
Self-Employment in Japan: A Microanalysis of Personal Profiles

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We use unique data from the private Keio Household Panel Survey to explore profiles of the self-employed in Japan, separately for men and women. We analyze labor market conditions at the time of work force entry as well as personal markers such as age, education, work experience, assets, and family situation. The most persistent finding is that Japan's labor market continues to be 'sticky'. For the period 1963–2004, those in self-employment tended to be less educated, older, and less likely to have gathered prior experience through job-hopping. Having a self-employed father also loomed large. In contrast, for 2004–2007, younger age together with assets and possibly young children are associated with self-employment. While the profiles for women with only a high school degree and all men are similar, results for women with a college degree differ consistently, suggesting that educated females face a different choice set in entering self-employment. Finally, we support the determinative nature of Japan's job market: entering the labor force at a time of weak local labor market conditions significantly increases the odds of becoming self-employed and remaining so in the long run.

1. Introduction

Little is known about the self-employed in Japan of today. Most of our existing knowledge is based on government surveys, and the prevailing image of the stereotypical self-employed, if there is one, is based on research conducted in the 20th century. In a seminal study of family-run businesses (with fewer than 30 workers) in the 1970s, Patrick and Rohlen (1987) found great heterogeneity, with a multitude of backgrounds and motivations among the self-employed. Insofar as a modal picture emerged, it was that of an elderly couple running a home-front store. This was confirmed by Brinton (1993) who conducted a targeted survey of urban households in 1984 and found that the self-employed were older, and while a quarter of self-employed men worked in retail, women often did home piecework in manufacturing. In a study using a 1975 Social Stratification and Mobility Survey of 2,724 men and looking at socio-structural factors such as family background and individual attributes, Cheng (1997) analyzed the determinants of switching into self-employment in Japan between 1930 and 1975, a tumultuous period that includes periods of active entrepreneurship just before and after World War II. She found that in 20th century Japan, the father's status as self-employed was a strong predictor, as were prior

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self-employment or employment in a small firm, and a longer duration at the previous job (perhaps correlated with age).

More recently, government data suggest that the percentage of self-employed in Japan's workforce has declined from roughly 16% to 9% between 1983 and 2009.¹ One reason may be a phasing out of the mom-and-pop stores that were so prevalent in the 1970s. To explore this trend, Genda (2004) and Masuda (2006) looked at labor market conditions and macroeconomic factors to identify factors that determine self-employment. Their work confirms that Japan's labor market remains very sticky (with limited job switching), but also that a deterioration in job opportunities has pushed more people into self-employment, including the young. Yet, using government surveys on labor and income, Genda and Kambayashi (2002) found a relative decline in estimated income growth from self-employment compared to other work in the 1990s, especially for the middle-aged, which might have contributed to lower rates of self-employment. Most of this work is macro in nature. We are unaware of any recent study that looks at the personal profiles of the self-employed in Japan.

Learning more about the characteristics of the self-employed in Japan has gained new relevance with the growing pluralism in business and society since the 1990s. However, studying this subject is fraught with many difficulties, beginning with the definition. 'Self-employment' covers a wide range of activities, from small shopkeepers or low-level suppliers, to doctors, attorneys, and aspiring entrepreneurs such as in the information technology sector. Statistics may also differ depending on whether a founder of a very small company is considered self-employed or an employee of his or her own company. Moreover, government surveys face the challenge of potential underreporting, either of the activity itself or of the income. And finally, while we may have some intuition about Japan's self-employed men, our image of self-employed women may be fuzzier still, given that their background and motivation to enter self-employment are very different.

In this paper, we use a new, private survey conducted by the Global Centers of Excellence (COE) Program at Keio and Kyoto Universities, referred to as the 'Keio Household Panel Survey' (KHPS). This rich survey contains a retroactive panel of 4,005 households with basic entries on employment history, as well as a more detailed panel including personal data that affords us an updated look at personal profiles. Analytically, we look at those respondents that have switched into self-employment. From the retrospective responses we can draw a picture of general conditions that may have determined this choice between the 1960s and the mid-2000s, covering previous employment, education, and the economic environment. For the years 2004–2007, we have more detailed data that include markers such as household composition, employment, income and expenditures, assets and home ownership, marital status, and education. This allows us to analyze the profiles of new entrants into self-employment in recent years. Our data are unique in that they offer these variables separately for men and women.

We begin in Section 2 with an introduction to the data and summary statistics that offer a first impression of differences between regular employees and self-employed as of 2004. In Section 3 we formulate seven hypotheses based on a selective literature review, anchored mostly in labor economics. Section 4 contains the data analyses and discusses the findings. Educated women reveal a different pattern from both men and less educated women. Moreover, overall we find persistent stickiness in the labor market and that poor local labor market conditions at the time of labor force entry increase the likelihood of entering as a self-employed. In Section 5 we explore this stickiness and calculate the

1. Japan's labor force data can be found at <http://www.stat.go.jp/english/data/roudou/Ingindex.htm>, item 8(4).

likelihood of being long-term self-employed if one enters self-employment at a young age. Section 6 concludes our analysis.

2. Data and Overview Statistics

2.1 The Dataset

The KHPS is an annual non-government micro level survey, and so far results are available for surveys conducted between 2004 and 2007. This Japanese-language survey was first translated and coded for data analysis by Diamond (2009, 2011), and extended for this study to include additional variables. The first year of the survey, conducted in 2004, covered 4,005 individuals and included a retrospective panel about respondents' educational and occupational histories from age 15 until 2004. The response rate for the first year was 29.8%. Over the following three years, new questions were added (e.g. about hobbies, time spent commuting, etc.). Attrition has reduced the number of respondents to 3,314 (in 2005), 2,887 (in 2006) and 2,634 (in 2007).² We have tested the data and find that attrition has been random and does not seem to affect the balance of representation for the questions we pursue. Because we use both the retrospective panel and the detailed data 2004–2007, missing data for certain variables explain why we have a changing number of observations for each analysis.

Our analysis cuts off at age 60; i.e. we exclude cases where a person over 60 switched into self-employed. While perhaps unfortunate for the overall picture, this truncation is necessary because of the specifics of Japan's labor market, where until recently the retirement age was set at the relatively young age of between 55 and 60, and subsequent employment options were mostly limited to non-standard or self-employment. Thus, the motivations to switch at that age must be analyzed separately from switching into self-employment earlier in life, and such analysis is left for future research.

In terms of geographical distribution, of the initial 4,005 respondents, 945 lived in the largest 14 cities (of whom 498 in the Kanto area), 2,280 lived in other cities, and 780 in villages. In terms of profession, Table 1 shows a breakdown into type of work of the 2,555 respondents that were in the labor force as of 2004. The remaining 1,450 respondents are not included in this study, because they were either not in the labor force (575), above the age of 60 (812), or their employment status could not be determined (63). For this paper, we define the self-employed narrowly to comprise only the 338 *jieigyō-nushi* and *jyūgyō-sha* (lit.: 'business owner' and 'self-business person', i.e. professionals). Thus, we exclude the categories 'working from home on a short-term contract basis', 'contractors', and 'working in a family business'. Arguably these could also be considered 'self-employed'. We conducted our analyses with exclusion and inclusion of these three categories, and we also repeated our analyses with only the 'business owners', i.e. excluding professionals such as doctors, attorneys or lawyers. With a few minor changes for the male sample regarding age, we found no material differences in results.

Using our narrow definition, the percentage of self-employed in our sample in 2004 is 14% (338 of 2,462). This number is substantially higher than the 9% reported in the government's Labor Force Survey but similar to estimates by the Organisation for Economic Co-operation and Development (OECD) of 14%.³ The difference may be due to self-definition, because the government survey categories are narrower than how people may define themselves, and the Keio survey allows multiple

2. For further detail on the KHPS project, see <http://www.pdrc.keio.ac.jp/open/>.

3. See, e.g. www.photius.com/rankings/self_employment_by_oecd_country_2008.html.

Table 1. Distribution of Survey Respondents into Work Categories, as of 2004.

	Men	Women	Total
Self-employed (jieigyō-nushi)	215	82	297
Self-employed (jiyūgyō-sha)	28	13	41
Subtotal	243	95	338
Home job on contract basis (kaisha to kōyō kankei no nai zaitaku rōdō)	9	31	40
Contractor (itaku rōdō)	33	34	67
Family business (kazokujū-gyōsha)	32	88	120
Subtotal	74	153	227
Regular workers	1,008	317	1,325
Non-standard workers	120	452	572
Subtotal	1,128	769	1,897
Unemployed	48	45	93
Total	1,493	1,062	2,555

entries for employment. Given the well-chronicled challenges of tax and pension payment collection from the self-employed in Japan (e.g. Patrick and Rohlen 1987, Soos 1990), it is also possible that some respondents withheld more information in the government survey than in the private one.⁴ Importantly, these definitions do not change within our survey data, and we believe that the discrepancy does not affect our overall results.

In our analyses we will focus on people that switch into self-employment. Table 2 introduces calculations of switching across employment categories between 2004 and 2007. Each column represents the employment category at time $t+1$, whereas each row shows the employment category in the previous year t . For example, of 3,006 total observations of regular employees in those three years, 2,735 (91%) remained in regular employment the following year, while 123 switched to a non-standard job, 45 became unemployed, 72 retired, and 28 opened their own shop. Likewise, of the 966 observations of self-employed, 793 (82%) remained in self-employment the following year, while 24 (or about 2.5%) moved into regular employment, 49 (5.1%) entered non-standard employment, 30 (3.1%) left the labor force altogether, and 5 (0.5%) reported being unemployed. This Table highlights two important aspects: It is consistent with general notions of high stickiness in Japan's labor market, yet it also shows that switching does occur, including into regular employment.

2.2 Overview Statistics: Differences between Employed and Self-Employed

Table 3 introduces summary statistics by way of a comparison of regular workers with the self-employed in our sample as of 2004.⁵ The self-employed are, on average, somewhat older than the

4. Patrick and Rohlen (1987) report that in the 1980s only 40% of the heads of non-farm unincorporated enterprises paid income tax; they argue this was a tacit government subsidy toward small firms. Soos (1990) relays the popular phrase of *ku-ro-yon* ('9-6-4'), referring to an estimation that tax authorities capture 90% of wage and salary income, 60% of self-employed income, and 40% of farm income. Tax collection measures have been revised since, but the potential challenge of uneven reporting across these groups persists.

5. Due to typesetting challenges, we do not report summary statistics for non-standard employees here. Readers interested in these data are encouraged to contact the authors.

Table 2. Switching Patterns between Type of Employment, 2004–2007.

		T+1						
		Regular Employee	Non- Standard Employee	Unemployed	Out of Labor Force	Self- Employed	Family Business	Total
T	Regular employee	2,735	123	45	72	28	3	3,006
	Non-standard employee	131	1,443	47	174	51	10	1,856
	Unemployed	25	74	48	45	9	2	203
	Out of labor force	48	190	35	1,778	36	34	2,121
	Self-employed	24	49	5	30	793	65	966
	Family business	6	18	2	28	60	256	370
	Total	2,969	1,897	182	2,127	977	370	8,522

employed. Our data confirm the gendered structure of Japan's labor market. While we do not report non-standard employment data here, of all non-standard workers in our sample, 79% are women, whereas the proportion is 28% in self-employment and 24% in regular employment. We see no marked difference in location (city vs. rural), but even though more self-employed own their homes and report higher fixed assets (as evaluated for tax purposes), they have, on average, lower savings and higher debts. This higher debt number may be explained by the fact that small business owners in Japan often take out business loans in their personal name, sometimes using their own house as collateral. This is confirmed by the next three entries, which show that while there appear to be no marked differences in using debt for purchasing a house or consumer durables, for the self-employed the numbers for 'debt for investment in non-housing real assets' are considerably higher. While the survey did not ask about business debt specifically, investment in non-housing real assets can be considered a reasonable proxy for such debt.

The self-employed report slightly lower education levels than regular employees (though these are similar to non-standard workers): 52% indicated high school as their highest level of education, as opposed to 46% for regular employees. An additional 34% of self-employed reported college as the highest degree, compared with 48% for regular employees (this includes junior and specialized colleges). Note that we break these degrees out for preciseness; they should be summed for the overall impression. That is, 94% of regular employees have graduated from high school, compared with 86% for the self-employed. This confirms Patrick and Rohlen's (1987) observation of comparatively high education of Japan's self-employed. While the Table does not show this, our sample includes 583 women that completed only high school (of whom 50 in self-employment), and 424 that graduated from junior college or college (of whom 35 in self-employment). As our analysis will reveal, this last category has special characteristics in several variables.

A larger proportion of the self-employed is married. They have more years of work experience and have been in their current positions longer than the salaried workers (expressed in 'tenure').

Table 3. Summary Statistics for Regular Employees and Self-Employed, as of 2004.

	Regular Employees					Self-employed				
	Obs	Mean	Std.Dev	Min	Max	Obs	Mean	Std.Dev	Min	Max
Age	1,325	41.13	10.60	20.05	59.99	338	45.78	9.75	22.28	59.94
Lives in a large city	1,325	0.23	0.42	0	1	338	0.23	0.42	0	1
Lives in Kanto region	1,325	0.13	0.34	0	1	338	0.10	0.31	0	1
Owens their home	1,325	0.71	0.45	0	1	338	0.80	0.40	0	1
Female	1,325	0.24	0.43	0	1	338	0.28	0.45	0	1
Household savings (in ¥10,000)	1,118	526.48	849.83	0	9,000	277	471.91	974.93	0	8,000
Market value of household stockholdings (in ¥10,000)	1,205	71.68	371.41	0	5,650	298	52.79	265.16	0	3,800
Household debt (in ¥10,000)	1,272	634.85	1,880.55	0	50,000	313	851.57	1,654.86	0	12,000
Fixed asset evaluation (in ¥10,000)	843	342.99	716.98	0	10,000	183	378.90	729.75	0	4,251
Debt to purchase house	1,140	0.37	0.48	0	1	261	0.38	0.49	0	1
Debt to purchase durables	868	0.17	0.38	0	1	198	0.18	0.39	0	1
Debt for investment in non- housing real assets	742	0.03	0.17	0	1	176	0.08	0.27	0	1
Highest education is high school	1,316	0.46	0.50	0	1	337	0.52	0.50	0	1
Highest education is college	1,316	0.48	0.50	0	1	336	0.34	0.47	0	1
Married	1,325	0.70	0.46	0	1	338	0.76	0.43	0	1

Table 3. Continued.

	Regular Employees					Self-employed				
	Obs	Mean	Std.Dev	Min	Max	Obs	Mean	Std.Dev	Min	Max
Tenure	1,256	13.36	10.78	0	43.83	290	16.29	11.53	0	44.00
Total years of work experience	1,325	20.44	11.02	0	43	338	24.82	10.87	0	43
Days worked in an average month	1,276	21.79	3.84	4	30	301	22.93	5.90	4	31
Hours worked in an average week	1,256	49.55	13.89	2	150	291	46.13	25.99	3	144
Monthly wage(in ¥1,000)	1,102	338.06	189.00	16	3,800	155	378.75	694.43	25	8,000
Daily wage(in ¥)	41	9,453.18	2,652.83	4,835	16,000	22	14,775.00	6,434.43	750	30,000
Hourly wage(in ¥)	10	833.00	415.14	600	2,000	14	1,287.86	1,790.94	600	7,500
Annual wage(in ¥10,000)	44	800.66	363.59	180	1,600	49	471.92	589.79	40	4,000
Mining, fishing and forestry	1,325	0.01	0.09	0	1	338	0.11	0.31	0	1
Construction	1,325	0.11	0.31	0	1	338	0.12	0.33	0	1
Manufacturing	1,325	0.22	0.41	0	1	338	0.08	0.28	0	1
Transport and communications	1,325	0.11	0.31	0	1	338	0.03	0.17	0	1
Retail, wholesale, food and lodging	1,325	0.11	0.32	0	1	338	0.29	0.45	0	1
Finance, insurance and real estate	1,325	0.06	0.23	0	1	338	0.02	0.15	0	1

Obviously, all of these aspects may be related to a higher average age, and we will explore this below. Reported working days per month are about the same for both groups (and both are higher, by five days, than the average for non-standard workers). Interestingly, regular employees report longer working hours per week than self-employed.

We report four entries for separate wages—monthly, daily, hourly, annually—in line with how people reported their remuneration (e.g. the summary statistics for ‘monthly wages’ are presented only for those who are paid monthly). Interestingly, the average earnings of the self-employed are higher than salaried workers across all categories except annual wages. We suspect that this is partially due to a small number of extremely high-earners among the self-employed (lawyers, doctors), as is also suggested by the high variance in earnings among the self-employed. The median incomes (not reported here) reveal similar patterns, but the small sample size makes it difficult to draw any concrete conclusions. At face value the data do not suggest that regular employees on average earn significantly more than the self-employed. However, we caution that only the annual wage numbers may include bonuses (and those are higher for regular employees), and in addition to the aforementioned difficulties in evaluating self-employed income there may also be variation in how a self-employed reports business earnings as opposed to private income (after all deductions for running the business).

Finally, we find differences by industry. Because of our small sample size, we group certain sectors together (similar to [Patrick and Rohlen 1987](#)). Following [Cheng \(1997\)](#) and others, we exclude farming from our analysis. This yields the six industry categories of (1) primary sector (mining, fishing and forestry), (2) construction, (3) manufacturing, (4) transport and communications, (5) retail, wholesale, food and lodging, and (6) finance, insurance and real estate. Confirming [Brinton \(1993\)](#), 29% of all self-employed are in retail, wholesale, food and lodging, followed by construction (12%); of the non-standard workers 31% are in the retail, wholesale, food and lodging sector, and 14% in manufacturing. However, contrary to Brinton’s impression of self-employed women working in manufacturing piecework, in our sample 42% of the self-employed women are in retail, wholesale, food and lodging, and only 2% in manufacturing (not reported here).

Our findings are in line with existing research and general impressions regarding employment in Japan, indicating that our sample is representative in important ways. In order to tease out more information from these data, in the next section we formulate testable hypothesis for regression analysis.

3. Literature Review and Hypotheses

In addition to existing research on Japan, labor economics offers a huge body of literature on self-employment, especially for the US. A complete review is beyond the scope of this paper. For the purposes of our study, we focus on economic factors and personal factors that may determine a move into self-employment.

3.1 Retrospective Data

At the most basic level, a switch into self-employment may be affected by macroeconomic conditions, policies, and historical events such as a war. For any given year, high economic growth could have two contrasting effects on career choice: (1) it opens up the job market, and employment is easy to find, so that fewer enter self-employment; or alternatively, (2) it increases the chances of survival for an aspiring entrepreneur, so that more new businesses open up. [Masuda \(2006\)](#) provided evidence

for the former, arguing that Japan's recession of the 1990s brought a new push into self-employment in regions with higher unemployment. In addition to the overall economy, we can also look at this 'push' proposition by measuring local job market opportunities. We explore by stipulating the following hypotheses:

H1a: People are more likely to switch into self-employment during periods of recession.⁶

H1b: People are more likely to switch into self-employment when local labor market conditions are poor.

It is often said that a successful switch into self-employment is predicated on experience or wisdom (Cheng 1997). One way to accumulate experience is simply over time; i.e. older employees can be assumed to be more experienced than younger ones. However, Genda (2004) has shown that the effect of age on self-employment declined during the 1990s in Japan. As we consider age as a determinant, we have to make two refinements. First, rigid rules of lifetime employment until recently pushed most employees into retirement at around age 55 (now extended to 60 or 65) and thus may have created a systemic bias for elderly to open their own shop. To reduce the ambiguity caused by mandatory retirement, we cut our sample off at age 60.

Second, the age logic may not apply to women in the same way. For the US, Edwards and Field-Hendrey (2002) show that young women often opt into self-employment to increase work flexibility and juggle multiple family tasks. In Japan, women were (and are) often forced out of the workforce upon marriage and during child-rearing years, be that through outright company policies or due to systemic barriers such as a lack of childcare or the impossibility to match family duties with notoriously late working hours (Holthus 2010, Brinton 1989, 1993). Therefore, it is possible that women switch into self-employment at a relatively young age. We can shed light on these matters because we test our hypotheses separately for men and women. We stipulate,

H2: Older people are more likely to switch into self-employment.

In addition to wisdom, education (knowledge) can be a determinant for career switches. Research on the relationship between self-employment and education has produced ambiguous results and may also differ for men and women. On the one hand, less education may limit job choices in employment, whereas more education increases options as well as salary levels in employment (Cheng 1997, Blanchflower 2000). On the other hand, for higher levels of education we have two contrasting scenarios. More education may be associated with greater success in self-employment, especially in high-technology entrepreneurial sectors or professions such as law, medicine, or consulting (Robinson and Sexton 1994, Lazear 2004). In contrast, high-aspiring entrepreneurs who aim to exploit a window of opportunity may truncate their education for immediate business launch, such as witnessed in the US for founders such as Bill Gates (Microsoft), Steve Jobs (Apple) or Mark Zuckerberg (Facebook). We can explore these conflicting scenarios for Japan by testing, separately for men and women:

H3: A higher level of education increases the likelihood of switching into self-employment.

Even if education is cut short, an important key to success in self-employment can be work-related experience. The literature on this is vast. For example, Lazear (2004) proposes that a

6. Because we will be testing the null hypothesis, the technically precise formulation of this hypothesis should read: 'People are no more likely to switch into self-employment during periods of recession than during periods of boom.' To increase readability, even at the loss of econometric precision, in this paper we follow the established social science custom and express our hypotheses with an implicit direction of being 'more likely'/'less likely'. To further facilitate the reading of our findings, we express all hypotheses in the positive direction.

‘jack-of-all-trades’ makes for a more successful entrepreneur, and generalized human capital formation is the recommended strategy. Such generalized knowledge can be acquired not just through education but also through previous experience, either in self-employment or through rotations while in regular employment. Using US census data, [Robinson and Sexton \(1994\)](#) show a positive relationship between years of work experience and success in self-employment. [Borjas \(1986\)](#) provides evidence of a positive correlation between labor market experience and self-employment across racial groups in the US. Similarly, [Bates \(1995\)](#) finds that work experience is positively correlated with self-employment, in particular for women, even though this may be overpowered by industry effects.

How do these factors play out in Japan? In the US, high labor market mobility also allows for a strategy of learning through ‘job-hopping’. In Japan, large companies often train their regular employees into generalists through ‘on-the-job training’ and ‘rotation-on-the-job’, i.e. promotion through a variety of tasks. While this may make for excellent preparation, the income security and rigid promotion rules of lifetime employment translate into very low mid-career labor mobility that may make job-hopping less common in Japan. Yet, [Koike \(1983\)](#) proposed that it occurs in small firms where some switch employers frequently before starting their own business. Japan even has a word for people who switch from regular into self-employment, the so-called ‘datsu-sara’ (lit.: ‘extricating oneself from the existence of a salary-man’). Moreover, for non-standard employees, switching into self-employment may be an attractive option, even though accumulated learning is less structured ([Diamond 2011](#)).

For women, regular employment may be less of an ‘educational springboard’ than for men, both for career chances and family choices. Wisdom through work experience cannot be gained if regular careers are truncated. This may mean that for women education is a more important factor for self-employment than experience.

Finally, experience as a self-employed (successful or not) is sometimes said to increase the likelihood of future self-employment, in a career path referred to as ‘serial entrepreneurship’ ([Westhead and Wright 1998](#), [Amaral et al. 2011](#)). Accumulated human capital in self-employment or reduced job satisfaction in employment may lead some to switch out of self-employment into regular employment and then back ([Cheng 1997](#)).⁷ We can explore these various scenarios by stipulating the following:

H4a: Past experience in regular employment increases the likelihood of switching into self-employment.

H4b: Past experience in non-standard employment increases the likelihood of switching into self-employment.

H4c: Past experience in self-employment increases the likelihood of switching into self-employment.

3.2 Personal Situation

For the years 2004–2007 we can explore additional personal markers that are not included in the retrospective data, and we can also offer a more precise snapshot of the situation in the early 21st century. Perhaps the most basic need of any entrepreneur is money, and personal assets are often a way to overcome liquidity constraints.⁸ [Evans and Jovanovic \(1989\)](#) and [Evans and Leighton \(1989\)](#) found that

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7. Other determinants of entering self-employment suggested in the literature include the number of previous employers, their type, size and industry, and the level of position in previous employment. Unfortunately, our data do not allow an analysis of these factors.
 8. Perhaps the most obvious economic determinant factoring into the choice of self-employment is expected earnings. Unfortunately, we cannot look into this issue with our data. As discussed above, without a specialized survey it is impossible to differentiate among different types of self-employed, and averages are not informative. Moreover, even if such a differentiation were possible, wealth creation for innovative entrepreneurs often occurs post-hoc, when the company is sold or taken public, at which moment these entrepreneurs are often no longer included in the self-employed dataset. We leave the analysis of income projections for further research.

greater assets raised the probability of switching into self-employment in the US. Even if financial assets are limited, a house can be used as collateral when applying for a bank loan or the home itself may be used for self-employed activity (Patrick and Rohlen 1987). In Japan, financial liberalization since the 1980s is said to have lowered previous high barriers to credit access for self-employed; for example, Masuda (2006) finds little evidence of liquidity constraints. To explore this, we stipulate the following:

- H5a: The larger an individual's assets, the higher the likelihood of switching into self-employment.
 H5b: Home ownership increases the likelihood of switching into self-employment.

Moreover, one expects that the family situation, in particular marriage and child-rearing, has an impact on career choices. In Japan, it is often said that being in regular employment increases a man's chance to 'marry well', for employment affords status and signals income security. Yet, being married also offers an important safety net for a self-employed man, as the wife may be able to contribute to household income. For women, in contrast, the notion is that in order to 'marry well' they should be prepared to give up career aspirations; as mentioned above, many companies to this day urge women to resign upon marriage. In addition to child-rearing duties, this may push some married women into self-employment. To explore societal factors associated with career choice, we posit the following:

- H6a: Marriage increases the likelihood of switching into self-employment.
 H6b: Young children increase the likelihood of switching into self-employment.

Finally, Cheng (1997) found that having a self-employed father was the overriding predictor for entering self-employment in 20th century Japan. This is supported by Sorensen (2007), who shows in a study of Denmark that parental role modeling is an important driver into self-employment (as opposed to inheritance of capital or social assets, which did not loom large). Yet, in Japan, fast economic growth between the 1960s and 1990s, the high status associated with working in a lifetime employment setting at a large company and growing societal pluralism may have reduced the attractiveness of following the father's career path. Our data allow us to explore whether an association continues to exist in Japan by stipulating the following:

- H7: Growing up with a father in self-employment increases the likelihood of entering self-employment later in life.

4. Analyses and Results

Our queries are 'What are the determinants of self-employment?', and 'What personal profile is associated with self-employment in Japan?'. Our unit of analysis is the act of switching into self-employment. We assume simple rationality: in each period, an individual bases the decision of whether to be self-employed or pursue some other form of employment in the following period on the expected utility of each choice.

Factors other than preferences and characteristics of the individual may determine employment status. To capture this, we assume that the likelihood that individual i will be self-employed in year t is given by a latent variable, y_{it}^* , which depends linearly on characteristics of the individual as well as other relevant factors that may not be related to the individual:

$$y_{it}^* = EU_{it}^{\text{self-employment}} - EU_{it}^{\text{not self-employment}} + \delta_{it} = \beta x_{it} + \alpha_i + \gamma_t + \varepsilon_{it}$$

where, x_{it} is a vector of individual characteristics, α_i represents individual-specific characteristics that do not change over time (such as an entrepreneurial predisposition), γ_t captures factors that change over time but not over individuals (such as the state of the macroeconomy), and ε_{it} captures all other relevant factors that may influence the likelihood of being self-employed.

Thus, the analytical equivalent of our search for determinants of self-employment is ‘what is the value of β ?’. To address issues of endogeneity, we test Hypotheses 1 through 4 (i.e. the retrospective questions) by estimating a linear probability model on the panel data of employment histories of individuals between 1963 and 2003. Table 2 suggested that an individual’s current employment depends greatly on the previous period’s employment. To account for this persistence in employment we estimate the model using the Blundell and Bond (1998) General Method of Moments (GMM) estimator. We perform a similar exercise—with different variables, as explained below—on the data between 2004 and 2007 in order to test Hypotheses 5 through 7.

4.1 Entry into Self-Employment in the Past

Tables 4 (men) and Table 5 (women) report results for the entire retrospective panel, dating from 1963 to 2003. The dependent variable, y_{it} , is a dummy variable that takes a value of ‘1’ if individual i was in self-employment at any time during year t , and ‘0’ otherwise. Note that this includes long-term self-employed, recent switchers (e.g. young people without other employment options) and those who might enter self-employment only temporarily while searching for other opportunities.

To control for the effect of one’s previous job on switching choices, we construct four dummy variables, lagged by one year. Each of these dummies takes the value ‘1’ if the person was in regular employment, non-standard employment, other employment, or looking for employment during a given year but did not work, and ‘0’ otherwise. Since an individual could hold multiple jobs within a given year, these dummy variables are not mutually exclusive.

To test for macroeconomic conditions (H1a, ‘contraction’) at the time of switching into self-employment, we created a dummy variable that takes ‘1’ if Japan’s Cabinet Office defined the given period as one of economic contraction, and ‘0’ otherwise. To test for local labor market conditions (H1b), we used data from the Ministry of Health, Labor and Welfare to construct a job-openings-to-job-seekers ratio (henceforth: ‘job openings ratio’) at the regional level. A larger number means better local job market conditions, as more jobs are available per applicant in that area at that time.⁹ Age is measured in years. The variables ‘regular’ and ‘non-standard’ employment measure the number of years spent in each type of employment.¹⁰ We estimate the model separately for men and women, and instead of testing for education we separate the sample by high school versus college degree and compare the results.

Table 4 presents the results for men. We find a high level of persistence in self-employment. The magnitude of this effect dwarfs the impact of all other types of previous employment, and we will explore this stickiness further below. In looking at the other employment categories, we find that a transfer into self-employment is most likely to follow dubs in ‘other’ types of employment (including family businesses and side jobs), rather than regular or non-standard employment. For high school graduates, these are followed by regular employment and finally unemployment, while for college graduates this order is reversed.

9. The Cabinet Office data are available at <http://www.esri.cao.go.jp/en/stat/di/100607rdates.html>. Local labor data were drawn from www.mhlw.go.jp/english/database/db-l/general_workers.html. This MHLW survey is conducted annually in January, and we use the average of the previous year. When a single region in the KHPS survey corresponds to more than one region in the Ministry of Health, Labour and Welfare (MHLW) survey, we take the average of the ratio across those regions.

10. In addition to regular or non-standard employment, one could presumably also work in self-employment, a family business or a side job. Thus, experience, regular employment and non-standard employment are not collinear.

Table 4. Retrospective Panel Data (H1–H4): Results for Men.

	High School			College		
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged self-employment dummy	0.969*** (0.008)	0.962*** (0.008)	0.410*** (0.006)	0.952*** (0.009)	0.944*** (0.009)	0.492*** (0.007)
Lagged regular employment dummy	0.145*** (0.005)	0.139*** (0.005)	-0.031*** (0.004)	0.096*** (0.005)	0.094*** (0.005)	-0.029*** (0.005)
Lagged non-standard employment dummy	0.183*** (0.010)	0.180*** (0.009)	0.008 (0.008)	0.114*** (0.012)	0.110*** (0.012)	0.003 (0.011)
Lagged unemployed dummy	0.136*** (0.014)	0.134*** (0.014)	-0.031** (0.011)	0.100*** (0.013)	0.099*** (0.013)	-0.001 (0.011)
Lagged other employment dummy	0.199*** (0.019)	0.196*** (0.019)	0.039* (0.015)	0.172*** (0.025)	0.166*** (0.024)	0.039 (0.021)
Age	-0.003*** (0.0002)	-0.002 (0.001)	0.047*** (0.002)	-0.002*** (0.0003)	-0.003* (0.001)	0.025*** (0.003)
Local job openings ratio	-0.003 (0.003)	0.010 (0.007)	-0.014** (0.005)	0.002 (0.004)	-0.002 (0.009)	-0.025*** (0.008)
Contraction	0.003 (0.002)			0.002 (0.002)		
Non-standard employment squared			-0.034*** (0.004)			-0.007 (0.006)
Regular employment			0.0001 (0.0002)		0.0001 (0.0004)	-0.024*** (0.002)

*** p < 0.01

** p < 0.05

* p < 0.1

Table 4. Continued.

	High School		College			
	(1)	(2)	(3)	(4)	(5)	(6)
Regular employment squared			-0.00004** (0.00001)			-0.00005* (0.00002)
Self-employment			-0.073*** (0.002)			-0.067*** (0.003)
Self-employment squared			0.001*** 0.00002			0.001*** (0.00004)
Constant	-0.017* (0.007)	-0.003 (0.018)	-0.834*** (0.04)	0.003 (0.010)	0.127 (0.070)	-0.347*** (0.080)
Year dummy variables	No	Yes	Yes	No	Yes	Yes
N	22,764	22,764	22,764	14,896	14,897	14,899
Chi-square	15,640	16,513	17,533	11,461	11,981	12,325

Table 5. Retrospective Panel Data (H1–H4): Results for Women.

	High School			College		
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged self-employment dummy	0.923*** (0.008)	0.919*** (0.008)	0.463*** (0.005)	0.888*** (0.011)	0.886*** (0.011)	0.517*** (0.008)
Lagged regular employment dummy	0.037*** (0.004)	0.037*** (0.004)	-0.011*** (0.003)	0.025*** (0.004)	0.026*** (0.004)	-0.007 (0.004)
Lagged non-standard employment dummy	0.028*** (0.005)	0.028*** (0.005)	-0.019*** (0.004)	0.008 (0.006)	0.008 (0.006)	-0.039*** (0.006)
Lagged unemployed dummy	0.042*** (0.011)	0.042*** (0.011)	-0.006 (0.009)	0.033** (0.013)	0.034** (0.013)	0.004 (0.011)
Lagged other employment dummy	0.043*** (0.006)	0.042*** (0.006)	-0.037*** (0.005)	0.016 (0.010)	0.017 (0.010)	-0.037*** (0.009)
Age	-0.001*** (0.000)	0.002* (0.001)	0.027*** (0.001)	-0.001 (0.000)	-0.001 (0.001)	0.012*** (0.002)
Local job-opening ratio	-0.004 (0.003)	-0.005 (0.007)	-0.008 (0.005)	-0.008 (0.005)	0.016 (0.011)	0.047*** (0.009)
Contraction	-0.002 (0.002)			0.0001 (0.003)		
Non-standard employment			-0.006*** (0.002)			-0.002 (0.003)
Non-standard employment squared			-0.00004 (0.0001)			-0.0004** (0.0001)
Regular employment			-0.006*** (0.001)			-0.010*** (0.002)
Regular employment squared			-0.0001*** (0.00003)			-0.00001 (0.00004)
Self-employment			-0.053*** (0.001)			-0.034*** (0.002)
Self-employment squared			0.001*** (0.00002)			0.0004*** (0.00004)
Constant	0.028*** (0.008)	-0.161** (0.062)	-1.039*** (0.053)	0.031* (0.013)	0.020 (0.028)	-0.301*** (0.034)
Year dummy variables	No	Yes	Yes	No	Yes	Yes
N	19,611	19,612	19,614	8,456	8,457	8,459
Chi-square	15,405	15,619	16,506	6,939	7,058	6,431

*** p < 0.01

** p < 0.05

* p < 0.1

As mentioned, we do not test the effect of education directly, but rather report results separately. It is interesting to note that the estimated coefficients for the previous employment variables are almost always larger for high school graduates than for college graduates, suggesting that less education is associated with more switching into self-employment. Recall that we have structured this analysis so as to eliminate unobserved factors that are constant over time but may vary across individuals, and also factors that may vary over time but not individuals. Thus, our results run counter to Hypothesis 3 (education).

While macroeconomic contraction is not significantly correlated with switching into self-employment, the sign of the coefficient on the local job openings ratio suggests that entry into self-employment is associated with deteriorating local labor market conditions. Age has a positive effect, after controlling for employment history: the probability of switching into self-employment rises over the time of one's career. Thus, we find mild support for Hypothesis 1 (labor market), and we support Hypothesis 2 (age).

Moreover, we find that past experience in self-employment, regular employment and non-standard employment all decrease the likelihood of a switch into self-employment. Over time the magnitude of this effect grows with regular employment, yet it wanes with non-standard and self-employment. We reject Hypothesis 4 (job-hopping).

Table 5 shows the results for women, which are largely similar. As with men, there is a high degree of persistence in self-employment. The effect of 'other' employment relative to the alternatives varies from model to model, but there is a clear ranking of the effects of the remaining sectors: the largest impact comes from unemployment, followed by regular employment and then non-standard employment. However, the point estimates of these coefficients are tiny in comparison with the coefficient on previous-period self-employment. Also, as for men, the coefficients are consistently larger for high school than for college graduates, meaning that women with a high school degree are more likely to become self-employed than more educated women. Again, age has a positive effect after controlling for employment history.

One remarkable result is that, contrary to men, entry into self-employment for educated women is associated with improving local labor market conditions. This result has been consistently strong in several of our analyses, including some not reported here. It may suggest that educated women either enter self-employment as high-aspiring entrepreneurs or professionals so that the local job market is irrelevant for their choices, or that they can be more opportunistic and open shop only in times of a good local economy. This latter interpretation might suggest that men and women face different career options: whereas men—as presumed breadwinners—may be driven into self-employment during hard times due to lack of other opportunities, women might be more at liberty to wait for an economic uptick. Of course this may apply mostly to married or independently wealthy women, and we will look more into lifestyle matters below.

In terms of past employment experience, we find that both regular and non-standard employment experience have a negative impact on entry into self-employment, and this effect grows over time. In other words, the longer a woman is in some form of employment the less likely she is to open her own shop. The effect of previous self-employment experience is also negative but diminishes over time. As with men, these results are inconsistent with the idea that workers use experience gathered while working at a company as a springboard to launch their own businesses. Thus, we reject Hypothesis 4 (prior work experience) for all of our categories.

The previous analysis pertained to all switchers, including those who are self-employed only temporarily. These may be different in important ways from long-term self-employed. To explore this potential difference, we conducted the same analysis as above but limited our sample to those individuals with at least 10 years of potential work experience. That is, we truncated the age bracket by omitting the young, and we defined 'long-term self-employed' as currently in self-employment

with at least 10 years of self-employment experience. The results are similar, and we do not report them here. One noteworthy difference is that neither the overall economy nor the local job market conditions are significant for long-term self-employment for either category. The previous finding of a positive correlation with age holds, for both men and women, after controlling for past work experience.

Also consistent with the earlier finding, the likelihood of becoming long-term self-employed decreases with tenure in non-standard employment for men with high school degrees, and for women in general. Thus, workers in non-standard employment are increasingly less likely to become long-term self-employed as time goes on, regardless of education. The length of this negative impact differs for men and women. For men with a college degree, being in non-standard employment initially increases the likelihood of becoming long-term self-employed, but after four years the impact becomes negative. For women with a High School degree, chances of switching from non-standard to self-employment turn negative after 10 years.

Regular employment continues to have a negative effect on long-term self-employment for men, perhaps given the security associated with being a ‘salary-man’. Thus, the ‘*datsu-sara*’ phenomenon may be smaller than sometimes claimed. For women, the picture is different: after 15 years in regular employment, the effect turns positive. This matches the general impression of educated women joining the workforce for a while before getting married (or being discouraged by reduced career options) and then looking for other options.¹¹

4.2 Personal Attributes

To explore Hypotheses 5 through 7, we switch to the panel data from 2004 to 2007. These data were collected for the same individuals, but they are richer and allow us to observe additional variables. However, certain data items, such as the employment status dummy variables, are now defined differently. In the pre-2004 data, individuals were coded as being in a given employment sector, such as self-employment, if they were in that sector at any point during a given year. From 2004 onwards, we observe an individual’s employment status only for the month prior to the survey. Because the survey was conducted annually in January, and to adjust for this difference, we now code the employment category dummies in year t as ‘1’ if the individual’s primary source of income in December of year $t-1$ was in the same employment category, and ‘0’ otherwise.

We report the results in [Tables 6](#) (men) and [Table 7](#) (women). The first column provides a base case scenario similar to that in [Table 4](#). Although the results are not directly comparable, we now find that for men (though not for women) the effect of self-employment in the previous year is not overwhelmingly greater than the impact of being in other employment categories for men. In fact, unemployment in the previous year has a larger effect for men, suggesting that switching into self-employment may occur due to a lack of employed options.

Remarkably, for the years 2004–2007 the age variable turns negative (with the exception of female high school graduates). This is consistent with [Genda’s \(2004\)](#) findings for the 1990s. Thus, contrary to the long-term period pre-2004, younger people are now more likely to enter self-employment than older. We take this to suggest a shift toward higher plurality as younger males, especially those with only a high school degree, appear to be more likely to enter self-employment. This is in spite of the fact that we find no significant impact of overall economic conditions or the local job market.

11. The effect of a previous stint in self-employment for entering into long-term self-employment generally starts off positive but turns negative after a few years. The turning points are after 10 years for male college graduates, 17 years for female high school graduates, and nine years for female college graduates.

Table 6. Panel Data 2004–2007 (H5–H6): Results for Men.

	High School				College			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lagged self-employment dummy	-0.134** (0.042)	0.135 (0.074)	0.147** (0.053)	0.131* (0.051)	0.417*** (0.081)	0.408*** (0.090)	0.434*** (0.079)	0.467*** (0.080)
Lagged regular employment Dummy	0.102* (0.050)	0.323*** (0.095)	0.220*** (0.060)	0.214*** (0.056)	0.165* (0.070)	0.134* (0.068)	0.370*** (0.062)	0.388*** (0.063)
Lagged non-standard employment Dummy	0.069 (0.051)	0.324*** (0.093)	0.200*** (0.060)	0.191*** (0.057)	0.104 (0.075)	0.117 (0.078)	0.317*** (0.069)	0.330*** (0.070)
Lagged unemployment dummy	0.085 (0.058)	0.352** (0.115)	0.228** (0.070)	0.211** (0.067)	0.249* (0.104)	0.147 (0.104)	0.433*** (0.097)	0.448*** (0.098)
Age	0.060*** (0.009)	-0.141** (0.050)	-0.098** (0.032)	-0.089** (0.031)	-0.021 (0.013)	-0.005 (0.074)	-0.028 (0.037)	-0.027 (0.038)
Local job-openings ratio	0.009 (0.134)	0.263 (0.219)	0.107 (0.154)	0.089 (0.150)	-0.030 (0.159)	-0.099 (0.186)	0.028 (0.159)	0.039 (0.159)
Non-standard employment		0.082 (0.069)	0.087* (0.040)	0.080* (0.038)		0.036 (0.051)	-0.052 (0.042)	-0.055 (0.043)
Regular employment		0.095 (0.056)	0.120*** (0.031)	0.110*** (0.029)		0.079 (0.043)	0.008 (0.032)	0.006 (0.033)
Self-employment		0.189*** (0.057)	0.184*** (0.034)	0.170*** (0.032)		0.115* (0.045)	0.055 (0.032)	0.054 (0.033)
Lagged financial assets (¥100 million)		0.306 (0.196)				-0.071 (0.133)		

*** p < 0.01

** p < 0.05

* p < 0.1

Table 6. Continued.

	High School			College				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lagged fixed assets (¥100 million)		0.225 (0.139)				0.002 (0.096)		
Lagged household debt (¥100 million)		0.096 (0.153)				-0.126 (0.138)		
Homeowner			0.044 (0.042)				0.027 (0.043)	
Married				0.007 (0.060)				-0.066 (0.065)
Children younger than 6 years				-0.053* (0.024)				-0.003 (0.027)
Constant	-2.527*** (0.454)	3.012* (1.512)	0.837 (1.098)	0.768 (1.070)	0.938 (0.593)	-0.825 (2.475)	0.635 (1.066)	0.705 (1.103)
Year dummy variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1,452	764	1,436	1,452	1,348	799	1,332	1,348
Chi-square	75	117	116	122	59	226	201	227

Table 7. Panel Data 2004–2007 (H5–H6): Results for Women.

	High School				College			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lagged self-employment dummy	0.207*** (0.041)	0.060 (0.049)	0.253*** (0.049)	0.210*** (0.047)	0.090* (0.044)	0.171 (0.101)	0.190** (0.059)	0.134* (0.058)
Lagged regular employment dummy	0.051 (0.035)	0.033 (0.047)	0.058 (0.037)	0.047 (0.037)	0.017 (0.038)	0.065 (0.058)	0.026 (0.039)	0.015 (0.039)
Lagged non-standard employment dummy	0.059* (0.025)	0.051 (0.029)	0.061* (0.026)	0.058* (0.026)	0.031 (0.024)	0.120** (0.045)	0.051 (0.026)	0.042 (0.026)
Lagged unemployment dummy	0.046 (0.042)	0.038 (0.057)	0.041 (0.044)	0.034 (0.043)	-0.035 (0.043)	0.121 (0.076)	-0.018 (0.046)	-0.032 (0.046)
Age	0.037** (0.013)	0.008 (0.024)	0.012 (0.048)	0.052 (0.047)	-0.003 (0.008)	-0.022 (0.023)	-0.012 (0.023)	-0.004 (0.023)
Local job-openings ratio	0.207 (0.155)	0.269 (0.179)	0.125 (0.161)	0.210 (0.159)	0.197 (0.137)	0.001 (0.220)	0.091 (0.142)	0.152 (0.142)
Non-standard employment		-0.012 (0.026)	-0.016 (0.021)	-0.017 (0.021)		0.030 (0.022)	-0.008 (0.017)	-0.012 (0.017)
Regular employment		0.006 (0.027)	-0.023 (0.021)	-0.022 (0.021)		0.025 (0.022)	0.003 (0.016)	0.001 (0.016)
Self-employment		-0.006 (0.022)	-0.003 (0.020)	-0.016 (0.020)		0.086*** (0.022)	0.010 (0.013)	0.005 (0.012)
Lagged financial assets (¥100 million)		0.016 (0.103)				0.164 (0.163)		

*** p < 0.01

** p < 0.05

* p < 0.1

Table 7. Continued.

	High School			College				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lagged fixed assets (¥100 million)		0.181(0.106)				0.049 (0.119)		
Lagged household debt (¥100 million)		-0.583*** (0.169)				-0.050 (0.213)		
Homeowner			-0.053 (0.047)				0.024 (0.044)	
Married				-0.004 (0.057)				-0.047 (0.049)
Children younger than 6				-0.044 (0.025)				0.002 (0.027)
Constant	-1.867** (0.663)	-0.597 (0.724)	-0.326 (2.018)	-2.144 (1.988)	-0.028 (0.361)	-0.532 (0.686)	0.387 (0.758)	0.115 (0.756)
Year dummy variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1,133	584	1,122	1,133	950	495	941	950
Chi-square	40	42	48	47	13	107	42	37

While the results are not significant, directionally we find that higher financial assets in the previous year are associated with entry into self-employment (except for male college graduates), as predicted in Hypothesis 5a. For fixed assets (not including home ownership), there is also a consistently positive correlation with self-employment, and it is interesting that the size of that correlation is larger for high school graduates than college graduates. Our data do not offer any further insight here. One possible scenario is that the father is in self-employment, and assets are measured for the entire household. We explore the role of the father's profession below. High household debt is negatively associated with self-employment, except for male high school graduates; this effect is significant for female high school graduates. We cannot be sure whether male high school graduates carry a higher debt because they took out a loan to build a business, or because they had no other job options or income in the previous year. Either way, in the years 2004–2007 we find strong suggestions that younger male high school graduates with higher debt (for whatever reason) are more likely to enter self-employment. Homeownership is insignificant (perhaps pointing at higher plurality) and the sign is positive, offering mild support for Hypothesis 5b, except for high school women. Unfortunately our data do not allow for further exploration; we can only note that high school graduates seem to enter self-employment with different financial backgrounds than college graduates.

The impact of marriage is negative for educated men and for all women. Again, these results are not statistically significant, and we cannot support Hypothesis 6a. In contrast, the number of young children (below the age of six) predicts a switch into self-employment for female college graduates (though not for men). Once again, the impression emerges that educated women stand out in comparison to the other groups. In this instance, it appears they are pushed more into self-employment if they raise children.

In sum, our most consistent finding for the period of 2004 to 2007 is a strong persistence in self-employment. That said, we also find increasing plurality in the profiles of the self-employed in the early 2000s, who are also more likely to be younger. Moreover, the results for educated women differ consistently from those for the other groups. She may perhaps be a professional with the freedom to time her entry into self-employment to overlap with improvement in the local economy. Or she may be married with young children, forced to resign from regular employment, and decide to enter self-employment when the local economy is good to supplement other household income. Whatever the case may be, the profile of the educated woman is rather different from that of men.

Overall, we find large variation in the estimated coefficients on marriage and young children, and attribute these to a growing pluralism among the self-employed, ranging from young women with children to elderly male ex-employees to lawyers and doctors. Even though the estimated coefficients show consistent patterns, most of our results are not statistically significant. It is possible that the small sample size prevents us from obtaining more precise estimates. As the Keio surveys are continued in the future, we hope that additional data will help reduce the remaining ambiguity.

4.3 Fathers in Self-Employment

Finally, as formulated in Hypothesis 7, growing up in a family where the father runs his own business may be a strong predictor of being self-employed. Several reasons have been suggested for this effect, in particular the parents as role models (Sorensen 2007). Cheng (1997) in her historical study of Japan found that the father being self-employed overrode all others determinants of becoming self-employment. We wonder whether this is still true in Japan.

Our retrospective panel includes a question about the father's occupation when the respondent was 16 years old. Thus, we switch back to the longitudinal data and estimate a probit model for the years 1963 through 2003, to measure the effect of the father being self-employed on the

probability that an individual has entered self-employment at some point in his life. The dependent variable is a dummy with the value '1' if an individual has ever been in self-employment between 1963 and 2003 (regardless of how long), and '0' otherwise. The results are reported in Table 8. The father's experience in self-employment significantly increases the likelihood that a child enters self-employment. Specifically, the average marginal effect says that having a self-employed father at age 16 increases the likelihood that one enters self-employment by 14% for male high school graduates, 15% for male college graduates, 6.5% for female high school graduates, and 3.7% for female college graduates. We note that the result for female high school graduates is statistically significant only at the 10% level, while the result for female college graduates is not significant.

At first sight, our results may be indicative of a certain social stratification, as self-employed parents may not have the desire or means to send children to schools that result in lifetime employment careers. However, the differences in degree for men and women suggests that other mechanisms may also be at work, such as inheritance (an obligation to take over the father's business, which may be stronger for a son) or business-specific skill formation. Unfortunately, our data do not allow us to control for family characteristics, and we can only conclude that a correlation exists for men regardless of degree, and women without college education. Educated women seem to be least affected by this influence and enter self-employment for idiosyncratic reasons.

5. Labor Market 'Stickiness' and Career Paths of the Self-Employed

Table 2 reported only limited switching between job categories, and job market stickiness is the most consistent finding in our regression analysis. Perhaps the biggest factor is lifetime employment, where

Table 8. Retrospective Panel Data: The Effect of Fathers in Self-Employment.

Variable	Men		Women	
	High School	College	High School	College
	(1)	(2)	(3)	(4)
Father self-employed	0.505*** (0.153)	0.724*** (0.182)	0.344* (0.200)	0.200 (0.238)
Constant	-1.023*** (0.100)	-1.357*** (0.118)	-1.345*** (0.132)	-1.296*** (0.139)
N	364	324	280	220
Pseudo R2	0.030	0.061	0.015	0.005
Average arginal effect				
Father self-employed	0.140*** (0.041)	0.150*** (0.037)	0.065* (0.038)	0.037 (0.044)

*** p < 0.01

** p < 0.05

* p < 0.1

pay incentives reward tenure, so that employees often stay with one company for the first 30 years of their work life. Regular rotations and rigid tournament rules for promotions also mean that mid-career entry into a regular position at a new company can be difficult (Abegglen 1984, Lincoln and Nakata 1997, Schaele 2008). These factors combine into a significant and long-lasting impact of a worker's initial job on his/her future employment trajectory, and it has been argued this impact is particularly pronounced in Japan (Kondo 2007; Esteban-Pretel *et al.* 2011).

With growing youth unemployment, this determinative rigidity in early-career employment choices is a grave concern. It has given rise to the so-called 'lost generation' phenomenon, referring to those who graduated from college during the 1990s when a scarcity in regular employment openings limited their career options, allegedly for life. Most studies on this issue have focused on the impact of entering the labor force in non-standard employment (e.g., Brinton 2010). If the rigidity also holds true for self-employment, young people may decide against self-employment at an early stage in life to avoid getting 'stuck'. It is sometimes argued that the determinative quality of Japan's labor market is a barrier to entrepreneurship in Japan.

Our data allow us to explore this situation. We use the retrospective panel and look at the local job openings ratio at the time of an individual's entry into the labor market to see how much it affects the probability that he or she will be in self-employment later in life. We run the following probit model:

$$\Pr(y_{it}|k_{i0}, X_{it}) = \Phi(\beta_1 + \beta_2 k_{i0} + \beta_3 X_{it} + \beta_4 c_{i0} + \beta_5 z_t + \beta_6 k_{it})$$

where $\Phi(\cdot)$ is the cumulative distribution function for the standard normal distribution; y_{it} is a binary variable which is '1' if individual i is in self-employment in year t , and '0' otherwise; k_{i0} is the local job-openings ratio at the time that individual i initially entered the labor market; and X_{it} is a vector of relevant explanatory variables. We include year fixed effects (z_t), cohort fixed effects (c_{i0}), and the current local job-openings ratio (k_{it}).

The results are reported in Table 9. For people with only a high school degree, poor local labor market conditions at the time of first entry into the labor market significantly increase the likelihood of being in self-employment at some point in one's life. For male college graduates, the result is not significant. Yet again, the one exception to the pattern is female college graduates, for whom a healthy local labor market at time of entry actually increases the likelihood of future self-employment.

With these results we can also calculate the odds. On average, a 10 percentage point decrease in the local job market (a fall in the local job-openings ratio from say, from 1.1 to 1.0) at the time of labor market entry increases the probability of being self-employed by 0.35% for high school males, 0.12% for college males, and 0.15% for female high school graduates. However, for female college graduates, such a change in the initial local job openings ratio decreases the probability of future self-employment by 0.32%. The base rate of self-employment in our sample is approximately 8% for women, 13% for college males, and 18% for high school males. The standard deviation of the local job openings ratio ranges from 0.16 (in Hokkaido) to 0.67 (in Chubu). Therefore, a back-of-the-envelope calculation yields a non-trivial impact of labor market conditions: a one standard deviation deterioration in the local job openings ratio at the time of labor market entry in an area like Chubu may increase the future probability of self-employment by as much as 13% for both, high school men $[(0.035 \times 0.67)/0.18]$ and women $[(0.015 \times 0.67)/0.08]$. Male college graduates could see as much as a 6% $[(0.012 \times 0.67)/0.13]$ increase. Yet, female college graduates face a very large 27% $[(0.032 \times 0.67)/0.08]$ decrease in the probability of future entry into self-employment if the local labor market sours.

We repeated this exercise for long-term self-employment by measuring the effect of the local job openings ratio at the time of labor market entry on the probability of being in long-term

Table 9. Effect of Initial Labor Market Conditions on Future Self-Employment.

	Men		Women	
	High School	College	High School	College
	(1)	(2)	(3)	(4)
Probit coefficients				
Initial local job openings ratio	-0.152*** (0.032)	-0.062 (0.044)	-0.111** (0.039)	0.207** (0.068)
Local job openings ratio	-0.018 (0.053)	-0.050 (0.074)	-0.133* (0.067)	0.414*** (0.114)
Constant	-6.179*** (0.262)	-5.472*** (0.354)	-2.135*** (0.623)	-2.092*** (0.539)
<i>N</i>	16,219	12,686	14,375	6,686
Pseudo R2	0.071	0.081	0.067	0.146
Average marginal effect				
Initial local job openings ratio	-0.035*** (0.007)	-0.012 (0.008)	-0.015*** (0.005)	0.032*** (0.011)
Local job openings ratio	-0.004 (0.012)	-0.009 (0.014)	-0.018* (0.009)	0.065*** (0.018)

*** $p < 0.01$ ** $p < 0.05$ * $p < 0.1$

self-employment in the future. The results are similar to those shown in Table 9 and are not reported here. Now the results are significant only for male high school graduates, and the estimated effect for male college graduates is small and insignificant. The same back-of-the-envelope calculation as above suggests that a one standard deviation decrease in the local job openings ratio at the time of labor market entry increases the future probability of long-term self-employment by as much as 15% for high school graduates yet decreases it by 8% for female college graduates.

In terms of magnitude, the average marginal effect of the local job openings ratio at the time of labor market entry is comparable to the average marginal effect of the job openings ratio in the most recent survey year; for men, it is larger. In other words, a poor job market at the time of school graduation is as determinative for future self-employment as are current labor market conditions.

Overall, our findings are similar to those for non-standard employment and underscore the rigidity in Japan's career trajectories. Insofar as self-employment entails asset-specific investments (such as equipment or skill formation), rigidities may be even more severe: whereas non-standard work may lead to skills that are more easily transferable to regular employment, self-employment investments may raise the opportunity costs of switching.

These rigidities may also offer one possible interpretation for the age effect results. In the retrospective panel (until 2004), young people, concerned about getting 'stuck', were more likely to assume paid positions, while middle-aged workers dissatisfied with their job situation may have been less concerned with the 'one-way' nature of switching into self-employment. However, for the years

2004 through 2007, we saw that the age variable switched signs. Perhaps the job market situation for the young, especially those with only a high school degree, has become so dire that previous tradeoff considerations are no longer as relevant.

6. Conclusions

This paper analyzes the recent situation of self-employment in Japan, using a private Keio University household survey that allows us to draw connections between working in self-employment and economic conditions and individual characteristics such as age, education, work history, family situation, and assets. We believe ours is the first study that explores these factors separately for men and women.

The most persistent finding is that switching across job categories remains limited. Yet, while Japan's labor market remains very sticky, in some sense there is perhaps more switching than one might have thought. By looking at those instances of switching, we shed new information on some stipulations that were previously explored mostly for the US. For the 50 years prior to 2004, our results suggest that lower education (high school only) predicts entry into self-employment. We find no support for the 'experience through job-hopping' notion for Japan. Moreover, in this period, more Japanese were likely to enter self-employment in bad economic times, and they were older. These results may favor the 'push' notion of an involuntary entry into self-employment due to limited options. Growing up in a household where the father was self-employed greatly increased the likelihood for the son entering self-employment.

For the more recent years of 2004 through 2007, we support some of the standard notions suggested in finance: more assets and home ownership are associated with self-employment, as is more debt (for high school graduates). Marriage is not a factor, but for women, having young children is. Most noteworthy, in the recent period, younger people were more likely to switch into self-employment than older at a time when local job markets were not changing much.

While this may bespeak of new forms of entrepreneurship in Japan, this new trend could also trigger serious concerns under the heading of 'lost generation': by being pushed into self-employment due to limited options, young people may miss out on regular career opportunities because of a lack of training and the labor market's determinative rigidity. We offer support for this concern by showing that the probability of becoming a long-term self-employed ranges between 6% and 15% if the labor market is poor at the time of school graduation.

There is one important exception to most of our results: educated women. In almost all analyses, they go against the grain. They are more likely to enter self-employment in good times and even though young children are definitely a determining factor, these women may also be single professionals, with less credit constraints. Unlike for the other groups, the father's profession does not appear to figure into their choice. The job market at the time they enter the workforce has little effect on their future careers. A positive interpretation of these findings is that educated women appear to be the ones with the most options in our sample.

For men and women with high school degrees, our results do not suggest one clear profile. While the estimated coefficients reveal consistent patterns, more often than not, they are not precisely estimated. We hope that future iterations of the Keio survey will add additional data that allow us to shed further light on this important segment of Japan's labor market. But clearly we find evidence of the great diversity in backgrounds, motivations as well as constraints among Japan's self-employed.

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