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The Path to Higher Growth: Does Revamping Japan's Dual Labor Market Matter?

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The Path to Higher Growth: Does Revamping Japan's Dual Labor Market Matter?

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Abstract

This paper argues that Japan's excessive labor market duality can reduce Total Factor Productivity (TFP) due to a negative impact on non-regular workers' effort and on firms' incentives to train them. On the basis of cross-country empirical evidence, the paper proposes some reform options. In particular, our analysis suggests that reducing the difference in employment protection between regular and non-regular workers would substantially reduce labor market duality in Japan. One reform consistent with these findings is the introduction of a Single Open Ended Contract for all newly hired workers. This reform could be complemented by a shift towards a model that combines labor market flexibility and security ("flexicurity") and by policies aimed at encouraging wage growth.

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I. INTRODUCTION

Labor market duality forcefully emerged in Japan in the last two decades, as declining growth challenged the traditional lifetime employment model. After serving the country well in high growth decades, Japan's traditional lifetime employment system—under which employers refrain from firing workers and workers implicitly commit not to switch employment until retirement—was challenged by declining growth in the wake of the asset bubble collapse in the early 1990s, which led to Japan's so called "lost decade." The prolonged recession, together with labor law reforms—which made it easier to hire non-regular workers—gave firms incentives to explore alternative human resource practices. One result of these factors is that a growing share of non-regular workers were removed from the traditional lifetime employment model, which nonetheless continues to be widespread even in present days among regular workers.
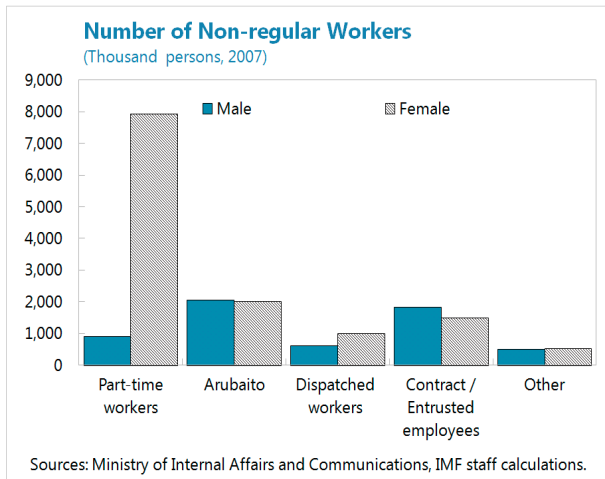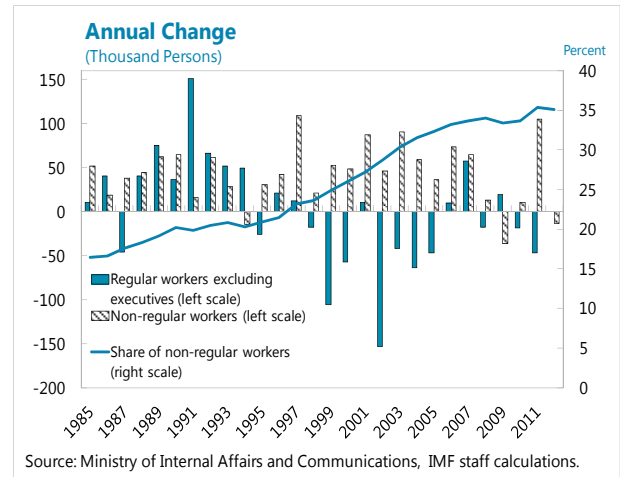
This paper focuses on trends, causes and economic consequences of Japan's dual labor market, and suggests options for reform. The paper argues that, while non-regular employment has some positive aspects, excessive labor duality is a problem, since it can reduce Total Factor Productivity (TFP) due to a negative impact on non-regular workers' effort and on firms' incentives to train them. Excessive duality has also negative consequences on social cohesion, thus potentially eroding support for needed structural reforms.

Based on findings from cross-country panel regressions, the paper argues that one option to reduce duality is the introduction of a Single Open Ended Contract (SOEC) for all new hires, in which employment protection increases with tenure. This reform could be accompanied by a more general shift toward the so-called "flexicurity" model, in which the focus is on providing lifelong employment opportunities and supporting workers during periods of temporary unemployment, rather than on protecting specific jobs. The paper also suggests some options to stimulate wage growth in the private sector, which could facilitate the acceptance of reduced employment protection for regular workers. For the proposed package of reforms to work, a change in "soft institutions"—aimed at improving the work-life balance—would also help.

The structure of the paper is as follows. Section II looks at trends and stylized facts in relation to Japan's dual labor market in an international comparative perspective. Section III discusses the economic costs and benefits of Japan's labor market duality. Section IV investigates determinants of duality through the estimation of a model for a panel of OECD countries in which a measure of labor market duality (the share of temporary workers) is regressed on proxies of its determinants. Drawing on the results of section IV, Section V proposes options for reform. Section VI offers some concluding remarks.

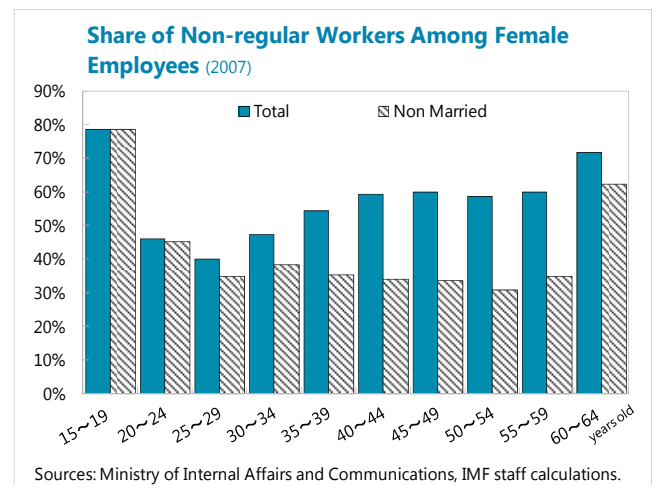## II. Japan's Labor Market Duality: Trends and Stylized Facts

The size of Japan's dual labor market increased dramatically in the last two decades. The share of non-regular workers, which was below 20 percent before the burst of the bubble in the early 1990s, has now reached 35 percent (text figure). The status of non-regular workers is based on the de facto relationship with their employers, rather than on legal grounds. Regular workers are those who (i) are hired directly by the employer; (ii) work full time; and (iii) have an open-ended contract. Various combinations of failing to meet conditions (i), (ii), and (iii) correspond to different

Annual Change
(Thousand Persons)

- Regular workers excluding executives (left scale)
- Non-regular workers (left scale)
- Share of non-regular workers (right scale)

Source: Ministry of Internal Affairs and Communications, IMF staff calculations.

typologies of non-regular workers (text table). Compared to regular workers, non-regular workers have a much lower level of job security, are paid lower wages and receive significantly less social insurance coverage. Virtually all temporary workers are non-regular workers, while non regular-workers are not necessarily temporary (for example, they can have open-ended part time employment).

Number of Non-regular Workers
(Thousand persons, 2007)

Sources: Ministry of Internal Affairs and Communications, IMF staff calculations.

Main Categories of Non-regular Workers

Part-time workers	Both fixed-term and open-ended, part-time, direct employment
"Arubaito" workers	Relatively short fixed-term, full-time, direct employment
Dispatched workers	Both fixed-term and open-ended, full- or part-time, indirect employment
Contract employees/ Entrusted employees	Relatively long fixed-term, full-time, direct employment

Women make up a large part of non-regular workers. Among non-regular workers, about 70 percent are women. This is mostly driven by part-time employment. Amongst all female employees, 55 percent are non-regular workers, of which 60 percent are part-time workers. Among women employees in the 25–29 age group, the share of non-regular workers is still relatively low (below 50 percent), but it gets higher for older age groups. This reflects the

Share of Non-regular Workers Among Female Employees (2007)

Sources: Ministry of Internal Affairs and Communications, IMF staff calculations.

fact that many women quit regular jobs when they give birth to their first child in their early 30s, and continue to seek non-regular jobs later in their life time. Family responsibilities are therefore one important determinant for women to seek part-time jobs, which offer more work flexibility compared to regular employment. This is confirmed by the observation that unmarried female employees tend to have higher share of regular positions than married ones, and the share of unmarried female in non-regular employment always stays below 50 percent (except for the 15–19 and 60–64 age brackets).
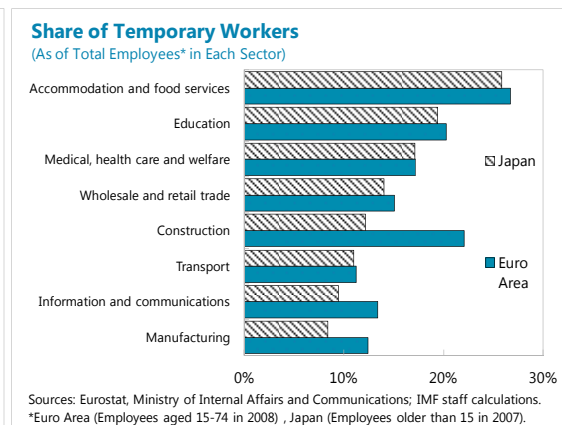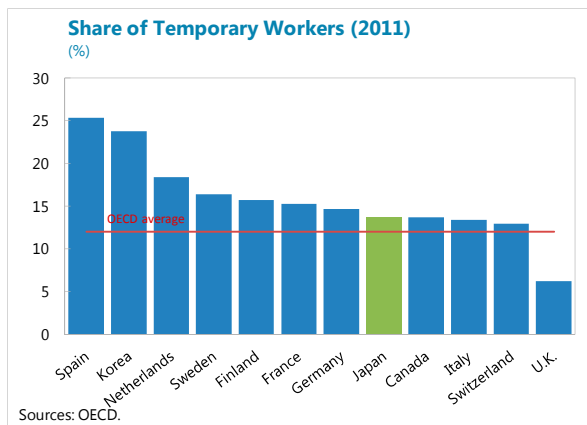
Reliance on Non-regular Workers by Industries (2007)		
	Share of Non-regular Workers	Number of Non-regular Workers (Thousand)
Eating and drinking places, accommodations	69%	1,844
Wholesale and retail trade	47%	4,373
Real estate	37%	208
Medical, health care and welfare	36%	1,984
Education, learning support	33%	866
Transport	28%	844
Manufacturing	27%	2,777
Finance and insurance	25%	397
Information and communications	24%	498
Construction	20%	743
Total	36%	18,899

Sources: Ministry of Internal Affairs and Communications, IMF staff calculations.

Low-value added service sectors are highly reliant on non-regular employment. In restaurants and hotel and hospitality services, and wholesale and retail trade, for example, the shares of non-regular employees are respectively 69 and 47 percent. As the society is aging, the medical, health care and welfare sector accounts for about 10 percent of total employment in Japan, of which 36 percent consists of non-regular workers. The number of employees hired as non-regular workers is large (27 percent) in the manufacturing sector, which accounts for about 20 percent of total employment in Japan.

Japan's dual labor market is also large in an international perspective. Internationally comparable data on the share of non-regular workers are not readily available. However, given that the share of non-regular workers tends to be correlated with that of temporary workers, we can use the latter as a proxy of labor market duality. An international comparison using this indicator puts Japan above the OECD average (text figure). In terms of specific sectors, manufacturing in Japan relies less on temporary workforce compared to Euro area, while the share of temporary workers in most service sectors are equally high in Japan and in the Euro area (text figure). It is important to stress, however, that this indicator underestimates the relative size of Japan's dual labor market, because Eurostat's definition of

Share of Temporary Workers (2011)
(%)

Sources: OECD.

Share of Temporary Workers
(As of Total Employees* in Each Sector)

Sources: Eurostat, Ministry of Internal Affairs and Communications; IMF staff calculations.
*Euro Area (Employees aged 15-74 in 2008) , Japan (Employees older than 15 in 2007).

temporary workers includes contracts of any duration, while Japan's definition only includes contracts of less than one year. Furthermore, estimates of the probability of moving from a non-regular to a regular job in Japan range between 1.7 and 10.3 percent (Kosugi, 2010; Genda, 2010), compared to about 30 percent in the U.K. (Booth, Francesconi, and Frank, 2002) and 45 percent in Germany (Hohendanner, 2010).

III. ECONOMIC COSTS AND BENEFITS OF LABOR MARKET DUALITY

Japan's labor market duality has some important positive aspects and contributed to keep overall unemployment low. The possibility for firms to hire a growing part of the labor force outside the lifetime employment framework, combined with downward wage flexibility, helped keeping overall unemployment relatively low in Japan. In 2009–10, even as Japan felt the impact of the global economic crisis, unemployment was just slightly above 5 percent, compared to the about 8 percent OECD average. Another positive aspect of non-regular employment in Japan is that part of it is voluntary and contributed to bring new "voluntary non-regular" workers into the workforce, especially segments of the population which are constrained to take up full-time employment. For example, part-time work contribution to increased female labor employment was high (29 percent) in the last two decades, suggesting that this form of non-regular work contributed to satisfy increased demand for flexible working hours.[2]
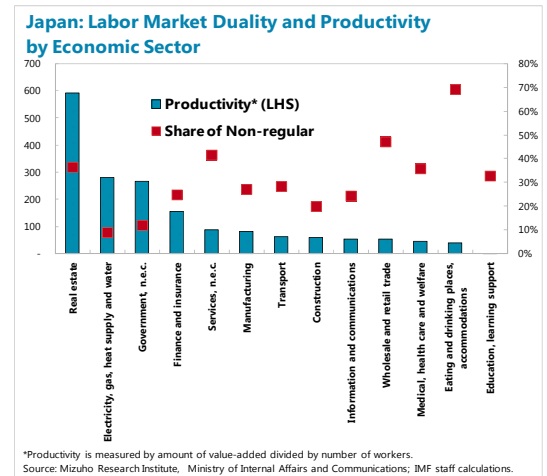
Despite these positive aspects, duality also has economic costs, such as disincentives to exert effort which can reduce productivity. Many non-regular workers in Japan would prefer regular jobs. For example, a recent survey shows that 37 percent of all fixed-term employees and 35 percent of all dispatched workers took up such positions because of lack of opportunities to work as a regular employee (JILPT 2011). Another survey shows that about 80 percent of dispatched workers in the manufacturing sector and 50 percent of all part-time workers would be willing to work as regular workers (Ohtake and others, 2011). It is conceivable that working involuntarily as non-regular employees adversely affects morale and job effort, thus lowering labor productivity. This is supported for example by the findings of Fukao and others (2007), who estimate that Japanese part-time workers are 75 percent less productive than full-time ones.

Another economic cost of duality is related to limited training opportunities for non-regular workers, which is also likely to reduce productivity. Despite legal provisions aimed at preventing discrimination, non-regular workers have limited training opportunities in Japan. For example, a survey of 1,066 companies shows that while 92 percent of them provided training for regular workers, only 42 percent did so for non-regular workers (Kawaguchi and others, 2006). Empirical evidence based on Japanese firm data suggests that workers who

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[2] However, it should be noticed that a recent survey shows that about 20 percent of female part-time workers and 40 percent of female fixed-term and dispatched workers would prefer regular employment (JILPT, 2011). The number could increase even more once constraints to female labor force participation in regular employment are eased. The latter include lack of affordable childcare and thresholds in the tax and pension law which limit the attractiveness of full-time employment for married women (Steinberg and Nakane, 2012).

receive less training are less productive. Ariga and others (2013), for example, use survey data from Japanese automobile firms to show that on-the-job training is a statistically significant determinant of both subjective and objective measures of productivity. According to their results, a worker who receives training perceives an improvement of his or her productivity of about 5 percent per year, and about 5 hours of additional training allow the worker to take up one additional operational task. A negative impact of duality on productivity in Japan is also supported by the observation that the share of non-regular workers is high in sectors in which labor productivity is low (text figure).

Japan: Labor Market Duality and Productivity by Economic Sector

■ Productivity* (LHS)
■ Share of Non-regular

*Productivity is measured by amount of value-added divided by number of workers.
Source: Mizuho Research Institute, Ministry of Internal Affairs and Communications; IMF staff calculations.

A more indirect economic cost of Japan's labor market duality is that it could potentially lead to the perception that economic growth is not inclusive, thus eroding support for structural reforms needed to increase potential growth. Empirical evidence suggests that Japan's labor market duality increases income inequality and has negative consequences on job satisfaction and social cohesion. An OECD study (Jones, 2007), for example, concludes that labor market dualism is the main explanation for the increase in Japan's Gini coefficient by 2.3 percentage points (the third largest amongst OECD countries) during the late 1990s. The same study also notices that in Japan income inequality amongst non-regular workers is relatively high, with a Gini coefficient of 48 in 2002, compared to 28 for regular workers. A study which measures various aspects of social exclusion—such as material deprivation, lack of social relations and subjective poverty—shows that day laborers are socially excluded and temporary workers in the manufacturing industry have a conspicuous lack of social relationships (Kume and others, 2010). Non-regular workers also tend to have lower levels of happiness and job satisfaction compared to regular workers (Kume and others, 2011; Takahashi, 2012). If these factors lead to the perception that economic growth is not being shared fairly within society, they could erode support for other economic measures, such as fiscal consolidation and further international trade integration, which are needed to boost long-term potential growth but which might imply some short-term costs for some segments of the population.

International experience also suggests that excessive duality can reduce TFP and therefore growth. Dolado and others (2011), for example, find that 20 percent of the productivity slowdown in Spanish manufacturing between 1992 and 2005 is due to reliance on temporary work. Similarly, Damiani and others (2011) conclude that deregulation of temporary contracts negatively influences the growth rates of TFP in a panel of 14 EU countries and that these negative effects are stronger in industries where firms are more used to opening short-term positions.

In summary, the discussion in this section supports the view that the macroeconomic costs of duality are likely to be substantial in Japan, and that reducing duality would increase

productivity and growth. In particular, Japan's large labor market duality is likely to result in large economic costs both directly, by reducing labor's productivity trough the effort and training channels, and indirectly, by reducing consensus in society for growth-enhancing structural reforms. This is in line with cross-country empirical studies, which suggests that excessive labor market duality can reduce TFP. In light of this, next section will look at empirical determinants of labor market duality, with the aim of identifying policy options to reform Japan's labor market.

IV. Determinants of Labor Market Duality

Various factors have been highlighted in the literature as contributing to the surge of non-regular employment in Japan. Asano and others (2011) estimate that demographic changes and shifts in the industrial structure explain about one quarter of the increase in non-regular employment since the mid-1980s. A more detailed list of factors include:

➢ The increase in female labor-force participation and the consequent demand for flexible work schedules (Gaston and Kishi, 2007; Asano and others, 2011). About 70 percent of non-regular workers in Japan are now women, accounting for 55 percent of female workers. While large part of non-regular female employment is involuntary, part of it is demand-driven.

➢ A shift from manufacturing to services, because the service sector might require more flexible staffing to accommodate demand fluctuations (Asano and others, 2011). This hypothesis is also corroborated by the fact that the highest reliance on non-regular workers in Japan is observed in low value added service industries, such as restaurants and accommodation (where 69 percent of workers are non-regular) and wholesale and retail (47 percent).

➢ Economic globalization. As documented by Machikita and Sato (2011) using manufacturing firm-level data, outward FDIs and outsourcing are important determinants of the increase of non-regular work in Japan. Also, as shown by di Giovanni and Levchenko (2009), trade openness tends to increase volatility in sales, which can encourage firms to use non-regular workers to have more flexibility to adjust labor costs (Asano and others, 2011).

➢ The high level of employment protection of regular workers. Japan's laws are not particularly restrictive in the case of fair dismissals, which are allowed with a 30-day notice period on the basis of incompetence of the employee, violation of disciplinary rules and for economic reasons, and do not oblige companies to provide severance pay. However, as stressed for example by Tsuru (2012), the legal doctrine on unfair dismissal is amongst the strictest in the OECD and orders of reinstatement with back pay are frequent (Tsuru 2012). Anecdotal evidence suggests that in Japan courts apply stricter standards for dismissals of regular workers compared to non- regular ones, and that firms try to avoid dismissals of regular workers by reaching voluntary agreements, which include severance packages (Asano and others, 2011; The Nikkei Weekly, 2012).

The impact of the last factor is likely to have become increasingly important in the last two decades. A high level of employment protection of regular workers is not a new factor in Japan and it has served the country well in high growth decades, by facilitating accumulation of firm-specific human capital and building trust between employer and employee. Asano and others (2011) and Abe, Higuchi, and Sunada (2004), however, argue that in the last two decades returns to firm-specific human capital have fallen in Japan, including through the impact of information technology and computerization. This might have made Japanese firms more reluctant to employ the same share of regular workers as in the past, because from the employers' point of view the costs related to regular employment (especially firing costs) have remained constant, while the benefits (returns to firm specific human capital) have fallen.

In this paper, we assess the impact of various determinants of labor market duality by estimating a structural model for a panel of OECD countries. The dependent variable is the share of temporary workers, the only proxy of labor market duality that is available for international cross-country comparisons. The share of temporary workers is regressed on proxies of the variables which we expect to impact the size of labor market duality, such as the institutional and demographic factors discussed above, as well as relevant macroeconomic control variables. Regressors include: (i) OECD's indexes of the strictness of employment protection legislation for both regular and temporary workers; (ii) FDI outflows as a ratio to GDP; (iii) the share of employment in services; (iv) the share of female labor participation; (v) union density; (vi) the unemployment rate; (vii) inflation; (viii) the output gap; and (ix) government spending on vocational training as a ratio to GDP. We also control for country fixed effects and we include a lag of the dependent variable to allow for autocorrelation. The countries included in the panel are Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. OECD countries for which only very few observations of the dependent variable are available were excluded. The sample is annual and includes observations for 1985–2010 (or less, depending on availability). Table 1 presents the estimation of our benchmark model. More details on data sources and on the econometric specification are provided in the Appendix.

Our results suggest that a higher level of employment protection of regular workers increases labor market duality, while a higher level of protection of temporary workers reduces it. The sign of the coefficient on the employment protection index for regular employees (EPR) is positive and statistically significant, meaning that high employment protection for this category of workers increases our proxy of labor market duality (the share of temporary workers). On the other hand, the negative and significant sign on the employment protection index for temporary employees (EPT) implies that increased protection of temporary workers tends to reduce labor market duality. We are only aware of two other papers that study the determinants of temporary employment using panel data, Jaumotte (2011) and Nunziata and Staffolani (2007). While they use different samples and model specifications, our result that increased protection of regular workers increases labor market duality are in line with their findings.

Table 1. Japan: Determinants of Labor Market Duality in a Panel of OECD Countries: Regression Results 1/

	Benchmark model 2/	Benchmark model 3/	Benchmark model 4/
Dependent Variable: Share of Temporary Workers			
Employment Protection Legislation of Regular Workers	0.763	0.763	0.768
	[2.23]**	[2.8]**	[2.38]**
Employment Protection Legislation of Temporary Workers	-0.281	-0.281	-0.251
	[-2.47]**	[-3.05]***	[-2.18]**
FDI Outflows (percent of GDP)	0.010	0.010	0.010
	[0.72]	[1.21]	[0.85]
Female Labor Participation	0.094	0.094	0.105
	[3.10]***	[2.33]**	[3.33]***
Share of Employment in Services	-0.192	-0.192	-0.193
	[-5.51]***	[-2.04]*	[-6.00]***
Union Density	-0.096	-0.096	-0.096
	[-2.86]***	[-1.86]*	[-2.96]***
Unemployment Rate	0.110	0.110	0.115
	[2.81]***	[1.68]	[3.17]***
Inflation	-0.230	-0.230	-0.215
	[-5.19]***	[-2.45]**	[-5.19]***
Output Gap	0.006	0.006	0.005
	[0.16]	[0.12]	[0.15]
Government Spending on Vocational Training (percent of GDP)	-0.469	-0.469	-0.671
	[-0.82]	[-0.97]	[-1.18]
Lagged Dependent Variable	0.825	0.825	0.823
	[26.5]***	[40.58]***	[26.45]***
R-squared	0.857	0.857	...

Source: IMF Staff Calculations

1/ T-statistics are reported in parenthesis. * denotes significance at 10% level, ** significance at 5% level, and *** significance at 1 percent level. Countries included in the panel are Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom. Annual data for 1985–2010 (or less, depending on availability). A Hausman test rejected the null hypothesis that a random effects model would be statistically different from a fixed effects one.

2/ Fixed effects estimation with default standard errors.

3/ Fixed effects estimation with clustered standard errors.

4/ Arellano-Bond estimation with one lag.

An alternative model specification, in which disaggregated OECD employment protection indexes are used instead of aggregate ones, confirms the findings discussed above. For regular employment, the disaggregated indexes refer to (i) procedural inconvenience for dismissal; (ii) notice and severance pay in case of fair dismissal; and (iii) difficulty of dismissal. The result that increasing protection of regular workers increases labor market duality is confirmed by this alternative specification, since all the three coefficients are positive and the one on procedural inconvenience is also significant. In the case of disaggregated temporary workers protection indexes, our results are less clear-cut, since tightening regulations on temporary workers agency employment would reduce duality, while increasing employment protection in fixed term contracts would increase it. Since the

first impact is stronger than the second, however, the disaggregated estimation confirm the result from the benchmark model than increased overall employment protection of temporary workers reduces labor market duality (see Table 2 for details).

Robustness checks through the inclusion of time dummies and dropping individual countries from the panel also confirm the main findings of the empirical analysis. We re-estimated the benchmark model using (i) year dummies; (ii) year dummies plus a time trend; and (iii) a time trend only. In all cases, the results that the coefficient on EPR is positive and the coefficient on EPT is negative are confirmed. The coefficients on EPR and EPT are also always significant at either the 5 or 10 percent levels. We also re-estimated the benchmark model dropping one country at the time to check the impact of outliers. Regardless of which country is dropped, the coefficient on EPR remains positive and the one on EPT remains negative, and they almost always remain significant at least at the 10 percent level. Dropping Italy makes the coefficient on EPT non-significant (P-value becomes 0.185). Dropping Spain makes the coefficient on EPR non-significant (the P-value becomes 0.335). Changes in EPR and EPT in Japan have a similar effect as in other countries, since dropping Japan from the panel does not significantly changes the results. When Japan is dropped, the coefficient on EPR is 0.786 (compared to 0.763 in the full panel) and the coefficient on EPT is −0.319 (compared to −0.281 in the full panel), and the levels of significance are the same as in the full panel (5 percent and 1 percent, respectively).

In addition to employment protection legislation, several other institutional, demographic and macroeconomic factors have an impact on the degree of labor market duality. FDI outflows tend to increase duality, in line with the "outsourcing" argument made by Machikita and Sato (2011), but the coefficient is not statistically significant. The share of female labor participation has a positive and significant impact on labor market duality, as expected in light of the arguments discussed above (Gaston and Kishi, 2007; Asano and others, 2011). The coefficient on the share of employment in services is negative and significant, thus contradicting the findings by Asano and others (2011) for Japan. One possible explanation is that a shift towards services increases labor market duality in Japan but not in the majority of the OECD countries included in the panel. The unemployment rate has a positive impact on duality, suggesting that higher levels of unemployment make it easier for firms to impose temporary contracts on workers. Union density has a negative and significant impact on duality, suggesting that stronger union influence makes it difficult for firms to impose temporary contracts. Inflation has a negative and significant impact. One possible explanation for this result is that workers are less motivated to seek employment in better-paid regular jobs when inflation is low. The negative coefficient on government spending for vocational training suggests that this kind of policy can reduce duality, although the coefficient is not significant. The output gap has a slightly positive but not significant impact on duality. Additional estimations reported in Table 2 show that our results are robust to alternative model specifications (such as using different proxies for globalization and real activity).

Table 2. Japan: Determinants of Labor Market Duality in a Panel of OECD Countries: Alternative Specifications 1/

	Disaggregated Employment Protection Indexes 2/	Total FDI as Alternative Globalization Regressor 2/	Trade Openness as Alternative Globalization Regressor 2/	Growth as Alternative Real Activity Regressor 2/
Dependent Variable: Share of Temporary Workers				
Employment Protection Legislation of Regular Workers		0.765 [2.83]**	0.672 [1.80]*	0.777 [2.94]**
Employment Protection Legislation of Temporary Workers		-0.278 [-3.01]***	-0.297 [-3.02]***	-0.280 [-3.19]***
FDI Outflows (percent of GDP)	0.010 [1.13]			0.005 [0.69]
Female Labor Participation	0.105 [1.89]*	0.095 [2.40]**	0.099 [2.43]**	0.103 [2.72]**
Share of Employment in Services	-0.213 [-2.10]*	-0.193 [-2.04]*	-0.186 [-1.91]*	-0.185 [-2.00]*
Union Density	-0.097 [-1.61]	-0.097 [-1.87]*	-0.103 [-2.04]*	-0.100 [-2.05]*
Unemployment Rate	0.127 [2.12]*	0.110 [1.68]	0.113 [1.69]	0.121 [2.73]*
Inflation	-0.226 [-2.63]**	-0.231 [-2.47]**	-0.224 [-2.19]**	-0.216 [-2.53]**
Output Gap	0.003 [0.09]	0.004 [0.08]	0.020 [0.49]	
Government Spending on Vocational Training (percent of GDP)	-0.874 [-1.09]	-0.482 [-0.99]	-0.511 [-1.10]	-0.362 [-0.92]
Lagged Dependent Variable	0.833 [43.2]***	0.824 [40.29]***	0.830 [41.89]***	0.823 [37.64]***
Regular Workers Procedural Inconvenience	0.426 [1.87]*			
Regular Workers Notice and Severance Pay for Fair Dismissal	0.341 [1.34]			
Regular Workers Difficulty of Dismissal	0.057 [0.25]			
Temporary Workers Fixed Term Contracts	0.105 [0.56]			
Temporary Workers Agency Employment	-0.329 [-1.55]			
Total FDIs (percent of GDP)		0.006 [1.51]		
Trade Openness (Export plus Imports as Percent of GDP)			-0.007 [-0.62]	
Real GDP growth				0.048 [0.98]
R-squared	0.859	0.858	0.858	0.859

Source: IMF Staff Calculations

1/ T-statistics are reported in parenthesis. * denotes significance at 10% level, ** significance at 5% level, and *** significance at 1% level. Countries included in the panel are Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom. Annual data for 1985-2010 (or less, depending on availability).

2/ Fixed effects estimation with clustered standard errors

Our empirical results suggest that reducing the difference in employment protection between regular and non-regular workers is key to reducing Japan's labor market duality. In order to estimate how changes in employment protection would affect the overall share of non-regular workers we have followed a two-step procedure. First, we have used the coefficients estimated in the benchmark model (Table 1) to assess the impact of changes in EPR and EPT on the share of temporary workers. We have then estimated how a change in the latter would translate into a change in the overall share of non-regular workers on the on the basis of a bilateral OLS regression carried out using data on Japan for 1984–2011.

The estimated impact of changes in labor employment protection on the share of non-regular workers in Japan is sizeable. Results for selected changes in EPR and EPT are reported in the text table. Our results show that, for example, if EPR was reduced from Japan's level of 1.9 to Denmark's level of 1.6, the share of non-regular workers in Japan could be reduced from the 2012 level of 35.1 percent to close to 31 percent. The estimated reduction could be even larger for more ambitious reforms. For example, if EPR was reduced from its current level to the UK's level of 1.1, the share of non-regular workers could drop below 30 percent. It is also important to take into account that these estimates are based only on ceteris paribus first-round effects. If the reduction in labor market duality results in higher growth, this would reduce unemployment and help exiting deflation. Given the coefficients on unemployment and inflation in the panel regression (Table 1), there could be a second round effect of the reforms, which could further reduce duality. An important caveat of this analysis is that the share of temporary workers is not a perfect proxy of labor market duality, because it does not include all non-regular workers. The two-step procedure that we have followed could therefore bias our results upward—in the sense of overestimating the reduction in the share of non-regular workers—if the bilateral regression that we carried out for Japan captures correlation rather than causality.

Japan: Estimated Impact of Changes in EPT and EPR on Share on Regular Workers

Share of non-regular workers in Japan in 2012 (EPR=1.9; EPT=1)	Share if: EPR from 1.9 to 1.5.; EPT from 1 to 1.5	Share if: EPR from 1.9 to 1.6 (Denmark's level); EPT unchanged at 1	Share if: EPR from 1.9 to 1.1 (UK's level); EPT unchanged	Share if: EPR from 1.9 to 1; EPT unchanged at 1
35.1	30.4	31.3	29.8	29.5

Source: IMF staff calculations.

Another interesting question is what impact policies aimed at reducing the difference in employment protection between regular and non-regular workers would have on women and youth. This is important because these two demographic groups are affected by labor market duality more than others, and therefore particular attention needs to be paid to them while implementing efforts to reduce duality. As discussed above, among non-regular workers, about 70 percent are women and, amongst all female employees, 55 percent are non-regular workers. In order to contrast the negative impact on growth of a declining working population and increase potential growth in Japan, it is important to increase the number of women employed in more productive regular jobs. Amongst all workers aged 15–24 years,

the share of non-regulars is about 30 percent. Since, as discussed earlier, it is difficult to switch from non-regular to regular in Japan, these young workers are likely to remain stuck all their working lives in non-regular jobs, unless reforms aimed at reducing duality are implemented. Table 3 shows the results of some additional regressions, in which the dependent variables are the share of temporary workers among female labor force and youth (age 15–24). These dependent variables are regressed on the same explanatory variables used in the benchmark model. The results show that EPR has a positive and statistically significant effect on both shares of temporary female employment and temporary youth employment, while EPT has a negative and significant impact. This analysis suggests that women and youth would benefit from reforms aimed at reducing labor market duality.

In next section, we move to discuss specific policy options to reduce labor market duality in Japan, in light of the empirical results present in this section.

V.   OPTIONS FOR LABOR MARKET REFORM IN JAPAN

Options to reform Japan's labor market should take into account country-specific preferences with regard to employment protection. Country preferences can differ widely on this issue and there is no first-best level of protection that is appropriate for every country at every time. The policies suggested below are aimed at striking a balance between maintaining several aspects of the Japanese labor market model, which have served the country well in the past—such as a high level of employment stability and labor relations based on trust between employer and employee—while at the same time reducing the impact of the negative effects of excessive labor market duality.

In light of our empirical results, one reform that could help reduce labor market duality in Japan would be replacing all regular and non-regular contracts currently offered to new hires with a SOEC. Implementing this reform would imply introducing a formal severance pay system, which currently does not exist in Japan. Under the SOEC, employment protection would increase gradually and severance pay would rise with tenure. Introducing a SOEC would therefore drastically reduce firms' marginal costs of converting non-regular to regular positions. The SOEC would imply lower job security compared to current regular employment but higher job security compared to current non-regular employment. According to the panel data estimation that we presented in section IV, a move in this direction would reduce duality. While no country has yet introduced a SOEC, simulations carried out by García-Perez and Osuna (2011) suggest that it would significantly reduce labor market duality in Spain. The level and speed of increase with tenure of severance pay would need to be calibrated while also taking into account policy tradeoffs. Increasing the generosity of unemployment insurance, for example, would lessen the need for severance payments and make it more attractive for firms to move workers to regular positions.

A possible first step to implement the recommendations given in this paper could be a wider use of limited regular ("gentei seishain") contracts. Employees who are classified as limited

Table 3. Japan: Determinants of Labor Market Duality in a Panel of OECD Countries: Regression Results 1/

	STW of Women2/	STW of Women 3/	STW of Youth 2/	STW of Youth 3/
Dependent Variable: Share of Temporary Workers				
Employment Protection Legislation of Regular Workers	0.946	0.946	3.551	3.551
	[2.13]**	[3.21]***	[4.29]***	[9.45]***
Employment Protection Legislation of Temporary Workers	-0.433	-0.433	-0.919	-0.919
	[-2.95]***	[-3.95]***	[-3.18]***	[-3.40]***
FDI Outflows (percent of GDP)	0.029	0.029	0.005	0.005
	[1.68]*	[2.01]*	[0.14]	[0.15]
Female Labor Participation	0.070	0.070	0.301	0.301
	[1.83]*	[1.54]	[4.04]***	[3.52]***
Share of Employment in Services	-0.241	-0.241	-0.300	-0.300
	[-5.33]***	[-2.19]**	[-3.55]***	[-2.19]**
Union Density	-0.122	-0.122	-0.157	-0.157
	[-2.80]***	[-2.02]*	[-1.95]*	[-1.62]
Unemployment Rate	0.089	0.089	0.314	0.314
	[1.77]**	[1.05]	[3.13]***	[2.18]**
Inflation	-0.215	-0.215	-0.537	-0.537
	[-3.72]***	[-1.94]*	[-5.02]***	[-4.78]***
Output Gap	-0.012	-0.012	-0.028	-0.028
	[-0.26]	[-0.20]	[-0.33]	[-0.29]
Government Spending on Vocational Training (percent of GDP)	-0.869	-0.869	-0.279	-0.279
	[-1.18]	[-1.76]*	[-0.20]	[-0.30]
Lagged Dependent Variable	0.789	0.789	0.803	0.803
	[21.75]***	[29.84]***	[26.00]***	[23.18]***
R-squared	0.778	0.778	0.9037	0.9037

Source: IMF Staff Calculations

1/ T-statistics are reported in parenthesis. * denotes significance at 10% level, ** significance at 5% level, and *** significance at 1% level. Countries included in the panel are Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom. Annual data for 1985-2010 (or less, depending on availability).

2/ Fixed effects estimation with default standard errors.

3/ Fixed effects estimation with clustered standard errors.

regular workers still enjoy regular worker status and benefits, but with limitations on one or more of the following: (i) job content; (ii) working hours; and (iii) mandatory relocations. Contracts of this kind implicitly introduce lower job protection compared to traditional regular workers, most notably in cases in which the limited regular position is cancelled for economic reason. For currently non-regular workers, on the other hand, the possibility to transition to such limited regular contracts would imply an increase in employment protection and in career and training prospects. Discussions in governmental committees and policy seminars in Japan have recently focused on the possibility of expanding the use of this kind of contract, while at the same time clarifying the legal framework for dismissals of

limited regular workers, thus reducing uncertainties for firms and encouraging them to move non-regular workers to limited regular status. The limitations that the limited regular status puts on working hours, job content, and mandatory relocations are also consistent with the need to improve work-life balance, which would be important to facilitate acceptance of reduced employment protection compared to current regular employment, as we discuss below.

Some reforms recently approved in Japan go in the direction of facilitating the transition from non-regular to regular employment, but are unlikely to be effective. These include a 5-year rule for conversion from non-regular to regular status, as well as subsidies for firms that convert workers. Under the 5-year rule, fixed term contracts are limited to five years in duration, after which the employees get the option to convert their contract to an indefinite term contract on the same terms. However, the 5-year rule is not likely to be effective because firms can circumvent it by letting temporary workers go before they hit that tenure. For example, Tsuru (2012) pointed out the fact that although European countries have set the maximum allowable duration of successive fixed-term contracts at two to four years, the average total duration of such contracts is significantly shorter than the legal limit in most countries. At the time of writing, the 5-year rule was under review by the government. The subsidies are also unlikely to be effective, because they are too small compared to the expected cost increase of conversion for firms (text table).

Subsidy Amount for Firms Who Convert Workers from Temporary to Regular

Transformation Case	Small and Medium Firms	Large Firms
1st temporary worker to become regular	400,000 yen	300,000 yen
2nd to 10th temporary workers to become regular	200,000 yen/case	150,000yen/case
After 10th temporary workers to become regular	0 yen	0 yen

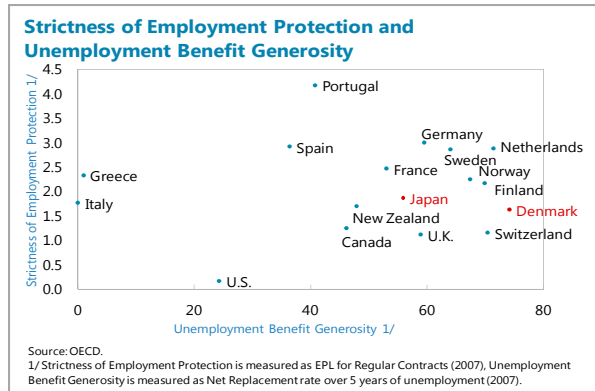Source: Ministry of Health, Labor and Welfare

Introduction of the SOEC or a wider use of limited regular contracts could be complemented by other measures aimed at reducing duality while also helping build consensus for the reform package. One useful reform would be giving workers the right to choose between part-time and full-time work (after a certain tenure period) while maintaining the same hourly wage and legal rights. This would eliminate the incentive for employers to discriminate in favor of full-time workers and against part-time workers in terms of on-the-job training, because any full-time worker might at any point in time decide to switch to part-time (and vice versa). Ultimately, part-time workers would no longer be considered as non-regular workers. A similar reform was introduced in The Netherlands in 2000 and contributed to a significant increase in Female Labor Participation (FLP) there. Guaranteeing new hires the future right to choose between part-time and full-time work would facilitate social and political acceptance of the reduced employment protection (compared to current regular employment) implied by the SOEC.

In general, some elements of the so-called "flexicurity" model could be exported to Japan. Reduced employment protection of regular workers could be complemented by measures

aimed at encouraging more job mobility and supporting workers during periods of temporary unemployment. This would mark a shift away from the current Japanese labor market—characterized by excessive duality and lifetime employment for regular workers—to one more similar to the Danish "flexicurity" model, in which the focus is on protecting workers rather than jobs. One important measure in this regard would be increasing unemployment insurance benefits (Box 1).

Box 1. Japan: Can the Danish "Flexicurity" Model be Exported to Japan?

"Flexicurity" refers to a combination of labor market flexibility and security that protects employment instead of specific jobs. Moving toward the so-called "flexicurity" model in Japan would imply increasing social safety net protection against the risk of dismissal, in parallel with employment protection legislation reforms aimed at reducing protection of regular workers (see chart). The Danish flexicurity model is often described as a "golden triangle" composed of (1) flexibility in the labor market, combined with (2) social security protection through unemployment benefits and (3) an active labor market policy. The main idea of flexicurity is that of protecting workers rather than jobs. Instead of trying to secure the same job for the whole working life (job security), flexicurity tries to provide workers lifelong employment possibilities (employment security).


Strictness of Employment Protection and Unemployment Benefit Generosity

Source: OECD.
1/ Strictness of Employment Protection is measured as EPL for Regular Contracts (2007), Unemployment Benefit Generosity is measured as Net Replacement rate over 5 years of unemployment (2007).

According to recent empirical evidence, unemployment benefits act better than employment protection legislation to ensure workers' job satisfaction. A study based on micro survey data (Origo and Pagani, 2008), finds that what matters for job satisfaction is perceived job security, which depends less on the type of contract and more on the availability of safety nets such as unemployment benefits. In this light, overall job satisfaction is likely to be higher in countries that follow a flexicurity model similar to the Danish one—since workers tend to feel secure about their lifelong employment opportunities—compared to countries with more stringent protection of regular workers, which tend to be characterized by dual labor markets. Moving toward a flexicurity model could therefore improve workers' satisfaction, allowing Japan to achieve higher productivity and promote economic growth.

The most difficult part for Japan are the high fiscal costs of the flexicurity model. In Denmark, it is financed mainly through income taxes, and the country has one of the largest tax wedges in the OECD. In order to export this model to Japan while at the same time containing its costs, it would be necessary to try to keep the aggregate unemployment benefits spending at a sustainable level and avoid the tax wedge to widen excessively. To achieve this, maintaining a low unemployment rate and ensuring an expansion of the income tax base by increasing labor participation would be key.

Moving towards the flexicurity model would also imply strengthening labor market policies. An international comparison shows that in Japan public spending for vocational training and other labor market policies is low: in 2010 it stood at about 0.7 percent of GDP, compared to an OECD average of 1.7 (OECD, 2011). Denmark, in contrast, is among the countries in the world with the most extensive use of active labor market programs. The Denmark labor market system allows the unemployed to have access to education, subsidized job training in both public and private companies, job search assistance courses and a number of other services. The unemployed have the right, as well as the duty, to use these programs. Such mandatory programs prevent moral hazard and abuse of unemployment benefits, while at the same time help the unemployed to upgrade their skills and encourage job seeking. In Japan, in certain fields such as civil engineering, child care, medical and welfare services, there is a shortage of workers. Well targeted labor market program could focus on the problem of skills mismatches in such fields. Unlike in the past, Japanese companies are now much less willing and/or able to invest in on-the-job training, and the role of the government in this area could therefore be larger than in the past.

Policies aimed at raising wages would also facilitate acceptance of reduced employment protection compared to current regular employment, while at the same time help exiting deflation. Real wage and productivity growth trends in the last twenty years suggest that there is scope for wage increases in Japan. As shown in the text charts, labor productivity growth in Japan outstripped real wage growth in the last twenty years. Japan also stands exceptionally low amongst G7 countries in terms of average annual real wage growth rate despite its relatively high productivity growth. Against this backdrop, the authorities have recently been using moral suasion and tax incentives to encourage companies to increase wages. Given the importance of increasing wages to exit deflation, the implementation of policies aimed at encouraging wage growth is appropriate. Box 2 discusses some options in this regard.
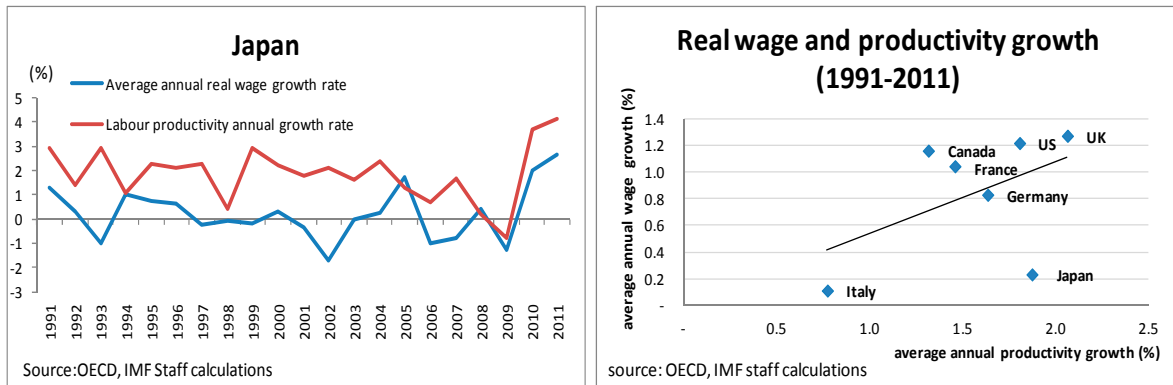
For the proposed package of reforms to work, "soft institutions" would also need to change. In particular, in order to make the reduction in employment protection of regular workers socially and politically acceptable, some negative aspects of regular work also need to be reformed. The loss of job protection for regular workers can be compensated by reforms that improve the work-life balance, such as increased accessibility to annual leave, the right to refuse involuntary relocations, and reduction of overtime work. Although an international comparison shows that Japanese workers work less than those in Italy and the U.S. (see charts), these data are likely to underestimate the use of overtime for regular workers in Japan because they include part-time workers. Working until very late in the night (a lot more than total 49 hours per week) among full-time workers is very common in Japan and anecdotal evidence suggests that the problem is more serious than in most other advanced countries. One of the reasons for this is that it is cheaper for firms to ask regular workers to
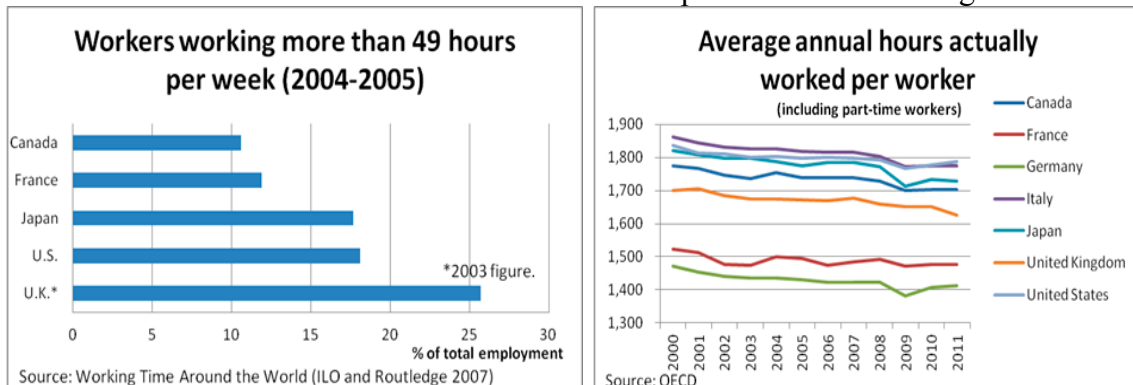
do overtime than to expand employment. The premium that employers have to pay for work outside statutory hours is only 25 percent of the regular hourly wage. Overtime also does not count toward bonuses, which accounts for 20–30 percent of worker's annual earnings in big firms. Measures aimed at eliminating these biases in favor of overtime use would help, but a voluntary change in working practices by firms ("soft institutions") would also be required.

Box 2. Japan: Options for Wage Policy in Japan

One option for a policy of wage growth in Japan is a simple continuation of the "moral suasion" strategy used by the authorities this year, in which the government encourages wage growth by asking profit-making companies to increase wages, but without being directly involved in the negotiations. However, unless moral suasion is implemented together with other measures, its effectiveness is likely to be limited. The result of this year's negotiations provides a clear example of the limits of moral suasion, since most of the pay increases were in the form of one-off bonuses, which could be reverted next year and would not be perceived as permanent income by workers, thus providing only a temporary boost to domestic demand and inflation. It is also difficult to assess how much of the pay increases granted this year was due to moral suasion and how much to other factors (for example, expected higher profits due to the weaker yen).

A more comprehensive option would be a wider policy of "social concertation," in which the government becomes more directly involved in wage negotiations with firms and trade unions. Similar policies have been followed in the past decades in several European countries. While the focus in Europe was on fighting inflation through wage moderation, the framework could be adapted in Japan to one in which the goal is to increase wages and exit deflation. Japan's wage bargaining system, although not classifiable as "centralized" in the traditional sense, provides for a high degree of synchronization and coordination of wage settlements, and is therefore compatible with the implementation of a social concertation framework. One advantage of a "social concertation" policy is that the "exit strategy" from a policy of high wage growth would be relatively easy, because if wage growth becomes excessive and starts outstripping labor productivity, the government could simply stop advocating for higher wages.

The FY 2013 fiscal package also includes tax incentives for companies that raise wages. This measure, which became effective in April 2013 and is scheduled to last for three years, will allow businesses to reduce corporate taxes by an amount equivalent to 10 percent of wage growth. In order to qualify for the tax cut, companies would need to increase total pay (including bonuses) more than 5 percent compared to the previous year, and also have non-decreasing average wages since the previous year. One disadvantage of this measure is that it does not discriminate in favor of increases in the base wage (compared to increase in bonuses). In addition, political pressures could arise to extend the tax incentive even after wage growth and inflation pick up.

A minimum wage hike would be likely to increase average wages, but with policy trade-offs on the employment side. According to IMF (2013) an increase in the minimum wage is likely to increase overall wages, with small negative effects or no effects on unemployment.

However, for specific groups of workers (youth, women, and workers in small firms) the effects on employment tend to be negative. In the case of Japan, Kambayashi et al. (2010), argue that the minimum wage increase during 1994-2003 provided a wage floor for female workers, but this came at the cost of moderate employment loss among low-skilled, middle-aged female workers. Given that Japan's minimum wage is one of the lowest amongst OECD countries (see chart), a minimum wage hike could be considered as part of the strategy to increase wages. The policy trade-offs of this measure (higher wages in exchange for some employment loss for some categories of workers) would need to be carefully thought through.

Minimum Wages Relative to Median Wages of Full-Time Workers

Source: OECD.
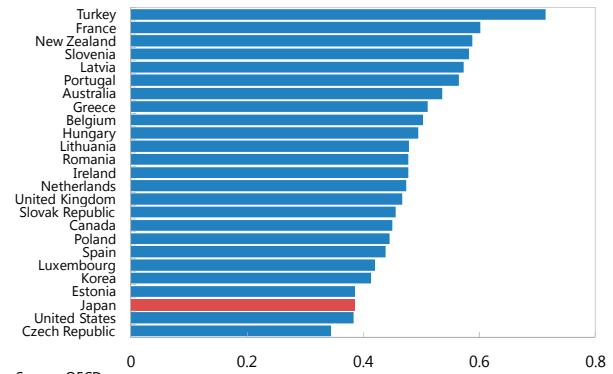
VI. CONCLUSIONS

This paper argues that, while Japan's labor market duality has some positive aspects, it also entails high economic costs. In particular, microeconomic studies and international experiences suggest that excessive labor market duality can reduce TFP due to a negative impact on non-regular workers' effort and on firms' incentives to train them. Excessive duality has also negative consequences on social cohesion in Japan, thus also posing an indirect economic cost by potentially eroding support for needed structural reforms, which could increase potential growth.

On the basis of cross-country empirical evidence on the determinants of labor market duality, the paper proposes several reform options for Japan. Our empirical findings suggest that reducing the difference in employment protection between regular and non-regular workers would substantially reduce labor market duality in Japan. One reform consistent with these findings is the introduction of an SOEC for all workers, under which employment protection would increase gradually and severance pay would rise with tenure. This reform would imply lower job security compared to current regular employment but higher job security compared to current non-regular employment. Introduction of a SOEC could be complemented by other reforms aimed at compensating for the reduced employment protection of regular workers, such as higher unemployment benefits, giving workers the right to choose between full-time and part-time work, and measures to improve life-work balance. Policies aimed at increasing wages would also facilitate social and political acceptance of the reform, while also helping to exit deflation.

A. Benchmark Model

An econometric model of structural determinants of labor market duality was estimated using a panel of 17 OECD countries: Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. The data are annual for 1985–2010 (or less, depending on availability). Country fixed effects were included in the regression. A Hausman test rejected the null hypothesis that a random effect model would be statistically different from a fixed effects one.

The specification of the benchmark model (results presented in Table 1 in the text) is as follows

$$TS_{it} = \alpha_1 TS(-1)_{it} + \alpha_2 EPR_{it} + \alpha_3 EPT_{it} + \alpha_4 FDIOUT_{it} + \alpha_5 FLP_{it} + \alpha_6 SERVEMPL_{it} + \alpha_7 UD_{it} + \alpha_8 UN_{it} + \alpha_9 INFL_{it} + \alpha_{10} OG_{it} + \alpha_{11} SPENDTR_{it} + \gamma_i + u_{it}$$

Where our proxy of labor market duality, TS, is the share of temporary workers, available from OECD, and γ_i denotes the country-specific fixed effect.

Explanatory variables are defined as follows:

*   EPR is the index of employment protection of regular workers, available from OECD
*   EPT is the index of employment protection of temporary workers, available from OECD
*   FDIOUT are FDI outflows as percentage of GDP, available from the World Bank
*   FLP is female labor participation, from the World Bank
*   SERVEMPL is the share of employment in services, from the World Bank
*   UD is union density, from OECD
*   UN is the unemployment rate, from the World Bank
*   INFL is annual average CPI inflation, from the World Bank
*   OG is the output gap, from OECD
*   SPENDTR is government spending on vocational training as percentage of GDP, from OECD

B. Alternative Specifications

We checked the robustness of our results by estimating the following four alternative specifications (results presented in Table 2 in the main text):

$$TS_{it}$$
$$= \alpha_1 TS(-1)_{it} + \alpha_2 \text{EPRI}_{it} + \alpha_3 \text{EPRNS} + \alpha_4 \text{EPRDD}$$
$$+ \alpha_5 \text{EPTFT}_{it} + \alpha_6 \text{EPTWA}$$
$$+ \alpha_7 FDIOUT_{it} + \alpha_8 FLP_{it} + \alpha_9 SERVEMPL_{it} + \alpha_{10} UD_{it} + \alpha_{11} UN_{it} + \alpha_{12} INFL_{it} + \alpha_{13} OG_{it}$$
$$+ \alpha_{14} SPENDTR_{it} + \gamma_i + u_{it}$$

$$TS_{it}$$
$$= \alpha_1 TS(-1)_{it} + \alpha_2 EPR_{it}$$
$$+ \alpha_3 EPT_{it} + \alpha_4 FDI_{it} + \alpha_5 FLP_{it} + \alpha_6 SERVEMPL_{it} + \alpha_7 UD_{it} + \alpha_8 UN_{it} + \alpha_9 INFL_{it} + \alpha_{10} OG_{it}$$
$$+ + \alpha_{11} SPENDTR_{it} + \gamma_i + u_{it}$$

$$TS_{it}$$
$$= \alpha_1 TS(-1)_{it} + \alpha_2 EPR_{it}$$
$$+ \alpha_3 EPT_{it} + \alpha_4 OPEN_{it} + \alpha_5 FLP_{it} + \alpha_6 SERVEMPL_{it} + \alpha_7 UD_{it} + \alpha_8 UN_{it} + \alpha_9 INFL_{it} + \alpha_{10} OG_{it}$$
$$+ + \alpha_{11} SPENDTR_{it} + \gamma_i + u_{it}$$

$$TS_{it}$$
$$= \alpha_1 TS(-1)_{it} + \alpha_2 EPR_{it}$$
$$+ \alpha_3 EPT_{it} + \alpha_4 FDIOUT_{it} + \alpha_5 FLP_{it} + \alpha_6 SERVEMPL_{it} + \alpha_7 UD_{it} + \alpha_8 UN_{it} + \alpha_9 INFL_{it} + \alpha_{10} GROWTH_{it}$$
$$+ + \alpha_{11} SPENDTR_{it} + \gamma_i + u_{it}$$

Where the new explanatory variables are defined as follows:

- EPRI is the OECD sub-index of employment protection for regular workers related to procedural inconvenience
- EPRNS is the OECD sub-index of employment protection for regular workers related to notice period and severance pay
- EPDD is the OECD sub-index of employment protection for regular workers related to difficulty of dismissal
- EPTFT is the OECD sub-index of employment protection for temporary workers related to strictness of protection of fixed-term contracts
- EPTWA is the OECD sub-index of employment protection for temporary workers related to strictness of protection of temporary work agency contracts
- FDI is total FDIs (outflow plus inflows) as percentage of GDP, from the World Bank
- OPEN is trade openness, defined as exports plus imports as percentage of GDP, from the World Bank
- GROWTH is real GDP growth, from the World Bank

REFERENCES

Abe, Masahiro, Yoshio Higuchi, and Mitsuru Sunada, 2004, "The Impact of Computerization on Regular Employment," RIETI Discussion Paper No. 04-J-043 (Tokyo: Research Institute of Economy, Trade and Industry). Available via the Internet: http://www.rieti.go.jp/jp/publications/summary/04110001.html.

Ariga, Ken, Masako Kurosawa, Fumio Ohtake, Masaru Sasaki, and Shoko Yamane, 2013, "Organization Adjustments, Job training and Productivity: Evidence from Japanese Automobile Makers," *Journal of the Japanese and International Economies*, Vol. 27 (March), pp.1–34.

Asano, Hirokatsu, Takahiro Ito, and Daiji Kawaguchi, 2011, "Why Has the Fraction of Contingent Workers Increased? A Case Study of Japan," RIETI Discussion Paper No. 11-E-021 (Tokyo: Research Institute of Economy, Trade and Industry). Available via the Internet: http://www.rieti.go.jp/jp/publications/summary/11030030.html.

Booth, Alison, Marco Francesconi, and Jeff Frank, 2002, "Temporary Jobs: Stepping Stones Or Dead Ends," *Economic Journal*, Vol. 112 (June), pp. F189–F213.

Damiani, Mirella, Fabrizio Pompei, and Andrea Ricci, 2011, "Temporary Job Protection and Productivity Growth in EU Economies," *Quaderni del Dipartimento di Economia, Finanza e Statistica* 87/2011 (Perugia: University of Perugia).

di Giovanni, Julian; Andrei A. Levchenko, 2009, "Trade Openness and Volatility," *The Review of Economics and Statistics*, Vol. 91 (August), pp. 558–85.

Dolado, Juan Jóse, Salvador Ortigueira, and Rodolfo Stucchi, 2011. "Does Dual Employment Protection Affect TFP? Evidence from Spanish Manufacturing Firms," Economics Working Papers 11-37 (Madrid: Charles III University of Madrid).

Fukao, Kyoji, Ryo Kambayashi, Daiji Kawaguchi, Hyoeg Ug Kwong, Young Gak Kim, and Izumi Yokoyama, 2007, "Deferred Compensation: Evidence from Employer-Employee Matched Data from Japan," Hi-Stat Discussion paper series No. 187 (Tokyo: Hitotsubashi University).

García-Perez, Jose Ignacio, and Victor Osuna, 2011, "The Effect of Introducing a Single Open Ended Contract in the Spanish Labor Market," *mimeo* (Seville: Pablo de Olavide University).

Gaston, Noel, and Tomoko Kishi, 2007, "Part-time Workers Doing Full Time Work in Japan," *Journal of the Japanese and International Economies*, Vol. 21 (December), Issue 4, pp. 435–54.

Genda, Y., 2010, "No Dignity for Humans—The 2000s Labor Market," *Minerva Publishing*, Kyoto.

Hohendanner, C., 2010, "Unsichere Zeiten, Unsichere Verträge?" *In: IAB-Kurzbericht 14*, Nürnberg.

IMF, 2013, "Jobs and Growth: Analytical and Operational Considerations for the Fund." Available via the Internet: www.imf.org/external/np/pp/eng/2013/031413.pdf.

Jaumotte, Florence, 2011, "The Spanish Labor Market in a Cross-Country Perspective," IMF Working Paper 11/11 (Washington: International Monetary Fund).

JILPT, 2011, "Non-regular Employment—Issues and Challenges Common to the Major Developed Countries." JILPT Report No. 10 (Tokyo: The Japan Institute for Labor Policy and Training).

Jones, R. S., 2007, "Income Inequality, Poverty and Social Spending in Japan," OECD Economics Department Working Papers No. 556 (Paris: Organization for Economic Co-operation and Development).

Kambayashi, Ryo, Daiji Kawaguchi, and Ken Yamada, 2010, "The Minimum Wage in a Deflationary Economy: The Japanese Experience, 1994–2003," IZA Discussion Papers No. 4949 (Bonn: Institute for the Study of Labor).

Kawaguchi, Daiji, Ryo Kambayashi, Young Gak Kim, Hyeog Ug Kwong, Satoshi Shimizutani, Kyoji Fukao, Tatsuji Makino, and Izumi Yokoyama, 2006, "Are Wage-tenure Profiles Steeper than Productivity-tenure Profiles? Evidence from Japanese Establishment Data from the Census of Manufacturers and the Basic Survey Wage Structure," Hi-Stat Discussion Paper Series No. 189 (Tokyo: Hitotsubashi University).

Kosugi, R., 2010, "Constructing a Career in Non-Regular Employment," *Labor Issues*, No. 602.

Kume, Koichi, Fumio Ohtake, Hiroko Okudaira, and Kotaro Tsuru, 2010, "Measuring Social Exclusion of Non Regular Workers in Japan," RIETI Discussion Paper No. 10-J-025 (Tokyo: Research Institute of Economy, Trade and Industry). Available via the Internet: http://www.rieti.go.jp/en/publications/summary/10030010.html.

Kume, Koichi; Fumio Ohtake, Hiroko Okudaira, and Kotaro Tsuru, 2011, "An Empirical Analysis on the Happiness of Japanese Non-Regular Workers," RIETI Discussion Paper No. 11-J-061 (Tokyo: Research Institute of Economy, Trade and Industry). Available via the Internet: http://www.rieti.go.jp/en/publications/summary/11040029.html.

Machikita, Tomohiro, and Hitoshi Sato, 2001, "Temporary Jobs and Globalization: Evidence from Japan," RIETI Discussion Paper No. 11-E-029 (Tokyo: Research Institute of Economy, Trade and Industry). Available via the Internet: www.rieti.go.jp/jp/publications/dp/11e029.pdf

Nunziata, Luca, and Stefano Staffolani, 2007, "Short-term Contracts Regulations and Dynamic Labor Demand: Theory and Evidence," *Scottish Journal of Political Economy*, Vol. 54, No. 1, February.

OECD, 2011, *OECD Employment Outlook* (Paris: Organization for Economic Co-operation and Development).

Ohtake, Fumio, Hiroko Okudaira, Koichi Kume, and Kotaro Tsuru, 2011, "Life and Employment of Temporary Workers: Evidence from RIETI Survey," RIETI Discussion Paper No. 11-J-050 (Tokyo: Research Institute of Economy, Trade and Industry). Available via the Internet: http://www.rieti.go.jp/en/publications/summary/11040018.html.

Origo, Federica, and Laura Pagani, 2008, "Flexicurity and Workers Well-Being in Europe: Is Temporary Employment Always Bad?"

Steinberg, Chad, and Masato Nakane, 2012,"Can Women Save Japan?" IMF Working Paper 12/248 (Washington: International Monetary Fund).

Takahashi, Koji, 2012 "The Ways of Working and Consciousness of Keyaku-Shain," *Japan Labor Review*, Vol. 9, Number 3.

The Nikkei Weekly, 2012, "Fired IBM Japan Employees Cry Foul." Available via the Internet: http://e.nikkei.com/e/ac/tnw/Nni20121210IS1IBMJA.htm.

Tsuru, Kotaro, 2012, "Japan Should Introduce a Severance Payment Scheme for Settlement of Dismissal Disputes." Available via the Internet: http://www.rieti.go.jp/en/papers/contribution/tsuru/19.html?stylesheet=print.

Tsuru, Kotaro, 2012, "Future Course of Fixed-term Employment Reform: An assessment of the Report of the Labor Policy Council's subcommittee," RIETI column 233050 (Tokyo: Research Institute of Economy, Trade and Industry). Available via the Internet: http://www.rieti.go.jp/en/columns/a01_0338.html.