehouse keepers, dockers	47	2.21
transportation laborers	75	3.53
garbage collectors	74	3.48
miscellaneous laborers	53	2.49
carpenters	49	2.31
manufacturing workers	27	1.27

Table 1. Smoking prevalence by gender and occupation

Variable	Men		Women	
	Frequency	Smokers (%)	Frequency	Smokers (%)
Professional/technical	603	39.47	521	15.36
Clerical	642	48.44	875	16.57
Sales	448	55.80	456	22.81
Serving	188	54.26	414	25.60
Blue-collar	1,455	61.79	670	17.61
Sample size	3,336	53.96	2,936	18.84

Table 2. Descriptive statistics by gender and smoking status

Variable	Men		Women	
	Nonsmokers	Smokers	Nonsmokers	Smokers
Professional/technical	0.24	0.13	0.19	0.14
Clerical	0.22	0.17	0.31	0.26
Sales	0.13	0.14	0.15	0.19
Serving	0.06	0.06	0.13	0.19
Blue-collar	0.36	0.50	0.23	0.21
Exective/manager	0.39	0.36	0.07	0.07
Regular	0.40	0.44	0.37	0.38
Temporary/daily/part-time	0.05	0.05	0.39	0.42
Self-employed	0.15	0.15	0.17	0.13
Annual own earnings (1/100,000 yen)	47.91	43.94	19.21	17.85
Missing annual own earnings	0.14	0.12	0.11	0.12
Years of education	13.58	12.80	12.78	12.41
Presence of children under 3 years old	0.09	0.11	0.05	0.07
Presence of children 4-6 years old	0.08	0.09	0.06	0.08
Presence of children 7-12 years old	0.15	0.15	0.15	0.15
Presence of children 13-18 years old	0.15	0.13	0.15	0.15
Age	43.51	41.67	42.88	39.42
Age squared	2019	1867	1966	1688
Married	0.75	0.72	0.73	0.59
Divorce	0.02	0.04	0.07	0.14
Never married	0.19	0.21	0.17	0.21
Largest cities	0.20	0.16	0.18	0.22
Other cities	0.59	0.60	0.60	0.57
Town/village	0.22	0.23	0.22	0.21
Average price of cigarette per pack (yen)	261	260	261	261
Father's educational attainment	0.13	0.08	0.11	0.10
Mother's educational attainment	0.06	0.04	0.06	0.04
Self reported poor health	0.16	0.16	0.15	0.18
Firm size (under 29 workers)	0.38	0.43	0.45	0.40
Firm size (30-299 workers)	0.12	0.13	0.15	0.16
Firm size (300 or over workers)	0.14	0.16	0.13	0.14
Firm size (public office)	0.28	0.24	0.16	0.17
Sample size	1,536	1,800	2,383	553

Table 3. Probit model of smoking participation by gender

Variable	Men Marginal effect			Women Marginal effect		
Professional/technical	-0.1464	***	(0.025)	-0.0054		(0.025)
Clerical	-0.0947	***	(0.023)	-0.0187		(0.022)
Sales	-0.0224		(0.028)	0.0459	**	(0.022)
Serving	-0.0782	*	(0.042)	0.0670	***	(0.021)
Exective/manager	0.0441	*	(0.026)	0.0382		(0.032)
Temporary/daily/part-time	-0.0375		(0.046)	0.0133		(0.018)
Self-employed	-0.0208		(0.029)	0.0002		(0.026)
Annual own earnings (1/100,000 yen)	0.0001		(0.000)	0.0003		(0.000)
Missing annual own earnings	-0.0169		(0.031)	0.0217		(0.031)
Years of education	-0.0264	***	(0.004)	-0.0275	***	(0.005)
Presence of children under 3 years old	0.0083		(0.034)	0.0043		(0.042)
Presence of children 4-6 years old	0.0012		(0.034)	-0.0172		(0.026)
Presence of children 7-12 years old	-0.0251		(0.023)	-0.0269		(0.031)
Presence of children 13-18 years old	-0.0219		(0.025)	0.0069		(0.018)
Age	0.0028		(0.008)	-0.0042		(0.008)
Age squared	-0.0001		(0.000)	0.0000		(0.000)
Divorce	0.2084	***	(0.047)	0.1731	***	(0.035)
Never married	-0.0343		(0.033)	-0.0119		(0.032)
Largest cities	-0.0285		(0.021)	0.0586	***	(0.020)
Town/village	-0.0220		(0.017)	-0.0036		(0.021)
Average price of cigarette per pack (yen)	-0.0030	*	(0.002)	-0.0004		(0.001)
Father's educational attainment	-0.0634	*	(0.037)	-0.0003		(0.031)
Mother's educational attainment	0.0059		(0.051)	-0.0433		(0.034)
Self reported poor health	-0.0127		(0.023)	0.0347	*	(0.022)
Firm size (30-299 workers)	0.0243		(0.028)	0.0230		(0.033)
Firm size (300 or over workers)	0.0135		(0.026)	-0.0002		(0.016)
Firm size (public office)	-0.0441	*	(0.023)	-0.0014		(0.017)
H_0: Professional/Sales/Serving = Clercial						
H_0: Professional/technical = Clercial	*			n.s.		
H_0: Sales = Clercial	**			***		
H_0: Serving = Clercial	n.s.			***		
Chi-squared	601.36			348.00		
Number of observations	3,336			2,936		

Notes: Dependent variable equals 1 if respondent report a current smoker and 0 otherwise. Marginal effects are reported. Marginal effects of dichotomous variables are a discrete change of variable from 0 to 1. Robust standard errors correcting for clustering on 47 regions in parentheses. The notation "n.s." means not statistically significant.
*** Significance at the 1 percent level
** Significance at the 5 percent level
* Significance at the 10 percent level