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Good Jobs, Bad Jobs, and the Great Recession: Lessons from Japan's Lost Decade

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ABSTRACT

Good Jobs, Bad Jobs, and the Great Recession: Lessons from Japan's Lost Decade[*]

This paper provides novel evidence on the long-term effect of the Great Recession on the quality of jobs, in particular whether the Great Recession results in the replacement of "good jobs" (characterized by high wage/benefit, job security, and opportunity for training and development) with "bad jobs" (characterized by the lack of such attributes). Unfortunately there is not yet sufficiently long data from the recent Great Recession that enable researchers to study fully its long-term consequences for the labor market structure. To this end, we examine Japan's Lost Decade, the original Great Recession that occurred two decades ago. First, insofar as male workers are concerned, we find evidence against the popular narrative that during Japan's Lost Decade there was a significant shift of the composition of employment toward "bad jobs." Second, we find that the composition of female workers shifted significantly toward "bad jobs" and that such a shift occurred primarily through an increased use of a hybrid employment contract of nonstandard employment with indefinite contracts. Third, young women in Japan made considerable progress in shifting the composition of their employment toward "good jobs" during Japan's growth decade preceding the Lost Decade. We find that such progress was entirely undone during the Great Recession. Obviously the Great Recession affects the quantity of jobs and policy makers ought to pay immediate attention to such quantity effects. However, the Great Recession may also have more long-term structural effects on the quality of jobs.

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1. Introduction

One of the most pressing issues facing the U.S. and many other advanced market economies is to assess the long-term effects on their labor markets of the financial meltdown in the fall of 2008 and the subsequent Great Recession.[1] To respond to the urgent need to inform policy makers on such an important issue, researchers have been undertaking various research projects. Reflecting the persistence of high unemployment rates in the U.S. and most other major advanced market economies, much of such recent research naturally focuses on job loss and long-term unemployment (see for example Farber, 2011; 2012, David and von Wachter, 2011; and Schmieder, von Wachter, and Bender, 2012).

Thus far researchers have not paid as much attention to long-term structural effects on the labor market of the Great Recession. For instance, it will be of great relevance and interest to policy makers to find out whether the Great Recession resulted in a significant change in the nature and quality of jobs as opposed to the quantity of jobs. More specifically we address the question of whether the Great Recession results in the replacement of "good jobs" (characterized by high wage/benefit, job security, control over own work, and opportunity for training and development) with "bad jobs" (characterized by low wage, weak job security, lack of control over own work, and limited opportunity for training and development) or vice versa (see Kalleberg, 2011 for the recent good job/bad job framework).[2,3]

Since structural changes such as the replacement of "good jobs" with "bad jobs" tend to

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[1] Though the Great Recession in the U.S. officially ended in 2009, we refer to the ongoing economic stagnation with persistent high unemployment rates as the Great Recession in this paper.

[2] Acemoglu (2001) provides a theoretical model of the determination of the composition of "good jobs" and "bad job" in the economy.

[3] Recently the creation of "good jobs" and "bad job" during the Great Recession has become a hot political issue. Governor Perry buttressed his presidential candidacy by often citing his strong job creation record in the state of Texas during the Great Recession, while his opponents argue that the bulk of jobs created in Texas during the Great Recession are "bad job".

occur gradually over many years, it is somewhat premature to study fully the long-term consequences of the Great Recession for the labor market structure. After all, it has been only a few years since the Great Recession began.

Fortunately, there was another Great Recession across the Pacific two decades ago. At the end of 1980s, the financial and real estate bubble were burst rather violently in Japan, which set the country into a prolonged economic stagnation, or the "Lost Decade". Notwithstanding some important differences between Japan's lost decade and the Great Recession, there are some intriguing similarities (Koo, 2008). A number of serious attempts have been made to contrast the Great Recession to Japan's "Lost Decade" in the 1990s, in search for historical lessons with regard to the causes and consequences of such severe and prolonged recession as well as appropriate policy responses (see, for instance, Hamada, Kashyap, and Weinstein, 2011 and Hoshi and Kashyap, 2010).

This paper provides the first rigorous evidence on the long-term effects on the labor market structure of Japan's Great Recession which began in early 1990s and lasted for a decade. Specifically in the ensuing section we provide sufficient background information on the structure of the Japanese labor market and describe "good job" and "bad jobs" in the Japanese context. We then discuss two commonly used methods to identify the "good job" and "bad job" segments of the labor market in Japan, and measure the size of each segment.

In section 3 we document changes in the composition of employment ("good jobs" vs. "bad jobs") during Japan's Great Recession, and provide econometric evidence on the economic consequences of such changes. In section 4, we focus on the fate of youth who are often considered a major victim of Japan's Lost Decade. Summary, interpretations and policy implication are offered in the concluding section.

2. "Good jobs" and "Bad jobs" in Japan

In the 1980s, reflecting the impressive rise of Japanese firms as world-class competitors, the Japanese employment system became a source of wonder for many corporations around the world and a popular subject of research for scholars in industrial relations, human resource management, and labor economics. The Japanese employment system consists of clusters of practices that are often distinct from the traditional Anglo-American model of flexible labor market and hierarchical labor-management relations that are apt to be adversarial. A variety of specific employment practices have been considered key elements of the Japanese employment system. The following practices are often said to constitute a coherent set of elements of the Japanese employment system.

1. The practice of "lifetime employment" (or implicit long-term employment guarantees for the regular workforce) and the reward system which fosters lifetime employment (e.g., seniority wage system in which wage is detached from specific job and seniority plays a significant role in wage determination).[4]

2. Employee involvement and problem solving activities at the grass roots level intended to provide workers with opportunities to exert discretionary effort, acquire useful local knowledge, and share it with their co-workers, and higher-level engineers and managers. They include Shopfloor Committees (SFCs); and various Small Group Activities, such as QC circles; Zero Defect; Kaizen; JK activities; and cross-functional problem solving teams.

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[4] The term "lifetime" is somewhat of a misnomer since except for executives, Japanese workers have been typically subject to mandatory retirement that occurs around age 60. A precise definition of the practice of lifetime employment is therefore implicit long-term employment contract that ends at mandatory retirement for the regular workforce. In addition, the practice of "lifetime employment" does not necessarily mean that layoffs never happen in large Japanese firms. It has been documented that Japanese firms, even large ones, did lay off some of their regular employees, following the first oil crisis (see, for example, Koike, 2005, Suruga, 1998, Nakata, 2003, Chuma, 2002).

3. Incentive schemes, such as employee ownership and profit sharing, which align the interest between workers and the firm, and hence reward them for their wholehearted participation in such employee involvement programs.

4. Extensive information sharing mechanisms (often called Joint Labor-Management Committees, JLMCs) involving cooperative enterprise unions to minimize information asymmetry and facilitate the alignment of interest between labor and management.

5. Careful screening and extensive training aimed at increasing worker ability to effectively participate in employee involvement/problem solving activities and information sharing meetings.[5]

The Japanese employment system developed over time during the postwar era and was well-established and deep-rooted in the Japanese society by the end of the high growth period. It probably contributed significantly to the rise of the Japanese economy (Aoki, 1990, Koike, 2005, Morita, 2005).

There are, however, a group of Japanese workers who are not covered by the aforementioned practices of the Japanese employment system and hence do not enjoy long-term employment, employee participation (both financial and non-financial), and extensive on-the-job training. Such workers constitute the secondary segment of the Japanese labor market, and often function as a shock absorber in economic downturns by being the first to let go. Such secondary segment workers are said to be paid lower wages, enjoy less generous benefit, less control over their work, and weaker job security than those primary segment workers covered by the Japanese employment system (see for instance Koike, 2005 and Rebick, 2005).

In short, the primary and secondary segment jobs of the Japanese labor market fit well the

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[5] Scholars somewhat differ in the relative importance of each practice (see for example, Koike, 2005, Aoki, 2000, Itoh, 1994, Morita, 2001; 2005, Moriguchi and Ono, 2004 and Rebick, 2005).

descriptions of "good jobs" versus "bad jobs" in the recent good job/bad job framework (e.g., Kalleberg, 2011). One of the most commonly-held views on Japanese labor market responses to the Great Recession was that Japanese firms in response to the Great Recession increased their use of secondary segment workers relative to primary segment workers (Rebick, 2005, and Farber 2007a). In the framework of "good jobs" versus "bad jobs", such a popular narrative suggests that Japan's Great Recession might have shifted the composition of employment toward "bad jobs".

Measuring the size of the primary ("good job") and secondary ("bad job") segments of the Japanese labor market is an elusive enterprise (Ono, 2010). There are essentially two commonly-used methods to identify the primary and secondary segments of the Japanese labor market. The first method is to take advantage of a distinction used in Japan's labor force surveys between employees on indefinite contracts and employees on fixed-term contracts, and consider employees on indefinite contracts primary segment workers and employees on fixed-term contracts secondary segment workers.

The second method is based on an alternative distinction between employees being on the track of "seiki no jyuugyouin (standard employees)" and other employees (nonstandard employees), and consider such standard employees primary segment workers and other employees secondary segment employees.

In principle, it is possible, however, for a worker to be on the standard employment track yet on a fixed-term contract (standard employees on fixed-term contracts). Likewise, it is also possible for a worker to be on an indefinite contact yet not on the standard employment track (nonstandard employees on indefinite contracts). If such hybrid categories of workers are rare, it will not matter which method we use to define the primary and secondary segments of the

Japanese labor market. As shown below, however, it turns out that that is not the case at all and that nonstandard employees on indefinite contracts have become increasingly popular over the years, and ultimately have outnumbered nonstandard employees on fixed-term contracts (often considered the most natural form of contingent work).[6]

3. Did the composition of employment shift toward "bad jobs"?

Guided by the conceptual framework discussed in the previous section, we divide the population aged 18-70 into the following groups: (i) standard employees on indefinite contracts (employees on the standard employment track and on indefinite contracts); (ii) nonstandard employees on fixed-term contracts (employees not on the standard employment track and on fixed-term contracts); (iii) standard employees on fixed-term contracts (employees on the standard employment track yet on fixed-term contracts); (iv) nonstandard employees on indefinite contracts (employees not on the standard employment track yet on indefinite contracts); (v) self-employed; and (vi) others (primarily those not in the labor force).

From the Employment Status Survey for 1982-2007 we calculate the proportion of each group for 1982, 1985, 1992, 1997, 2002, and 2007. The Employment Status Survey (ESS) is the Japanese counterpart of CPS tenure supplements of the U.S.[7] Figure 1 shows such proportions including both male and female, while Figures 2 and 3 show them for male and female separately. First, overall the proportion of standard employees on indefinite contracts (who will be clearly identified as primary "good job" segment workers by either of the two methods

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[6] The relevant literature is relatively small yet rich in content (e.g., Houseman and Osawa, 2003, Ozeki and Wakisaka, 2006, Honda, 2006, Esteban-Pretel, Nakajima, and Tanaka, 2011, Asano, Ito and Kawaguchi, 2011). However, on our reading of the literature, no prior study examines those hybrid groups and uncovers the relative importance of holding the title of "seiki no jyuugyouin" and being on indefinite contracts.

[7] One major difference between the ESS and CPS is its size. The ESS contains almost nine times more households than CPS.

discussed in the previous section) displays rather remarkable stability over time. During Japan's

Great Recession, it did fall somewhat yet the magnitude of the fall was modest (42.7 percent in

1992 to 37.9 percent in 2002). To be consistent, the proportion of nonstandard employees on

fixed-term contracts who will be unambiguously identified as secondary "bad job" segment

workers by either method also remained relatively stable throughout the period. During Japan's

Great Recession, there was a corresponding moderate increase in the proportion of such

secondary segment workers from 6.1 to 8.1 percent.

The most noticeable shift, however, took place among self-employed and nonstandard

employees on indefinite contracts. Self-employed workers as a percentage of the population aged

19-70 were over 20 percent in 1982 and since then they declined precipitously and reached

below 12 percent by 2007. In contrast Figure 1 shows a remarkable increase in the proportion of

nonstandard employees on indefinite contracts. In 1982 such a hybrid type was almost non-

existent yet by 2007 it reached the prominent status of 13 percent which actually exceeded the

prevalence of self-employed. It is not immediately clear whether this hybrid should be

considered "good jobs" or "bad jobs". We will provide evidence which sheds light on this issue

after we discuss Figures 2 and 3.

When we disaggregate Figure 1 by gender, a sharper picture emerges. For the male

population, as shown in Figure 2, astonishingly standard employees on indefinite contracts as a

percentage of the population aged 18-70 did not fall at all (actually rose from 58.3 in 1992 to

58.9 percent in 2002) during Japan's Lost Decade. Insofar as male workers are concerned,

evidence does not support the popular narrative of significant shift of the Japanese labor force

from the primary to the secondary segment during Japan's Great Recession. Note that the share

of male standard employees on indefinite contracts subsequently fell during Japan's longest

uninterrupted positive (though modest) growth in the postwar era and reached 53.4 percent in 2007 and that correspondingly the aforementioned hybrid (nonstandard employees on indefinite contracts) surged from 2.9 percent in 2002 to 7.2 percent in 2007.

Figure 3 (as contrasted to Figure 2) reveals some intriguing gender differences. During the decade preceding its Great Recession (the heyday of the "Japanese miracle"), Japanese women increased their entry into the primary segment steadily (the percentage of female standard employees on indefinite contracts rose from 23.8 in 1982 to 26.6 percent in 1992). However, during the Great Recession, they lost what they had gained and the proportion of female standard employees on indefinite contracts fell from 26.6 in 1992 to 22.1 in 2002. There was a corresponding increase in the proportion of the hybrid (nonstandard employees on indefinite contracts) from 8.6 to 13.9 percent.

Meanwhile, self-employment as a percentage of the female population has been diminishing steadily over the last twenty five years from close to 20 percent in 1982 down to 8 percent in 2007. Back in 1982 self-employment was the second most common mode of work for women and nonstandard employment with indefinite contracts was almost unheard of. By 2007, they traded places completely--nonstandard employment with indefinite contracts became the second most common mode of work for women after standard employment with indefinite contracts, whereas self-employment became one of the least common modes of work for women.

The literature on contingent work in Japan often ignores the steadily diminishing importance of self-employment. An increase in nonstandard employment does not necessarily mean a decrease in standard employment. In the case of Japanese women, in 1992 (the beginning of Japan's Lost Decade), nonstandard employment (including both indefinite and fixed-term contracts) constituted 17 percent of the total female population aged 18-70. By the end of the

Lost Decade, nonstandard employment as a percentage of the total female population rose to almost 25 percent. In other words, during Japan's Lost Decade, nonstandard employment rose by 8 percentage points. However, it does not mean that standard employment as a percentage of the total population fell by 8 percentage points. It actually declined only by 4.5 percentage points. Much of the discrepancy was due to a considerable fall in self-employment.

As shown below, a shift from standard employment to nonstandard employment turned out to be a shift from "good jobs" to "bad jobs". However, a shift from self-employment to nonstandard employment does not necessarily mean a shift from "good jobs" to "bad jobs", and it may well be a movement from "bad jobs" to "bad jobs". Unfortunately the ESS does not provide adequate data that will allow us to assess the economic consequences of shifting from self-employment to nonstandard employment. Yet at least we ought to be cognizant of the potentially important role that changes in self-employment may play in any discussions on the long-term impact on the quality of jobs of the Great Recession.

To shed light on the relative importance of being on the standard employment track and being on indefinite contracts, and determine whether the rapidly rising hybrid type (nonstandard employees on indefinite contracts) should be considered the primary "good job" segment or the secondary "bad job" segment, we estimate the effects on worker outcomes of standard employment track and indefinite contracts. We begin with a probit model of job loss rate and test whether being on the standard employment track or being on an indefinite contract is more strongly associated with job security.[8] Specifically we use the ESS for the most recent year (2007), and create a dummy variable, jobloss=1 if an employee lost a job as a result of the employer's decision unrelated to his/her individual performance (such as downsizing and

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[8] Farber (2009) estimates a similar probit model for the U.S., and we apply a similar specification to our Japanese job loss data.

"recommended" early retirement; bankruptcy and plant closing; and poor business performance)

during the previous year, 0 otherwise.[9] Due to the prevailing practice of mandatory retirement in

Japan which was originally set at 55 (and then raised to 60 in the 1990s and 65 in the 2000s), we

focus on age 18 to 54.

Table 1 presents summary statistics where fixedterm=1 if an employee was on a fixed-

term contract (as opposed to an indefinite contract) during the previous year, zero otherwise;

nonstandard=1 if an employee was not on the standard employment track during the previous

year, zero otherwise; female=1 if an employee is female, zero otherwise; age=years of age;

ten0to4=1 if an employee's tenure with the firm was less than 5 years in the previous year, zero

otherwise; ten5to9=1 if an employee's tenure with the firm was between 5 and 9 years in the

previous year, zero otherwise; ten10to14=1 if an employee's tenure with the firm was between

10 and 14 years in the previous year, zero otherwise; and ten15+=1 if an employee's tenure with

the firm was greater than 14 years in the previous year, zero otherwise; juniorhigh=1 if an

employee's highest educational attainment was junior high school during the previous year, zero

otherwise; highschool=1 if an employee's highest educational attainment was high school during

the previous year, zero otherwise; juniorcollege=1 if an employee's highest educational

attainment was 2-year junior college during the previous year, zero otherwise; university=1 if an

employee's highest educational attainment was 4-year university during the previous year, zero

otherwise. Note that in creating these variables for employees who lost jobs, we use information

on their previous jobs from which they separated.

As shown in the table, the average annual job loss rate for Japanese employees age 18-54

was 3.7 percent in 2007. The proportion of employees on fixed-term contracts was around 7

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[9] We focus on employees, and hence self-employed individuals are excluded from the data. Our
key results change little even if we include self-employed individuals.

percent, while the proportion of nonstandard employees was over 20 percent. Around 40 percent were female. The average age was 38, and the majority of them were high school graduates.[10]

Table 2 presents the probit estimates of job loss probability as a function of the aforementioned variables as well as other control variables (firm size, industry, occupation and location). Nearly all coefficients are estimated precisely. Most importantly the estimated coefficients on fixedterm and nonstandard are positive and statistically significant at the 1 percent level, confirming that employees on fixed-term contracts and nonstandard employees are indeed more likely to lose jobs and therefore enjoy less job security. The marginal effect estimates for fixedterm and nonstandard suggest that being not on the standard employment track is substantially more damaging for job security than being on a fixed-term contract.

As expected, employees with longer tenure are found to be less likely to lose jobs; and more educated employees are found to be less likely to lose jobs. The estimated coefficient on age (and its marginal effect) is positive and significant at the 1 percent level, suggesting that once tenure is controlled for, older workers are more likely than younger workers to be mid-career hires, and thereby face weaker job security in Japan (Kambayashi and Kato, 2011b). The estimated coefficient on female (and its marginal effect) is negative and statistically significant at the 1 percent level. Once obtaining the status of standard employment and being on indefinite contracts, female employees are actually less likely to lose jobs than their male counterparts. We suspect this may be due to sorting – those female employees who earned the status of standard employment on indefinite contracts in spite of various challenges associated with being female employees possess unusual gifts that are not fully captured by our set of control variables. At any rate, considering the rather small size of the estimated marginal effect of female, we may not

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[10] Unfortunately we are unable to use the ESS for earlier years, for the labor turnover module of the ESS for earlier years does not provide data on whether or not an employee was nonstandard employees during the previous year.

11

want to overstate such sorting story.

To confirm that our key finding is not gender-specific, we repeat the same analysis for male and female employees separately. Tables 3 and 4 summarize the results for male and female employees. Reassuringly for both the male sample and the female sample the marginal effects on job loss rate of being not on the standard employment track remain significant and considerably larger than the marginal effects on job loss rate of being on fixed-term contract (in fact for female employees, the marginal effect of being on fixed-term contracts is no longer statistically significantly different from zero). As such, our main finding of the relative importance of being on the standard employment track to being on indefinite contracts is upheld regardless of gender.

Next we estimate a standard Mincerian wage equation with log of hourly wage as a function of a variety of individual and firm characteristics, augmented by fixedterm and nonstandard (two variables to identify the secondary segment workers).[11] As in the case of job loss, we show the results for all employees first (Table 5) and then for male and female employees separately (Tables 6 and 7). Good news about the wage regressions is that unlike in the case of job loss, we need data only on current jobs and hence we will not need to rely on any data on previous jobs from the labor turnover module of the ESS for which information on the standard employment track is not available for earlier years. As such we are able to estimate the wage equation for 2007 as well as for earlier years.

As shown in Table 5, the estimated coefficients on nonstandard are consistently negative and significant at the 1 percent level for each year over the last twenty five years. In contrast, the

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[11] As in the case of many surveys of individuals in Japan, the ESS collects only categorical earnings data. We calculate hourly wage by dividing median of each category of annual earnings by annual working hours which we also derived from two additional categorical data on annual working days and weekly working hours.

estimated coefficients on fixedterm are much smaller and mostly insignificant (actually of wrong sign almost every time it is significant). The size of the wage penalty for being not on the standard employment track has been considerable, rising from 16% in 1982 to 26% in 1997 and falling to 21% in 2007. Note that the estimated wage penalty for nonstandard employees is conditional on age, age^2, tenure, $tenure^2$, education, industry, occupation, firm size, and location as well as female. The estimated coefficients on female are negative and significant at the 1 percent level consistently for all years. The gender pay gap is sizable even after controlling for age, age^2, tenure, $tenure^2$, education, industry, occupation, firm size, location, as well as fixedterm and nonstandard. In 1982, it was almost 40 percent and has been falling steadily to almost 30 percent in 2007. Tables 6 and 7 again confirm that the relative importance of being on the standard employment track to being on indefinite contracts for wage is not gender-specific.

Finally, in 2007, the ESS began collecting data on the incidence of company-sponsored training and development. We use the 2007 ESS and estimate a probit model of the incidence of company-sponsored training and development program – probability that an employee participates in a company-sponsored training and development program as a function of fixedterm, nonstandard and other control variables. Tables 8-10 present the marginal effect estimates for the overall sample, the male sample, and the female sample respectively. As shown in the tables, again what really matters is whether or not an employee is on the standard employment track not whether she is on an indefinite contract or on a fixed-term contract. This is true regardless of gender. Specifically the estimated marginal effect of nonstandard suggests that after controlling for the same set of control variables, being not on the standard employment track makes an employee a 7 percentage-point less likely to participate in a company-sponsored training and development program, which is not trivial considering that the likelihood of the

average employee participating in such a training is about 42 percent.

In sum, we find consistent evidence that insofar as worker outcomes (job security, wage, and training and development opportunities) are concerned, being on the standard employment track matters much more than being on indefinite contracts. Put differently, being not on the standard employment track is strongly associated with weaker job security, lower wage, and less training and development – "bad jobs." No such strong evidence is found for being on fixed-term contracts. Thus, we determine that nonstandard employees on indefinite contracts -- the rapidly rising hybrid type is much closer to the secondary "bad job" segment.

4. What about youth?

Finally, another popular narrative with regard to the victims of Japan's Lost Decade concerns youth (see, for instance, Genda, 2003). To this end, we repeat the same analysis, limiting the sample to the relevant youth population aged 22-30. Figures 4-6 summarize the results. Overall, we find evidence in favor of this popular narrative. As shown in Figure 4, among youth, there was a ten-percentage point drop in standard employees on indefinite contracts as a percentage of the population during the Great Recession (63.5 in 1992 to 53.8 percent in 2002). There was a corresponding rise in nonstandard employees on indefinite contracts as well as nonstandard employees on fixed-term contract. Japan's Lost Decade was indeed accompanied by a shift of the composition of youth employment toward "bad jobs."

An intriguing historical gender difference is revealed in Figures 5 and 6. Among male youth, the proportion of standard employees on indefinite contracts remained quite high around 76-77 percent during Japan's growth decade preceding the Lost Decade. During the Lost Decade, however, it declined by about 10 percentage points, and during the post-Lost Decade recovery

period, there was no recovery in the proportion of standard employees on indefinite contracts. In contrast, during Japan's growth decade of 1982-1992, young women in Japan had a significant stride toward "good jobs" – standard employees on indefinite contracts as a percentage of the relevant population rose by about ten percentage points from below 40 percent in 1982 to close to 50 percent in 1992. It appears as if nearly all of such gains were lost during Japan's Lost Decade. Meanwhile, nonstandard employment with and without indefinite contracts as percentages of the population surged from 6.2 to 14.6 percent and from 6.4 to 10.7 percent respectively.

In sum, it is the case that for both genders the composition of youth employment shifted significantly toward "bad jobs" during Japan's Great Recession. For young women in Japan, such a loss of "good jobs" during Japan's Great Recession meant a complete undoing of progress they had made during the preceding decade.

5. Concluding remarks: Summary, Interpretations, and Policy Implications

This paper has provided novel evidence on the possible long-term effects of the Great Recession on the nature and quality of jobs as opposed to the quantity of jobs. More specifically we have addressed the question of whether the Great Recession results in the replacement of "good jobs" (characterized by high wage/benefit, job security, and opportunity for training and development) with "bad jobs" (characterized by the lack of such attributes). Since structural changes such as the replacement of "good jobs" with "bad jobs" tend to occur gradually over many years, it is somewhat premature to study fully the long-term consequences of the most recent Great Recession following the financial crisis in the fall of 2008 for the labor market structure. After all, it has been only several years since the Great Recession began, and there is

15

not yet sufficiently long data that enable researchers to study their long-term effects. To this end, we have chosen to look across the Pacific and examine Japan's Lost Decade, the original Great Recession that occurred two decades ago.

Overall we have found evidence that is not consistent with the popular narrative that Japan's Lost Decade was accompanied by a significant shift of the composition of employment toward "bad jobs." In particular, we have found no evidence for such a shift insofar as the total male population is concerned. However, we have found that the composition of female employment shifted significantly toward "bad jobs" and that such a shift occurred primarily through an increased use of a hybrid employment contract of nonstandard employment with indefinite (open-ended) contracts.

Perhaps most revealing findings concern Japanese youth employment. We have found that the composition of youth employment shifted significantly toward "bad jobs" during Japan's Great Recession. Particularly young women in Japan made considerable progress in shifting the composition of their employment toward "good jobs" during Japan's growth decade preceding the Lost Decade. Unfortunately our evidence indicates that such progress was entirely undone during the Great Recession.

We interpret the undoing of the progress made by Japanese women (especially young women) as follows. As discussed earlier, the Japanese employment system was established as a coherent cluster of complementary employment policies and practices during the postwar high growth era. Many argued (and some provided evidence) that the Japanese employment system contributed significantly to the rise of the Japanese economy (Aoki, 1990, Koike, 2005, Morita, 2005, and Kato and Morishima, 2002)

The strong complementarity of various elements of the Japanese employment system or

16

institutional complementarity makes the Japanese employment system responds to external shocks slowly (Aoki, 2000). Instinctive and hasty changes even in one element of the Japanese employment system may cause the whole system to halt due to the intricate complementary interplay between the changing element and the remaining elements of the system. As such, deliberate and prudent responses are more reflective of the nature of the Japanese system.

For instance, a rushed decision to break implicit long-term employment contracts and terminate some of their "lifetime employment" workers will undermine incentive for the remaining "lifetime employment" workers to continue to invest in firm-specific human capital, and produce and share with their supervisors valuable firm-specific local knowledge. Furthermore, such a rushed decision may have a lasting negative reputational effect on prospective employees in the future.

How then did the Japanese employment system achieve downward labor input adjustments necessitated by prolonged stagnation without jeopardizing the aforementioned incentive for the remaining "lifetime employment workers" and amplifying the negative reputational effect? To answer this question adequately will require an understanding of the decade preceding Japan's lost decade or the bubble period. During the bubble, many Japanese firms experienced severe labor shortages. As a way to respond to such labor shortages, the Japanese employment system converted some of the secondary "bad job" segment into the primary "good job" segment. Many of those who benefited from this conversion were women (Moriguchi and Ono, 2004 and Ariga, Ohkusa and Brunello, 1999).

Such expansion members of the primary segment of the labor market probably started to invest in firm-specific human capital and produce firm-specific local knowledge and share it with the firm as a result of newly granted admissions to the primary segment. The cost of

reneging on implicit long-term contracts with such expansion members is, however, still substantially lower than the cost of doing so with the original members since the amount of firm-specific human capital investment and firm-specific local knowledge production are still smaller for the expansion members than for the original members. Moreover, the breach of the implicit long-term contracts has both immediate adverse incentive effect on the remaining members and lasting negative reputational effect on prospective members in the future. Such adverse effects of contract breach are also likely to be smaller when the victims of such contract breach are the expansion members with a relatively short history of being in the primary good job segment rather than the original members.

In light of the aforementioned difference in the cost of contract breach, it appears to be rational for Japanese firms in dire need for employment adjustment to withdraw their promise of "good jobs" from the expansion members of the primary segment (e.g., female workers) while continuing to honor their promise of "good jobs" to the original members. In other words, the expansion members appeared to have served as an elaborate shock absorber and helped Japanese firms honor their promise of "good jobs" to the original members, which in turn contributes to the stability of the Japanese employment system.

To further shed light on the nature of the movement of female employment (especially youth female employment) toward "bad jobs" through the rising use of nonstandard employment with indefinite contracts, we study the industrial and occupational breakdown of employees who fall into this category of employment. Figure 7 shows the industry distribution of nonstandard employees on indefinite contracts. As a reference we also show the industry distribution of standard employees on indefinite contracts in Figure 8. Nonstandard employment with indefinite contracts is particularly popular among retail and wholesale services and hospitality industries.

18

In terms of occupations, likewise, as shown in Figures 9 and 10, service occupation is a popular destination for the hybrid model (nonstandard employment with indefinite contracts). The movement toward "bad jobs" through the rising use of the hybrid employment contracts (nonstandard on indefinite contracts) appears to correspond to the movement from the manufacturing-based employment system to the service-based employment system.[12]

One cautionary finding from the paper has been the potentially important role of changes in self-employment. Specifically for women a rise of nonstandard employment does not translate immediately into a fall of standard employment. In fact, only a half of the rise of nonstandard employment as a percentage of the total female population translates into the fall of standard employment during Japan's Lost Decade, for during the same period self-employment as a percentage of total female population also fell significantly. We have shown that a movement from standard employment to nonstandard employment is likely to be a shift from "good jobs" to "bad jobs". Nevertheless it is not clear if a shift from self-employment to nonstandard employment is a movement from "good jobs" to "bad jobs".

Let us conclude by discuss some policy lessons from Japan's lost decade. During the Lost Decade, Japan's unemployment rate never exceeded 5.4 percent. A quick comparison of OECD harmonized unemployment rates among major advanced economies over the last twenty five years gives us an impression that Japan weather her own Great Recession rather well in terms of the labor market outcomes. When we go beyond the quantity of jobs and start analyzing the quality of jobs, however, a more nuanced assessment of the labor market outcome during Japan's Great Recession emerges – heterogeneous labor market effects of the Great Recession.

For policy makers who are concerned about the long-term effect on the labor market of

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[12] Unfortunately the ESS changed its industry classification system in 2007, which makes it difficult to construct those figures consistently for earlier years.

the recent financial crisis and ensuing global Great Recession, Japan's Lost Decade provides a valuable lesson. Obviously the Great Recession affects the quantity of jobs and policy makers ought to pay immediate attention to such quantity effects. However, it is quite plausible that the Great Recession may have more long-term structural effects on the nature and quality of jobs. Such quality effects may appear only after a long gestation period and can be difficult to detect. Nonetheless precisely because of their potentially profound consequences for the wellbeing of workers and the society, policy makers may need to be particularly cognizant of the long-term effects of the Great Recession on the structure of the labor market in general and any shifts of the composition of employment in particular.

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Table 1 Summary Statistics for Probit Analysis of Job Loss in 2007

	observation	mean
jobloss	151208	0.037
fixedterm	151208	0.071
nonstandard	151208	0.212
female	151208	0.393
age	151208	37.846
$age^2/100$	151208	15.358
ten0to4	151208	0.284
ten5to9 (base)	151208	0.219
ten10to14	151208	0.139
ten15+	151208	0.358
juniorhigh (base)	151208	0.061
highschool	151208	0.621
juniorcollege	151208	0.091
university	151208	0.227

Sources: the Employment Status Survey, 2007.
Notes: For variable definitions, please see text.

Table 2 Probit Estimates of the Determinants of Job Loss Probability in 2007: All employees
Dependent Variable: Jobloss=1 if the employee lost a job during the previous year, 0 otherwise

	Coeff.	s.e.		M.E.	s.e.	
fixedterm	0.053	0.023	**	0.003	0.002	**
nonstandard	0.208	0.018	***	0.014	0.001	***
female	-0.051	0.017	***	-0.003	0.001	***
age	0.072	0.005	***	0.004	0.000	***
age2	-0.083	0.007	***	-0.005	0.000	***
ten0to4	0.309	0.017	***	0.022	0.001	***
ten10to14	-0.053	0.022	**	-0.003	0.001	**
ten15+	-0.332	0.021	***	-0.019	0.001	***
highschool	-0.045	0.024	*	-0.003	0.002	*
juniorcollege	-0.044	0.032		-0.003	0.002	
university	-0.120	0.030	***	-0.007	0.002	***
obs			151208			
obs prob			0.037			

Sources: the Employment Status Survey, 2007.
Notes: For variable definitions, please see text. The omitted tenure category is 5-9 years of tenure (ten5to9). The omitted educational attainment category is junior high school or less. Firm size, industry, occupation and location are also controlled for.
***significant at the 1 percent level; **significant at the 5 percent level; *significant at the 10 percent level.

Table 3 Probit Estimates of the Determinants of Job Loss Probability in 2007: Male employees
Dependent Variable: Jobloss=1 if the employee lost a job during the previous year, 0 otherwise

	Coeff.	s.e.		M.E.	s.e.	
fixedterm	0.122	0.042	***	0.007	0.003	***
nonstandard	0.218	0.031	***	0.013	0.002	***
age	0.077	0.008	***	0.004	0.000	***
age2	-0.083	0.010	***	-0.004	0.001	***
ten0to4	0.314	0.024	***	0.019	0.002	***
ten10to14	-0.114	0.031	**	-0.005	0.001	**
ten15+	-0.426	0.028	***	-0.021	0.001	***
highschool	-0.035	0.031		-0.002	0.002	
juniorcollege	-0.044	0.057		-0.002	0.003	
university	-0.107	0.037	***	-0.005	0.002	***
obs			91769			
obs prob			0.031			

Sources: the Employment Status Survey, 2007.
Notes: For variable definitions, please see text. The omitted tenure category is 5-9 years of tenure (ten5to9). The omitted educational attainment category is junior high school or less. Firm size, industry, occupation and location are also controlled for.
***significant at the 1 percent level; **significant at the 5 percent level; *significant at the 10 percent level.

Table 4 Probit Estimates of the Determinants of Job Loss Probability in 2007: Female employees
Dependent Variable: Jobloss=1 if the employee lost a job during the previous year, 0 otherwise

	Coeff.	s.e.		M.E.	s.e.	
fixedterm	0.033	0.027		0.003	0.002	
nonstandard	0.223	0.023	***	0.018	0.002	***
age	0.072	0.008	***	0.006	0.001	***
age2	-0.090	0.010	***	-0.007	0.001	***
ten0to4	0.295	0.024	***	0.025	0.002	***
ten10to14	0.029	0.033		0.002	0.003	
ten15+	-0.195	0.034	***	-0.014	0.002	***
highschool	-0.035	0.040		-0.003	0.003	
juniorcollege	-0.032	0.046		-0.002	0.003	
university	-0.102	0.052	**	-0.007	0.003	**
obs				59439		
obs prob				0.046		

Sources: the Employment Status Survey, 2007.
Notes: For variable definitions, please see text. The omitted tenure category is 5-9 years of tenure (ten5to9). The omitted educational attainment category is junior high school or less. Firm size, industry, occupation and location are also controlled for.
***significant at the 1 percent level; **significant at the 5 percent level; *significant at the 10 percent level.

Table 5 OLS Estimates on the effects on log of hourly wage of being on fixed-term contracts and being not on the standard employment track over 1982-2007: all employees

	(1)	(2)	(3)	(4)	(5)	(6)
Year	1982	1987	1992	1997	2002	2007
Dependent variable	ln (hourly wage)					
fixedterm	-0.034 ***	0.004	0.000	0.015 ***	0.001	0.018 ***
	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)
nonstandard	-0.160 ***	-0.173 ***	-0.227 ***	-0.256 ***	-0.220 ***	-0.208 ***
	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
female	-0.391 ***	-0.365 ***	-0.373 ***	-0.351***	-0.331 ***	-0.292 ***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Observations	310930	312896	405155	393614	342259	346561
Adj. R-squared	0.587	0.568	0.562	0.556	0.522	0.461

Sources: the Employment Status Survey, 1982, 1987, 1992, 1997, 2002, and 2007.
Notes: For variable definitions, please see text. All regressions include the following controls: age, age^2, tenure, $tenure^2$, education, industry, occupation, firm size, and location. Standard errors in parentheses.
***significant at the 1 percent level; **significant at the 5 percent level; *significant at the 10 percent level.

Table 6 OLS OLS Estimates on the effects on log of hourly wage of being on fixed-term contracts and being not on the standard employment track over 1982-2007: male employees

	(1)	(2)	(3)	(4)	(5)	(6)
Year	1982	1987	1992	1997	2002	2007
Dependent variable			ln (hourly wage)			
fixedterm	-0.047 ***	-0.019 ***	-0.035 ***	-0.011 **	-0.002	0.032 ***
	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
nonstandard	-0.110 ***	-0.122 ***	-0.135 ***	-0.187 ***	-0.196 ***	-0.221 ***
	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)
Observations	209643	207336	260917	253691	217403	214729
Adj. R-squared	0.545	0.539	0.525	0.529	0.508	0.460

Sources: the Employment Status Survey, 1982, 1987, 1992, 1997, 2002, and 2007.

Notes: For variable definitions, please see text. All regressions include the following controls: age, age^2, tenure, $tenure^2$, education, industry, occupation, firm size, and location. Standard errors in parentheses.

***significant at the 1 percent level; **significant at the 5 percent level; *significant at the 10 percent level.

Table OLS Estimates on the effects on log of hourly wage of being on fixed-term contracts and being not on the standard employment track over 1982-2007: female employees

	(1)	(2)	(3)	(4)	(5)	(6)
Year	1982	1987	1992	1997	2002	2007
Dependent variable			ln (hourly wage)			
fixedterm	-0.033 ***	-0.008	-0.015 ***	-0.009 *	-0.020 ***	-0.012 **
	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
nonstandard	-0.160 ***	-0.151 ***	-0.228 ***	-0.243 ***	-0.213 ***	-0.185 ***
	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)
Observations	101287	105560	144238	139923	124856	131832
Adj. R-squared	0.432	0.421	0.427	0.434	0.412	0.351

Sources: the Employment Status Survey, 1982, 1987, 1992, 1997, 2002, and 2007.

Notes: For variable definitions, please see text. All regressions include the following controls: age, age^2, tenure, $tenure^2$, education, industry, occupation, firm size, and location. Standard errors in parentheses.

***significant at the 1 percent level; **significant at the 5 percent level; *significant at the 10 percent level.

Table 8 Probit Estimates on the marginal effects on the incidence of company-sponsored training of being on fixed-term contracts and being not on the standard employment track in 2007: All employees

Dependent variables	Pro (participation in company-sponsored training and development program)
fixedterm	0.004
	(0.004)
nonstandard	-0.072 ***
	(0.003)
female	-0.007 ***
	(0.002)
Observations	345238
Pseudo R-squared	0.139
Obs. Probability	0.417
Predicted Probability	0.403

Sources: the Employment Status Survey, 2007.
Notes: For variable definitions, please see text. All regressions include the following controls: age, age^2, tenure, $tenure^2$, education, industry, occupation, firm size, location, hourly wage, annual hours worked, and intention to quit. Standard errors in parentheses.
***significant at the 1 percent level; **significant at the 5 percent level; *significant at the 10 percent level.

Table 9 Probit Estimates on the marginal effects on the incidence of company-sponsored training of being on fixed-term contracts and being not on the standard employment track in 2007: male employees

Dependent variables	Pro (participation in company-sponsored training and development program)
fixedterm	-0.003
	(0.006)
nonstandard	-0.071 ***
	(0.004)
Observations	213936
Pseudo R-squared	0.116
Obs. Probability	0.425
Predicted Probability	0.414

Sources: the Employment Status Survey, 2007.
Notes: For variable definitions, please see text. All regressions include the following controls: age, age^2, tenure, $tenure^2$, education, industry, occupation, firm size, location, hourly wage, annual hours worked, and intention to quit. Standard errors in parentheses.
***significant at the 1 percent level; **significant at the 5 percent level; *significant at the 10 percent level.

Table 10 Probit Estimates on the marginal effects on the incidence of company-sponsored training of being on fixed-term contracts and being not on the standard employment track in 2007: female employees

Dependent variables	Pro (participation in company-sponsored training and development program)
fixedterm	0.002
	(0.005)
nonstandard	-0.058 ***
	(0.004)
Observations	131302
Pseudo R-squared	0.187
Obs. Probability	0.404
Predicted Probability	0.384

Sources: the Employment Status Survey, 2007.

Notes: For variable definitions, please see text. All regressions include the following controls: age, age^2, tenure, tenure^2, education, industry, occupation, firm size, location, hourly wage, annual hours worked, and intention to quit. Standard errors in parentheses.

***significant at the 1 percent level; **significant at the 5 percent level; *significant at the 10 percent level.

Figure 1 Different categories of workers as percentages of the population aged 18-70 in Japan: 1982-2007
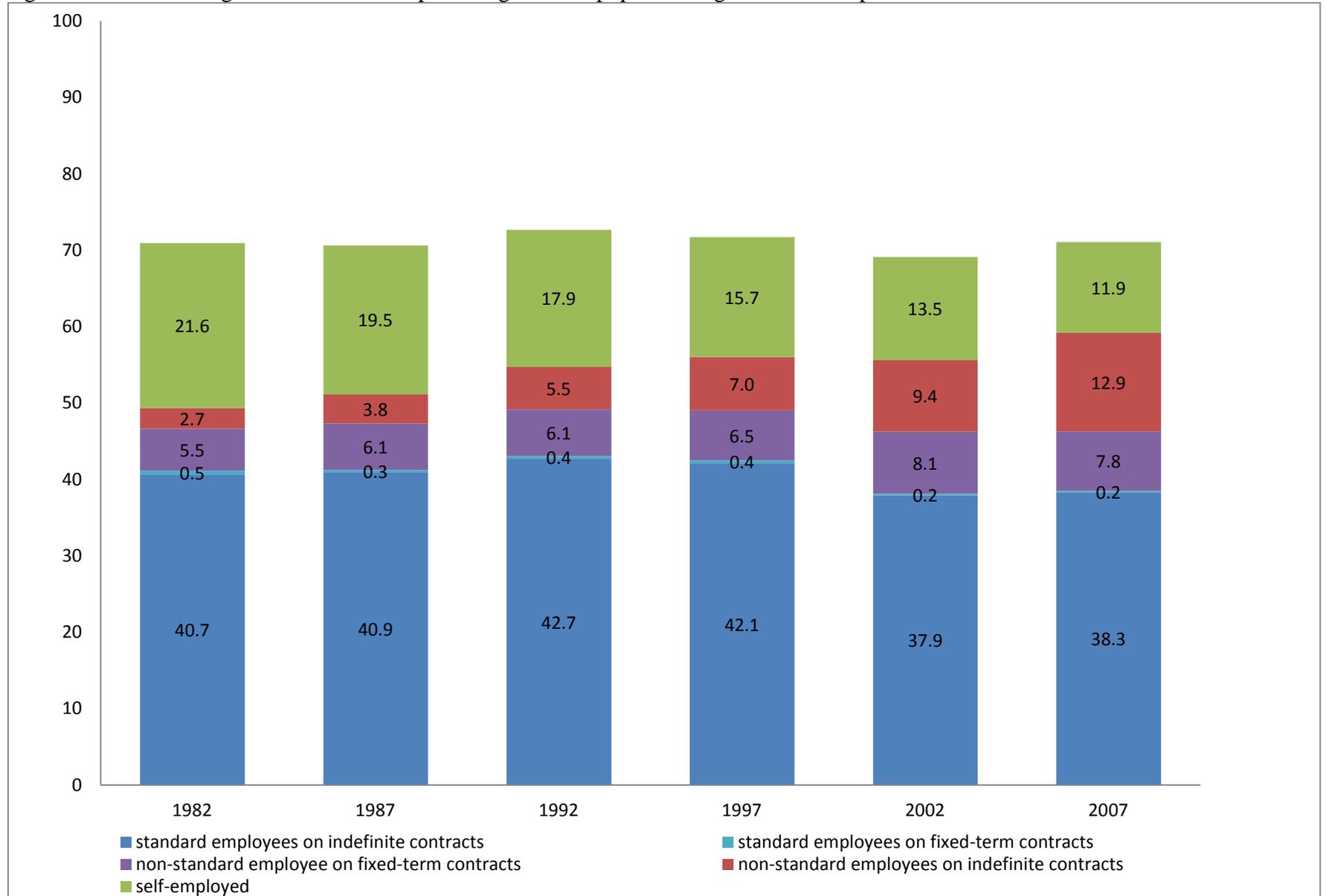

■ standard employees on indefinite contracts
■ standard employees on fixed-term contracts
■ non-standard employee on fixed-term contracts
■ non-standard employees on indefinite contracts
■ self-employed

Figure 2 Different categories of workers as percentages of the population aged 18-70 in Japan: 1982-2007 and male

- standard employees on indefinite contracts
- standard employees on fixed-term contracts
- non-standard employees on fixed-term contracts
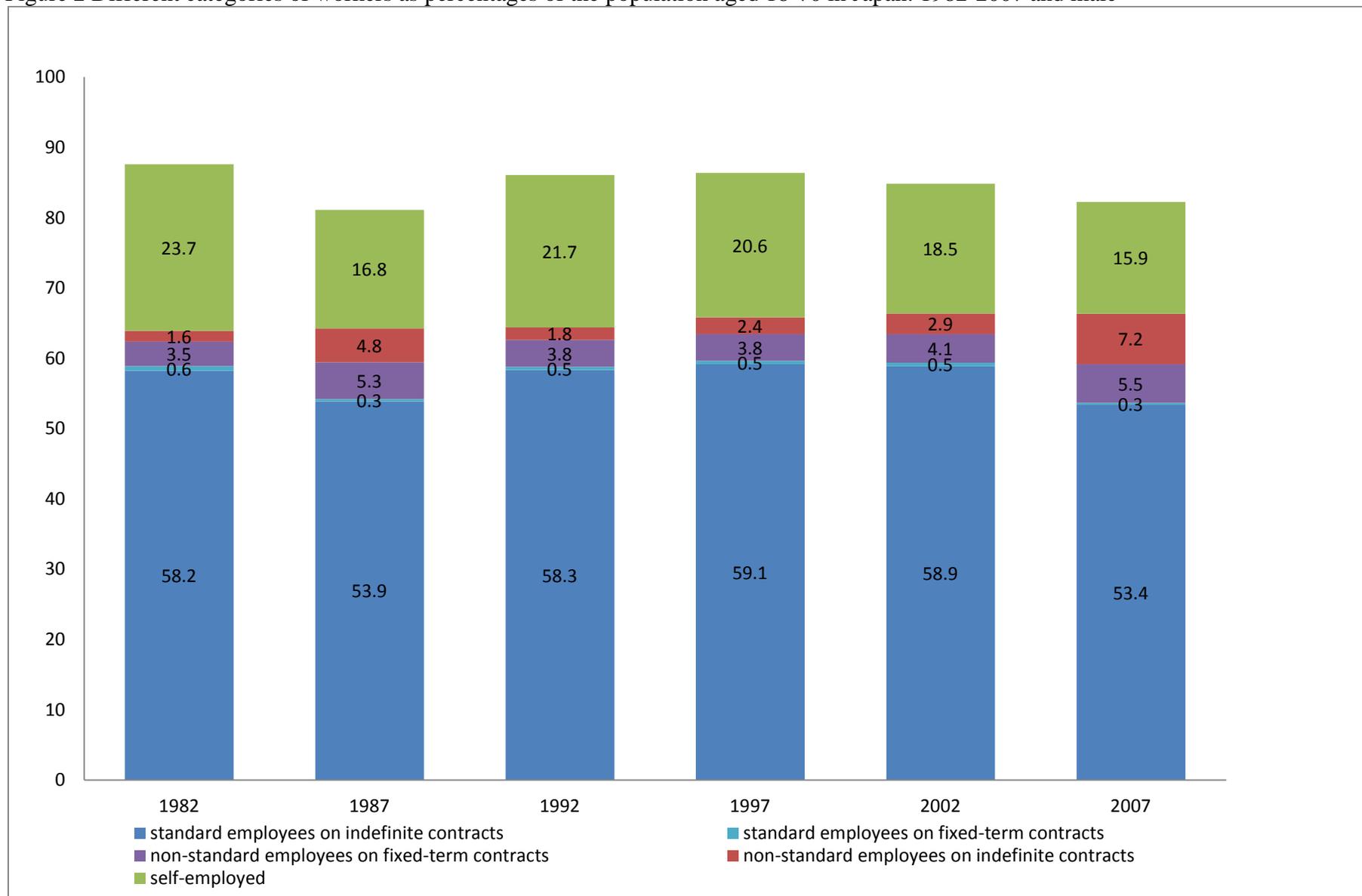- non-standard employees on indefinite contracts
- self-employed

Figure 3 Different categories of workers as percentages of the population aged 18-70 in Japan: 1982-2007 and female

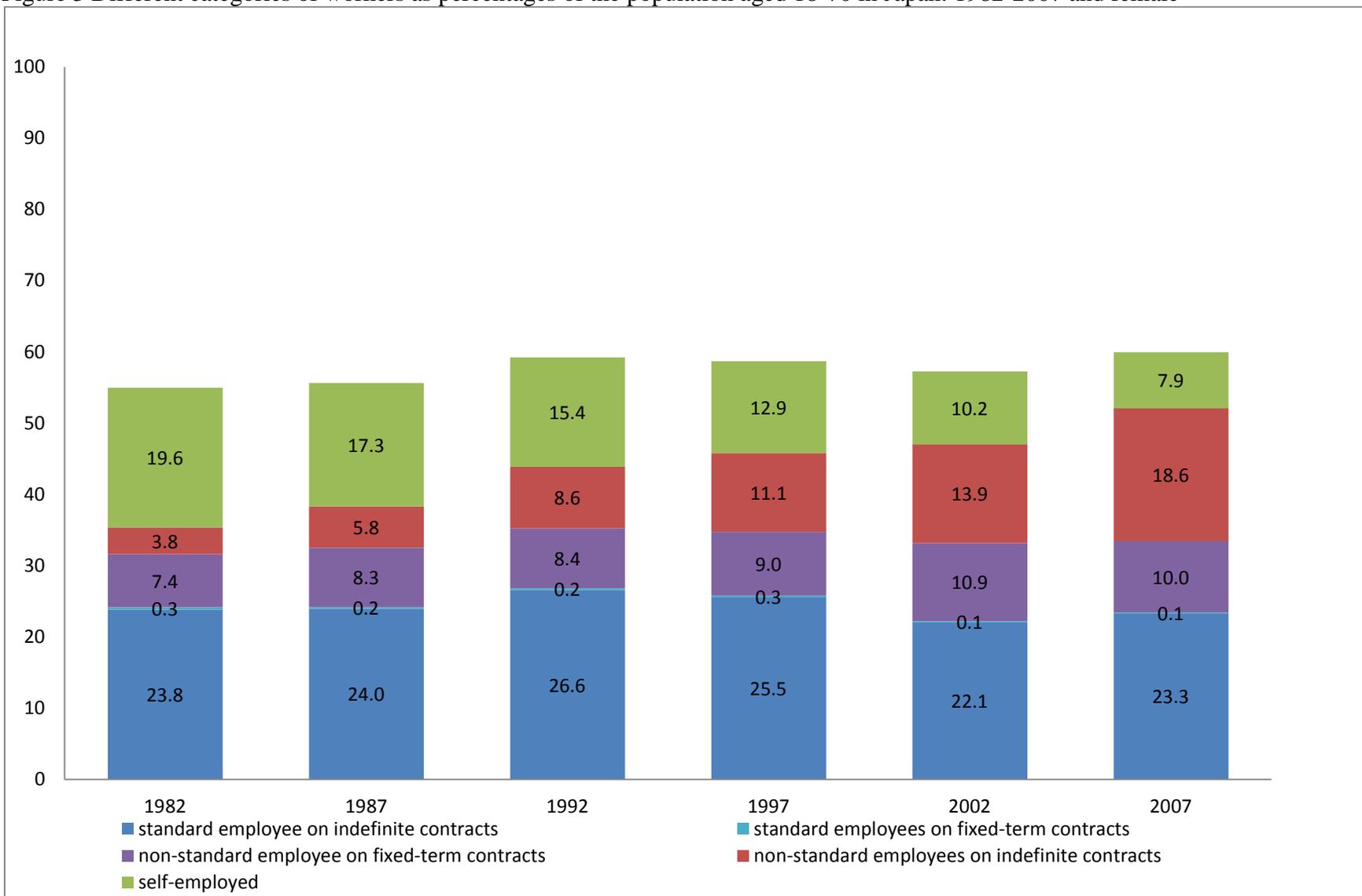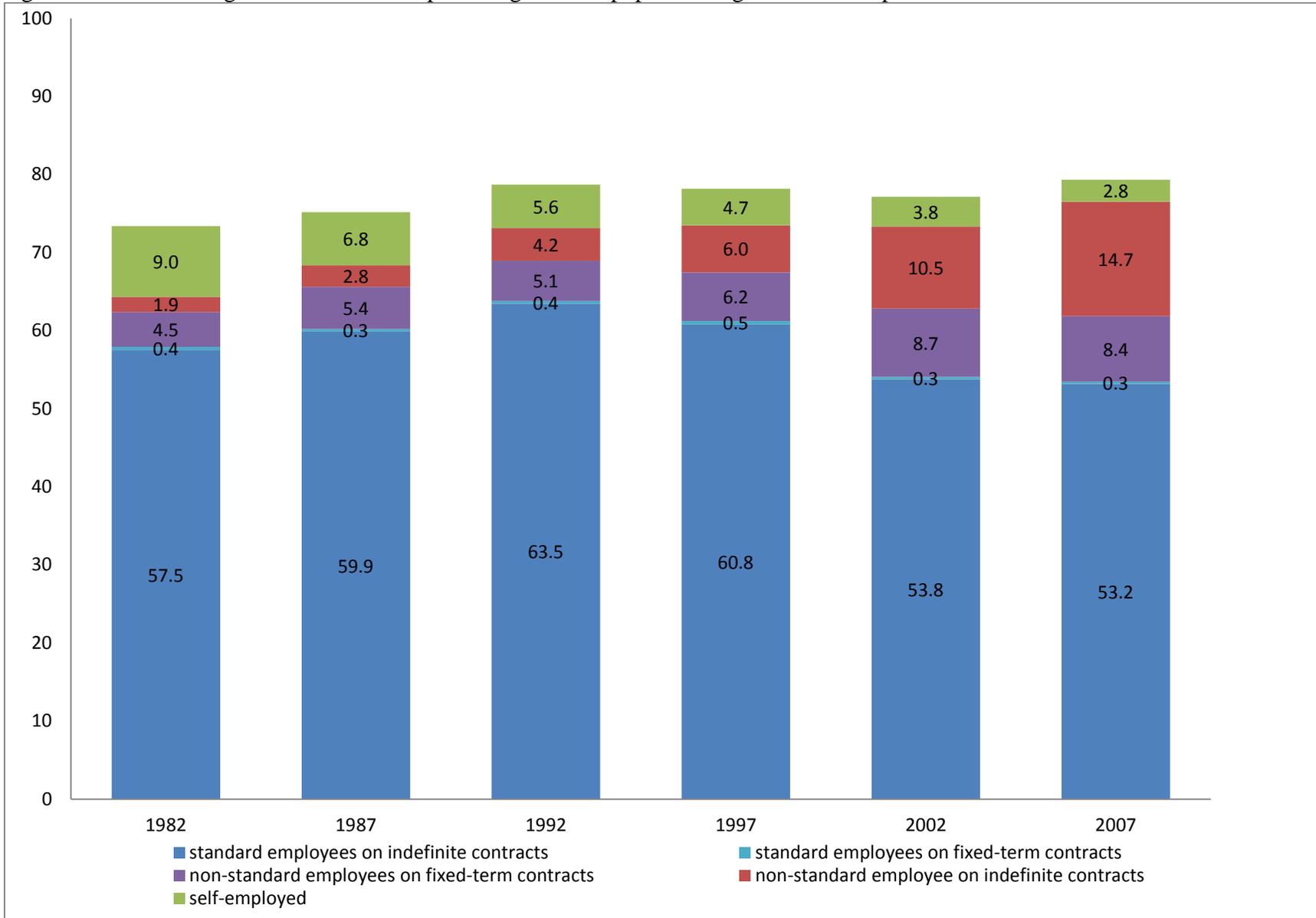Figure 4 Different categories of workers as percentages of the population aged 22-30 in Japan: 1982-2007

Year	self-employed	non-standard employee on indefinite contracts	non-standard employees on fixed-term contracts	standard employees on fixed-term contracts	standard employees on indefinite contracts
1982	9.0	1.9	4.5	0.4	57.5
1987	6.8	2.8	5.4	0.3	59.9
1992	5.6	4.2	5.1	0.4	63.5
1997	4.7	6.0	6.2	0.5	60.8
2002	3.8	10.5	8.7	0.3	53.8
2007	2.8	14.7	8.4	0.3	53.2

- standard employees on indefinite contracts
- standard employees on fixed-term contracts
- non-standard employees on fixed-term contracts
- non-standard employee on indefinite contracts
- self-employed

Figure 5 Different categories of workers as percentages of the population aged 22-30 in Japan: 1982-2007 and male

standard employee on indefinite contracts
standard employee on fixed-term contracts
non-standard employee on fixed-term contracts
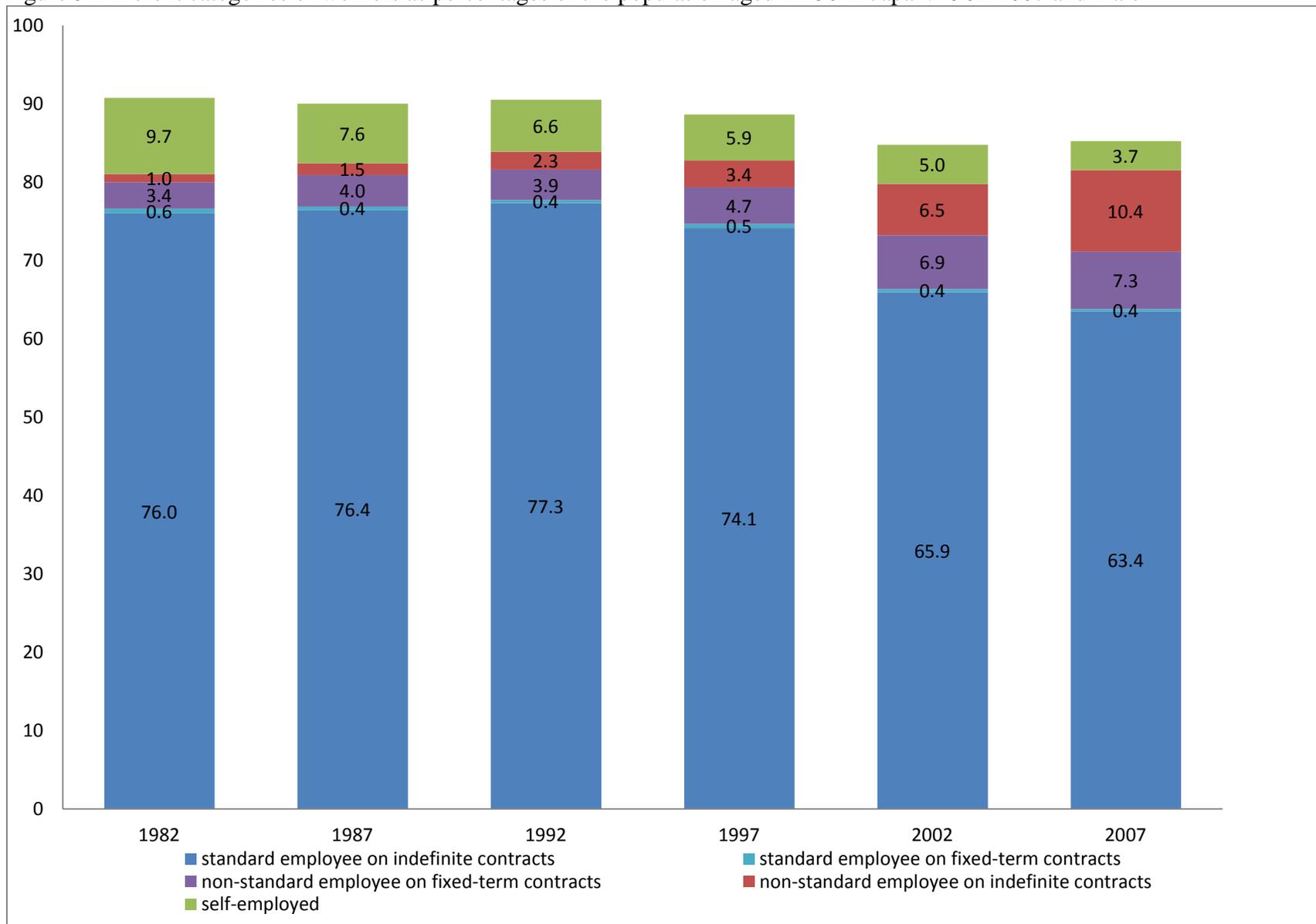non-standard employee on indefinite contracts
self-employed

Figure 6 Different categories of workers as percentages of the population aged 22-30 in Japan: 1982-2007 and female

Legend:
- standard employee on indefinite contracts
- standard employees on fixed-term contracts
- non-standard employee on fixed-term contracts
- non-standard employees on indefinite contracts
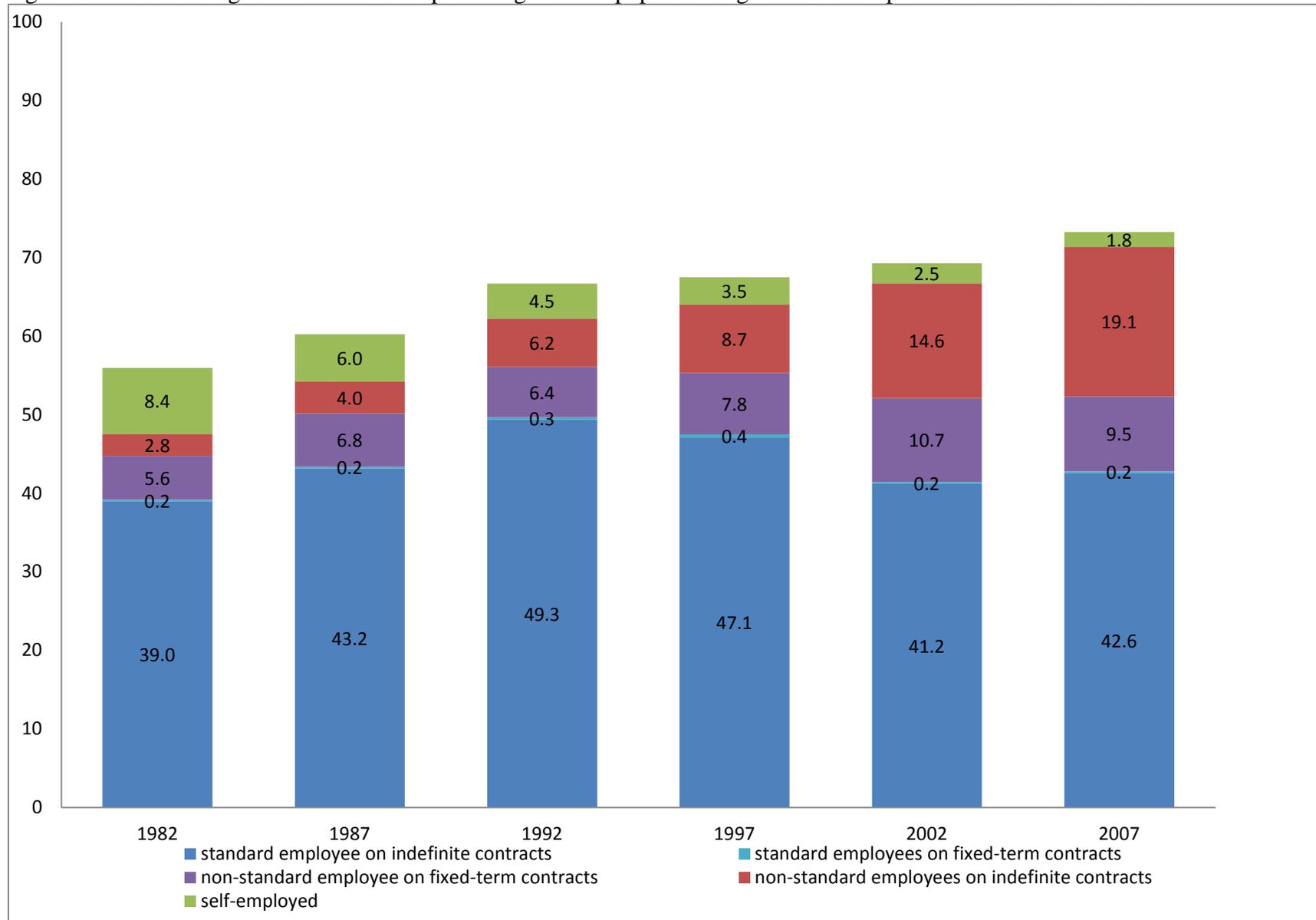- self-employed

Figure 7 Industry distribution of nonstandard employees on indefinite contracts
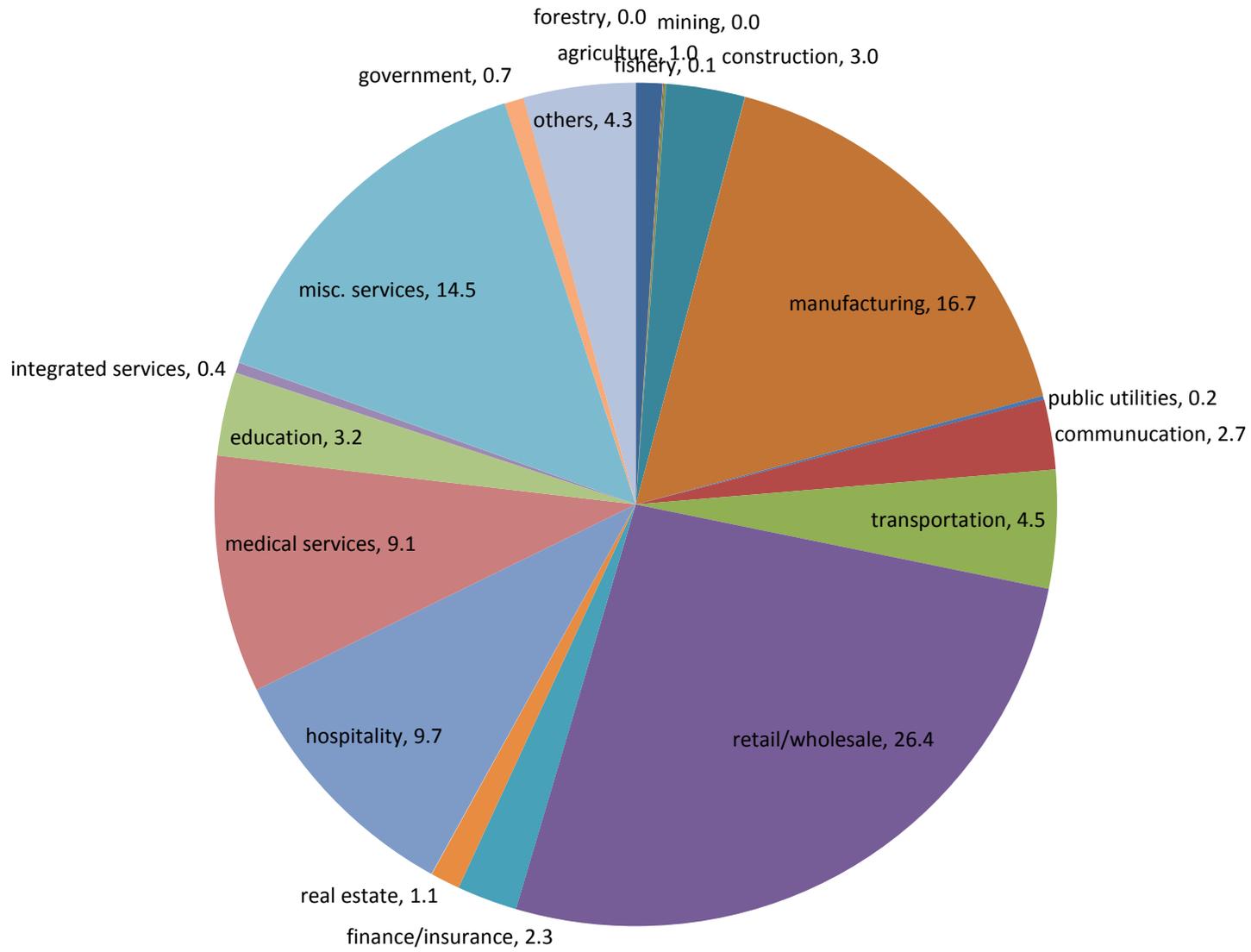
Figure 8 Industry distribution of standard employees on indefinite contracts
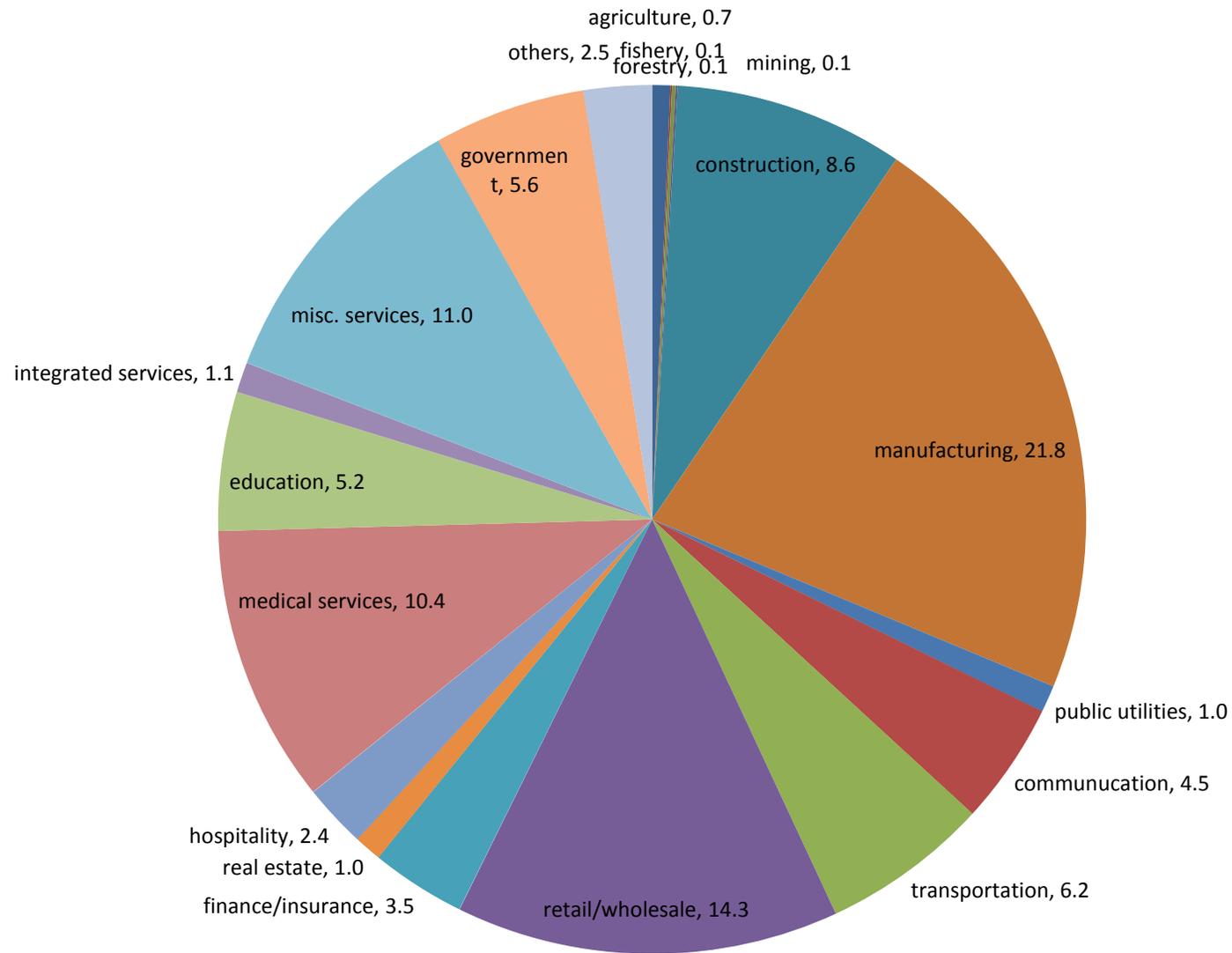
Figure 9 Occupational distribution of nonstandard employees on indefinite contracts

administrative, 0.1

others, 3.3

specialist, 7.8

clerical, 24.1

production and construction, 29.8

sales, 13.6

transportation and communucation, 2.2

agricultural, 1.0
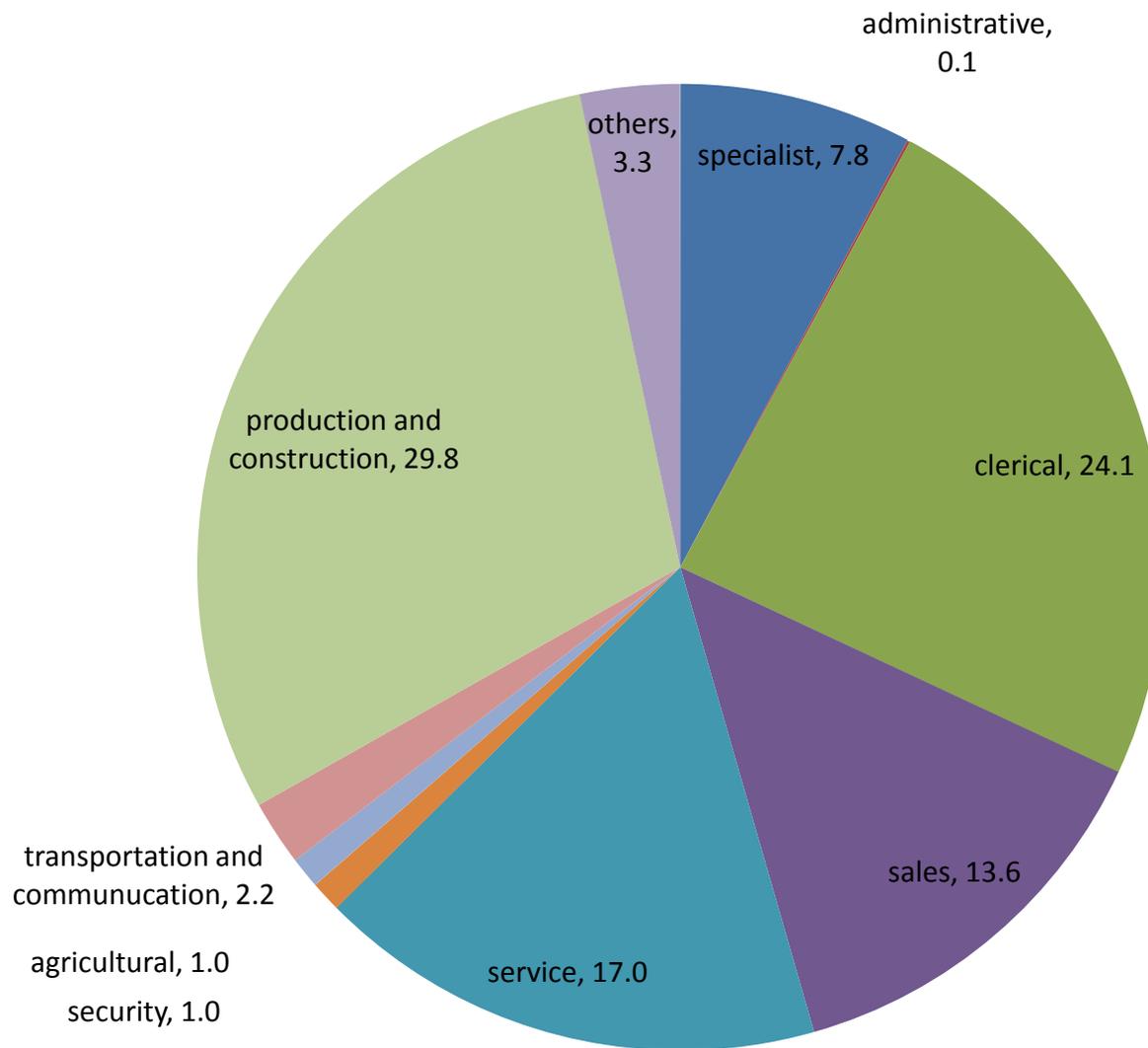
security, 1.0

service, 17.0

Figure 10 Occupational distribution of standard employees on indefinite contracts

others, 2.4

specialist, 18.8

administrative, 1.3

production and construction, 26.4

clerical, 23.8

transportation and communucation, 4.3

agricultural, 0.9

security, 2.5

service, 6.2

sales, 13.5