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Labour Mismatch in Japan: An Empirical Analysis

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Abstract

This article attempts to examine the increase of unemployment in Japan from the perspective of what we term "the employment mismatch". Using UV curve analysis, which is derived from a combination of the unemployment rate and the job vacancy rate, our research demonstrates a steady and significant increase in the employment mismatch in the Japanese labour market dating to the late 1990's. We further attribute a substantial measure of the stagnation of labour productivity in Japan along with the associated increases in labour expense to this problem. As a logical consequence of this severe and growing phenomenon, we expect Japan to encounter serious additional pressures with respect to the creation of new jobs. The regulative reforms since 1997 led to a change in the structure of Japanese labour market. The current mismatch and the increase in temporary work opportunities could be interpreted as a result of corporate efforts to increase personnel flexibility. A national policy recommendation is that an efficient labour market is indispensable to workers and firms to take full advantage of the wider variety of employment styles provided.

Keywords: Employment mismatch, Japanese labour market

1. Introduction

Since the implosion of Japan's "bubble-economy" in 1992[1,] ten years of recession have greatly affected almost every aspect of the Japanese people's daily life. Notably, for the first time since the 1950's (and arguable during the strikes of 1960), unemployment became a serious problem both politically and socially. Prior to 1990, the unemployment rate in Japan has been remarkably low by world standards, running at about two percent. The shock, therefore, was enormous when the unemployment rate hit 5 % in 2003 and more than three million people in the Japanese work force could not find jobs. The following paper examines some of the details surrounding this rapid increase in unemployment and will attempt to show that the employment mismatch continues to remain as a structural problem in the Japanese economy despite recent decreases in the Japanese unemployment rate (Clenfield, 2007).

2. An Overview of the Unemployment Problem in Japan

As argued above, Japan's low unemployment rate has historically been one of the most distinctive characteristics of the Japanese economy (Abegglen, 1958; Dore, 1973; Koike, 1988). In colloquial parlance, the low level of unemployment in Japan was directly related to the "three treasures" of Japanese national wealth (i.e., lifetime employment, seniority-based wages and embedded corporate labour unions) articulated in the LDP platforms of the early 1960's (Seike, 2004)[2]. However, Japan's employment system came under severe pressure following the collapse of the bubble economy in the early 1990's and was forced to accommodate a number of structural changes in the Japanese economic system, primarily driven by a revaluation of both financial and physical assets (Katz, 1998). The resultant long-term shift in Japan's employment rate is shown below.

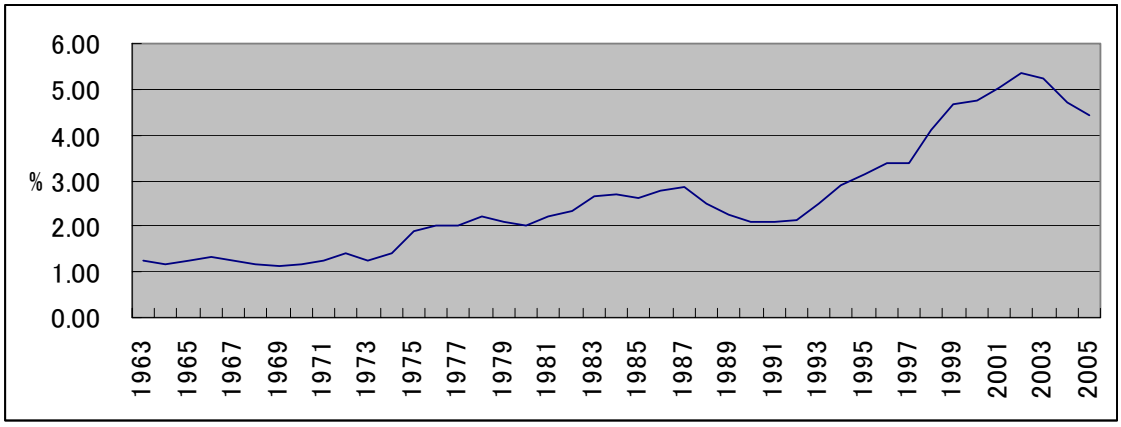

Figure 1-1. Japanese Unemployment Rates, 1963-2005
Source: Labour Force Survey, Ministry of Internal Affairs and Communications, 2006

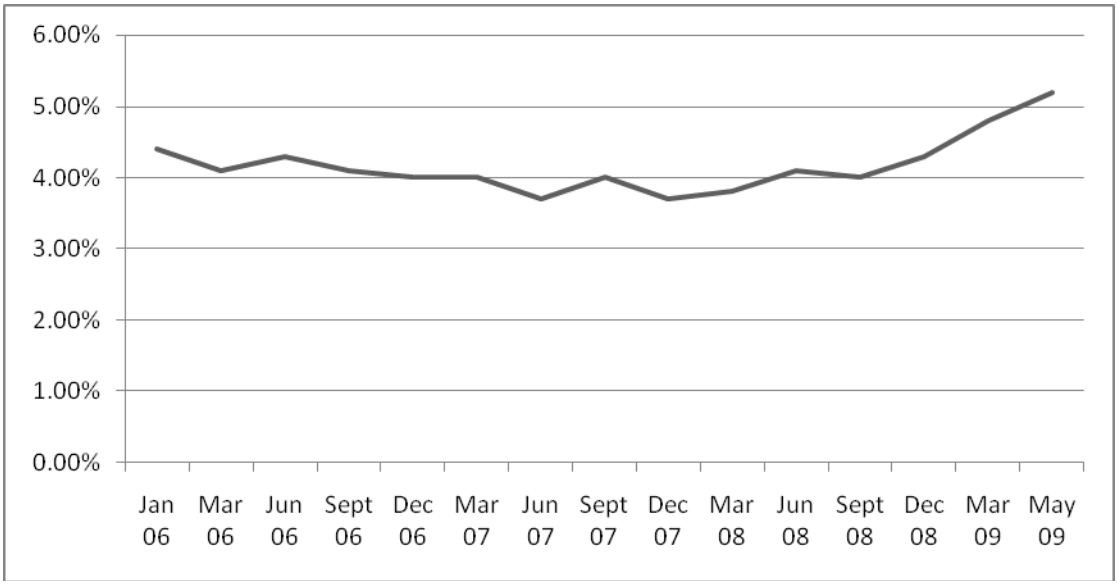

Figure 1-2. Japanese Unemployment Rates, Jan, 2006-May, 2009
Source:http://www.tradingeconomics.com/Economics/Unemployment-rate.aspx?symbol=JPY, 2009

As is evident from the data above, throughout the 1960's and until the mid-1970's (following the 1974 Arab Oil Embargo) unemployment was well below two percent in Japan. For all practical purposes this situation represented full employment, given that the existing small employment gap was typically filled with workers who undertook "exceptional unemployment" (Gross and LePage, 2001). During this period, the typical level of unemployment was actually regarded as a healthy component of the Japanese economy and was generally believed to be reflective of a "natural unemployment rate" (i.e., the difference between Natural Real GDP and Actual Real GDP when inflation is held constant.)[3]. This near-symbolic level of unemployment and its minimal cyclical shifts were understood as simply facilitating the adjustment of structural change of Japan's economic structure (Phelps, 1998).

Given the explosive growth of Japanese industry in world markets during the late 1970's (Vogel, 1979), even the two oil shocks of that decade had only a relatively minor effect in Japanese unemployment. Given the momentum of Japan's late 1980's investments (Prestowitz, 1988 and Florida and Kenney, 1992) unemployment rates showed considerable lag in reacting to the collapse of the bubble economy and the initial strains of failed cross-capitalization against over-valued real-estate and inadequate liquidity stemming[4] from relational financing (Scher, 1997; Fellman, Takei and Wright, 2003; Ito, 2005). However, the unemployment rate remained below three percent until 1995, although the rate began to increase as early as 1988, significantly before the peak of the bubble economy. Whether these early increases (all below the 3% level) bear any connection to the subsequent growth of unemployment remains difficult to determine. Arguments based on path dependence (Kester, 1991; Arthur, 1994; Licht, 2001; Takei, 2004; Scher and Yoshino, 2004) suggest that the

Japanese economic system may adapt more slowly to changes in the global environment than the economies of other OECD nations, but the results are far from conclusive.

Increases in Japan's unemployment continued until quite recently, and for the first time ever, from 2002 to 2004, the rate exceeded 5% which meant that during this period there were more than three million unemployed among Japan's labour force. The Ministry of Health, Labour and Welfare (2004) explained this long term trend on the basis of multiple related indicators in the economy leading to a labour mismatch[5]. In particular, they noted that:

> The labour force participation rate has been experiencing a declining trend. This is largely due to the growing influence of the change in the population structure associated with the aging society. Also, the reduction of its rate of each age group tends to affect the decline in the labour force. Among persons not in the labour force, persons wishing to work (who wish to work but are not seeking a job) by reasons of "no prospect of finding a job" numbered 2.05 million in first quarter (January-March) of 2004. (p. 3)

Key demographic elements of the mismatch between vacant jobs and job-seeking people can be seen in the exhibit below.

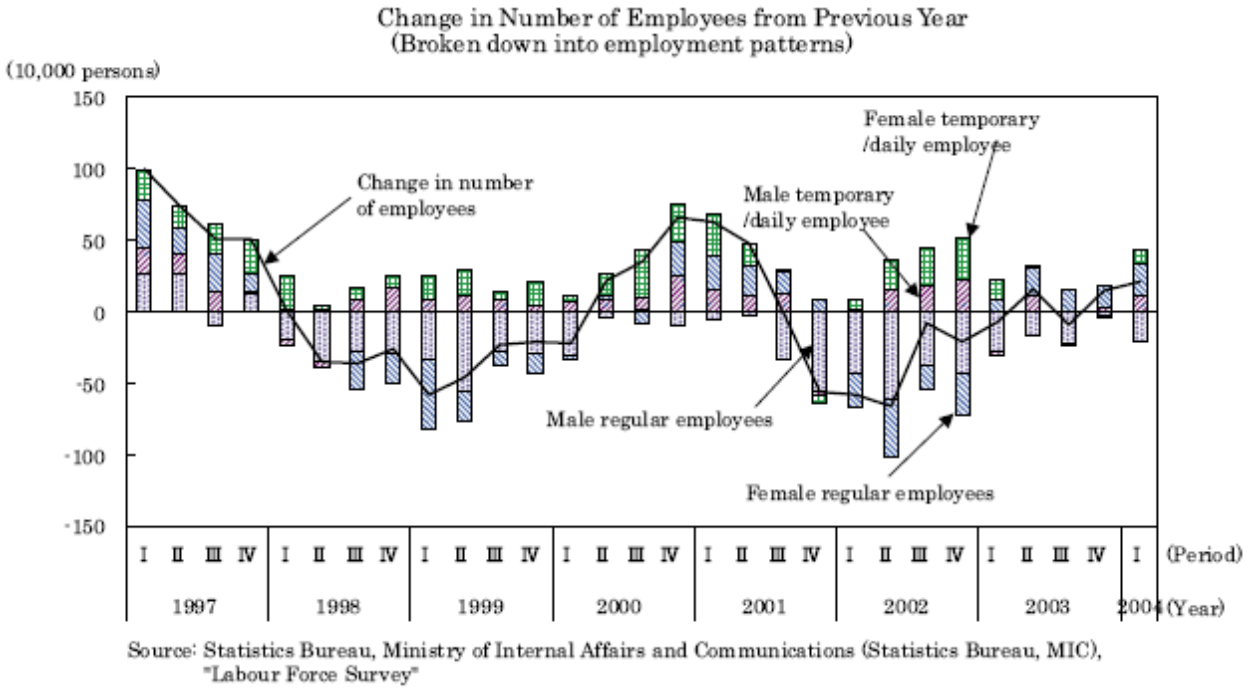

Figure 2. The Labour Mismatch by Sex and Temporary vs. Permanent Employees
Source: Statistics Bureau MIC, Labour Force Survey, 2004

One conclusion which this data leads to is that the mismatch is in some ways more profound than a simple aging demographic. In particular, the replacement of full-time workers by temporary workers, especially female temporary workers is a significant demographic trend which extends well beyond a simple monotonic aging effect. While some analysts hoped

that employment and productivity boosts from the IT sector would offset Japan's aging demographic (Nishimura et al, 2002), economic indicators do not seem to bear out this optimism.

In this paper, we argue that the skills, qualifications and ages of displaced workers may be failing to meet employment requirements. As many workers have been displaced during the recent periods of economic restructuring, it is possible that their existing skills and qualifications may complement employment needs. Rapid innovations and enterprises' growing demand for skilled workers may have made it difficult for displaced workers to find new employment. Thus, unemployment coexists with unfilled job vacancies with employers failing to find job seekers meeting their requirements. In this context, a labour mismatch is a much better explanatory variable than simply citing the aging demographic. Even at the simplest level of untransformed analysis, the data indicates that in 2003, with 3.29 million unemployed people, 1.09 million (33.1 % of the unemployed) claimed that there was no desired job available, while only 740,000 (22.5% of those unemployed) claimed that age requirements for vacant job were inappropriate to their situation (figure 4).

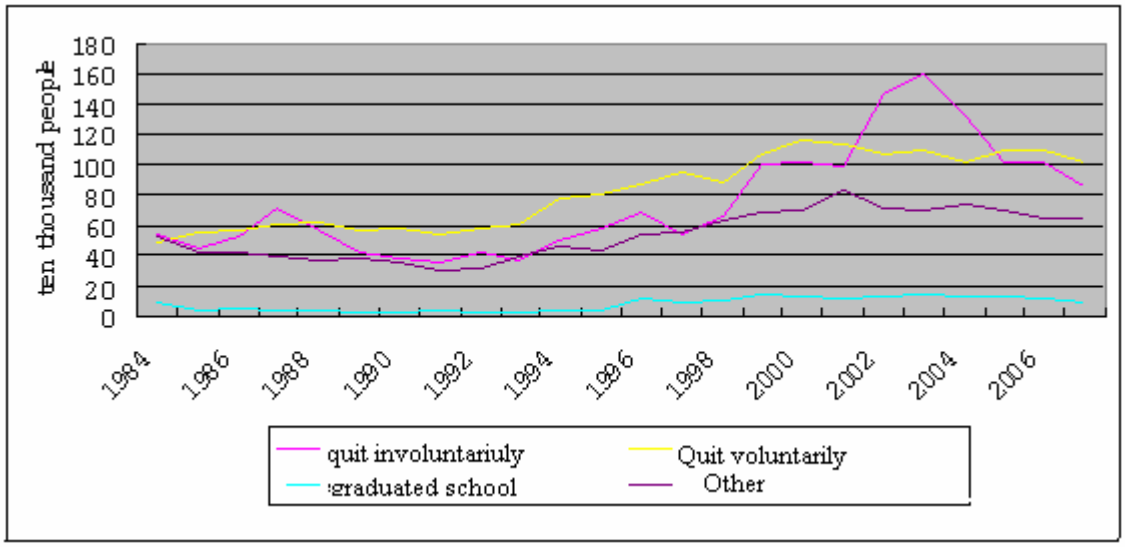

Figure 4. Unemployment by segment. Source: Statistics Bureau MIC, Labour Force Survey 2007

Additional survey data (figure 5) further elaborates these trends:

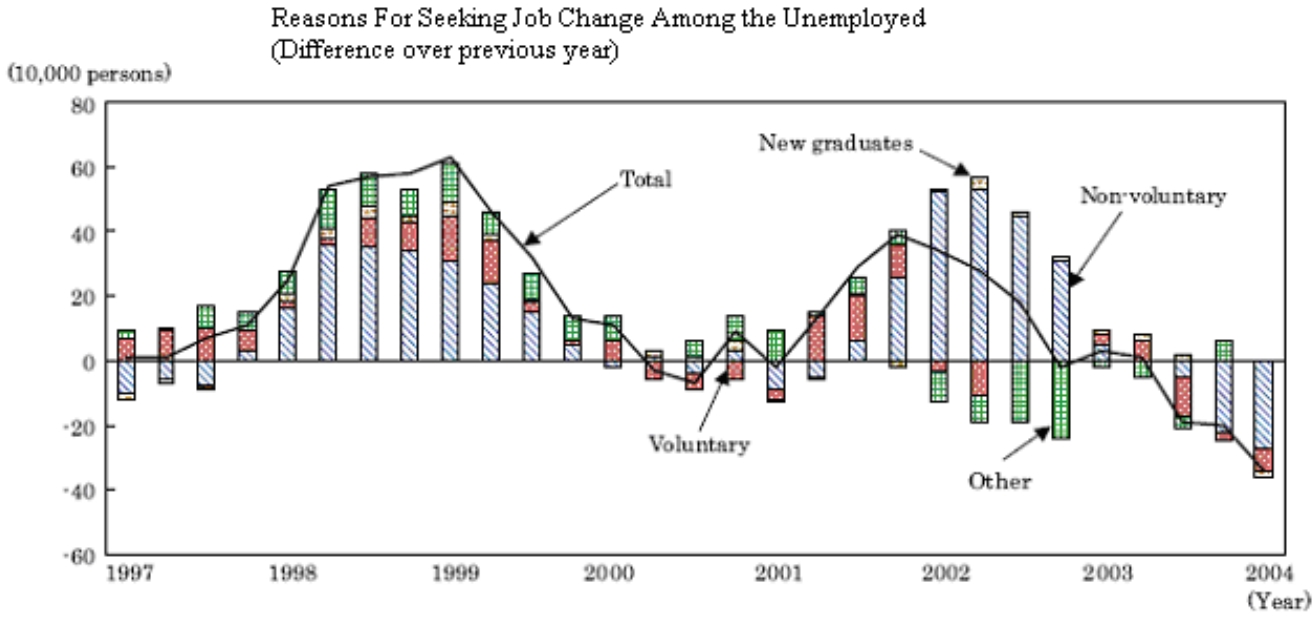

Figure 5. Unemployment Trends

According to the MIC Statistics Bureau data, the number of employees involuntarily discharged from jobs substantially increased during 2002 and depending on which data set one looks at, appears to reach a peak at approximately the same time as unemployment as a whole reaches a peak. The point here, however, is that the compositional structure of unemployment in Japan has undergone a fundamental change. One way of analyzing the nature of this change is to examine the relationship between unemployment and vacancies in the labour market. The most common method used for this purpose is known as the Beveridge curve (Bleakley and Fuhrer, 1997).

3. UV/Beveridge Curve Analysis

The Beveridge Curve draws an inverse relationship between the unemployment rate (U) and the vacancy rate (V) from the matching function of the labour market. The position on the curve can indicate the current state of the economy in any business cycle. For example, recessionary periods are usually characterized by high unemployment and low vacancies, while high vacancies and low unemployment indicate expansionary periods. The position of the curve from the origin indicates the overall activity of the labour market and the underlying structure of efficiency of the labour market. An efficient matching process will create faster reduction in the unemployed stock and vacancies. The Beveridge curve is a useful tool for analyzing labour mismatches. Valetta and Hodges (2006) use the Beveridge curve both to document an increasing labour alignment in the U.S. over the past forty years as well as to analyze regional differences (See Appendix 1). While Beveridge curve analysis shows an increasing convergence both regionally and national for labour matching in the United States, the situation in Japan is considerably different.

The Beveridge Curve for Japan suggests that the country is moving towards the lower-right end of the curve, i.e., experiencing greater unemployment and low vacancies. Employment mismatches in Japan could be indicated by the fact that the UV curve slopes downward as a rise in the vacancy rate leads to a fall in the unemployment rate and as a fall in the vacancy rate leads to a rise in the unemployment rate. The curve usually follows the economic situation. In Japan, since 1995, however, the UV curve has tended to shift upward rather than following the economic situation. This indicates that unemployment has remained high in spite of the increase in job vacancies. Such trend may be interpreted as expansion in "employment mismatches", as vacancies appear to remain unfilled as there is a lack of matching between job offers and seekers.

Among the limitations of the study is the fact that, in terms of analytical methods, one problem with studying the labour mismatch in Japan is the fact that the official job vacancy rate is not published in Japan. Instead, the standard statistical measure is the effective ratio of job offers to applicants, with the number of effective job offers less new employment being used as a proxy for total job vacancies (See Appendix 2). This measure may fail to capture the value of a key economic variable, and may distort the relationship between unemployment and the job skills match/mismatch (Kitaura, 2002 and Genda and Kondo, 2004). For the purpose of this study, however, it may be a sufficiently robust measure, given that the general shifts of the Beveridge curve are analyzed.

In the graph below we notice the recent increase in vacancy rate (after 2002) while the unemployment rate decreases. Negative co-movements in unemployment and vacancies along the Beveridge curve can be associated with cyclical labour market dynamics, whereas the shifts in the Beveridge curve can be interpreted as reflecting underlying changes in the effectiveness of the job matching process, hence the extent of structural unemployment. Despite the apparent improvement in unemployment, new job vacancies have not actually increased at all, proving, at least partially, that a fundamental mismatch in the Japanese labour market exists. The Beveridge curves in the figure below exhibit a counter-clockwise adjustment pattern around periods of recession, as vacancies rise more quickly than unemployment falls during the recovery phase. The position of the Beveridge curve for the years 2000-2005, which is higher than that in most other intervals, suggests higher mismatch but also potentially better opportunities for improvements in labour market conditions than in previous years.

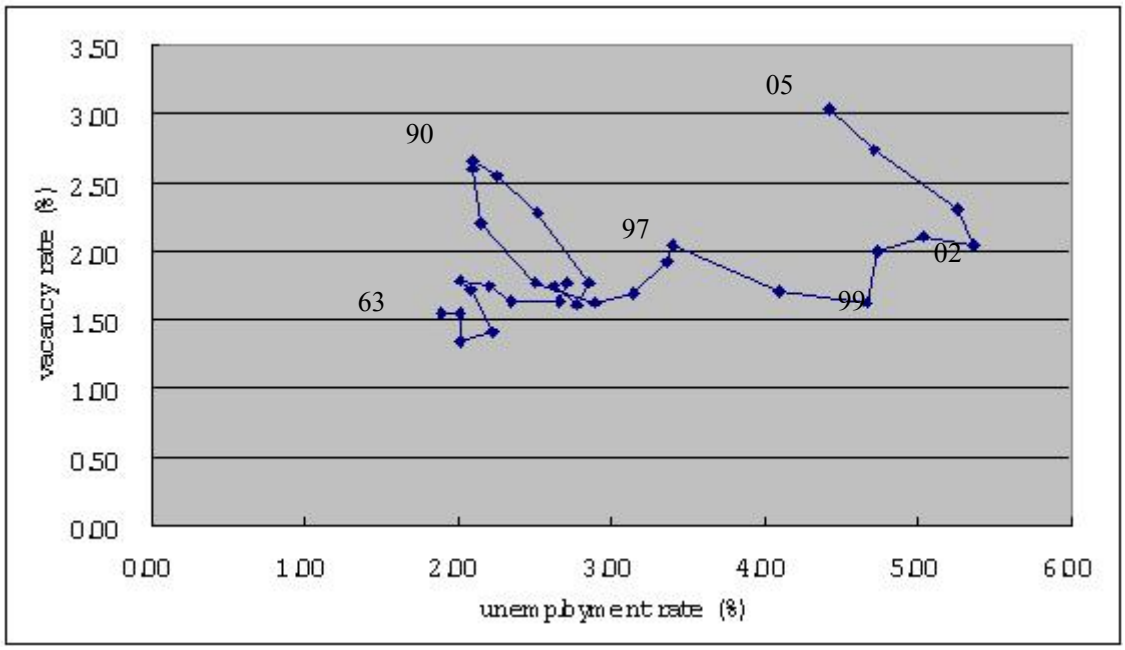

Figure 6. Beveridge Curve for Japan 1963-2005
Source: Statistics Bureau, MIC, Survey on Employment

Analysis indicates that because of the lack of new vacancies, the interpretation of Japan's unemployment "recovery" remains, at best, ambiguous. If we compare the period between 1987 and 1994, when the UV curve shifted to the upper left, (returning to its peak in 1990), with the UV curve shift to the far right which occurred post-2002, we find only a two-point difference in the overall unemployment rate. However, the inclination of the curve is roughly the same between these two periods of time, which implies that this two percent unemployment reduction is structural in nature and cannot, therefore simply be adjusted by fluctuations in the business cycle. This means that so long as the mismatch between labour and employment vacancies remains (i.e., no simultaneous creation of new job vacancies along with workers whose skills match those vacancies) the current unemployment level (approximately three per cent) will remain as an asymptote to future projections with significant possibilities of this number increasing as IT and other technology improvements cause the production frontier to shift outward (Porter, 1996).

The regulative reforms, especially the radical liberalization of labour regulations during the period between 1997 and 2002 led to a change in the structure of Japanese labour market. The current mismatch and the increase in temporary work opportunities could be interpreted as a result of corporate efforts to increase personnel flexibility in order to adapt to the globalized competition as well as the impact of structural transformation. A national policy lesson that can be drawn from the analysis above is that an efficient labour market is indispensable to workers and firms to take full advantage of the wider variety of employment styles provided. The labour market institutions-including those encouraging skills development, training, and

re-educating of human resources- may need further development in order to improve the efficiency of the matching function.

New evidence (Schaede, 2008) indicates that the overall picture may be somewhat more hopeful than the present study suggests. While we do not yet have a statistical picture of the labour matching consequences of Japanese restructuring in the wholesale industrial sectors, it appears that long-term productivity problems in Japan have been finding an increasing resolution through the divestment of unrelated business group enterprises and the increasing focus of Japan's large-scale companies on enterprise specific product and skill development.

4. Conclusion – Balancing the Capital Requirements of Japanese Business Drives the Structural Nature of the Labour Mismatch

Both the proximate origins of the labour mismatch and the nature of its solution (or lack thereof) have their locus within the Japanese corporation, or by extension, the relational nature of Japanese firms rather than in the kind of government policies which other nations approach through fiscal and monetary policy and which Japan has traditionally approached through a blend of indigenization of technology, technological diffusion across corporate groups, with financing for the "high end" or high technology elements of this process tied in one way or another to administrative guidance (Johnson, 1983,1995). It is also perhaps more appropriate to examine these behaviours, both with respect to cause and effect, at the firm level (see Appendix 3), since mounting empirical evidence shows that if there is any long-run governmental approach to these problems it is not merely composed of general elements, like shifting many of MITI's original duties to Keidanren, but more importantly, achieving market efficiency and liquidity by returning much of the remaining control over industrial policy from the bureaucrats back to the corporations.[6] As Schaede (2007) so eloquently phrases it:

…The systemic changes in Japan's financial markets are irreversible and therefore constitute a strategic inflection point. Contested corporate control has become an indelible part of Japanese finance and corporate governance. While it is too early to evaluate the performance consequences of this shift, we cannot afford to overlook this epochal transformation in incentives and constraints faced by Japanese firms.

Without putting too fine a point on it, more or less, every piece of empirical, statistical and theoretical evidence indicates that the old system of full employment in Japan is gone for good. The labour consensus (with an emphasis on performance which was always at best oblique and often orthogonal to performance indicators in other OECD countries) has proven unsustainable both demographically, given an aging population and what may well be a educational mismatch, as well as empirically unsupportable as both the statistics on labour performance as well as U/V-Beveridge curve analysis indicates. After approximately 2001 (see Appendix 3) there is a confluence of labour factors which combine to "lock-in" *structural unemployment* at roughly the 5% level.

As a result of restructuring and growth in private enterprises, the skills required to fill the previously displaced workers may have changed. The increase in temporary jobs may indicate the increase in flexibility as well as the need to "pool" across various skills. The

responsiveness of the labour market depends not only on the willingness of the unemployed to fill jobs but also on the responsiveness of employers to fill vacancies. Policies to address unemployment should not only be directed at re-tooling of skills of the unemployed to increase the responsiveness of workers, but also to increase the responsiveness of the employers to fill the vacancies with workers, as an important measure to address the problem of structural unemployment.

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Appendix

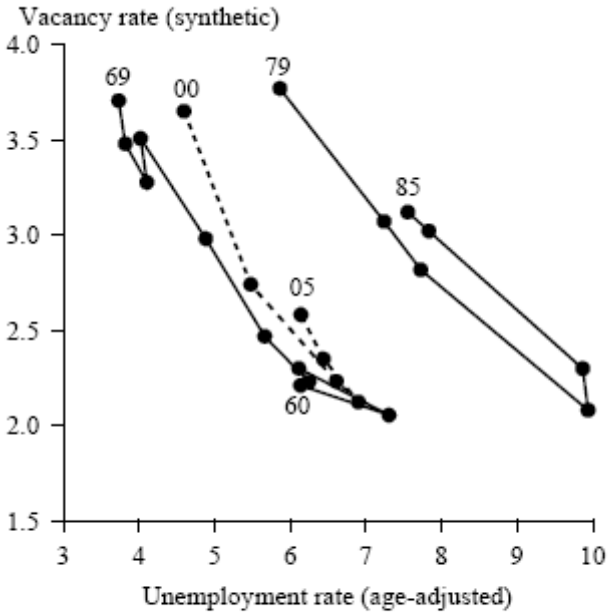
Appendix 1. Application of the Beveridge Curve to Job Matching in the U.S. Labour

Market[7]

Forming the Empirical Beveridge Curve

Figure 1 displays the U.S. Beveridge curve based on the vacancy rate series and age-adjusted unemployment rate series for selected periods between 1960 and 2005.

Figure 1: U.S. Beveridge curves, adjusted



Note: Data for 2005 are through Q2. Underlying data are seasonally adjusted.
Source: U.S. Bureau of Labor Statistics, Conference Board, and authors' calculations.

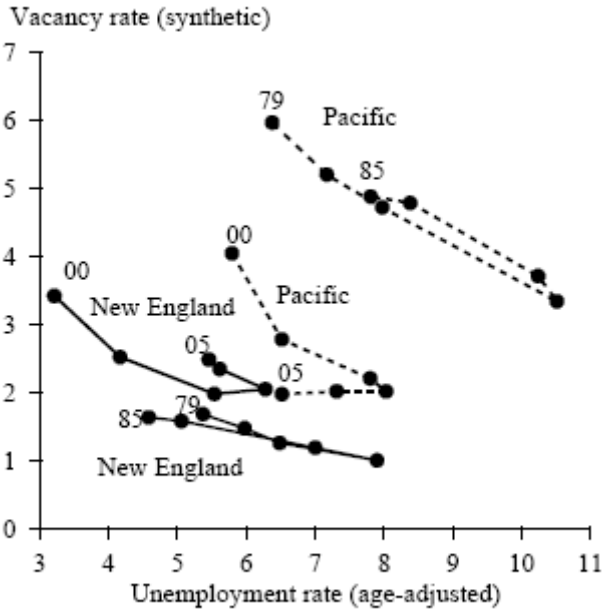
The Beveridge curves in this figure exhibit a typical counterclockwise adjustment pattern around recessions (1960-61, 1981-82, and 2001), as vacancies rise more quickly than unemployment falls during the recovery phase. The outward shift in the Beveridge curve between the periods 1960-69 and 1979-85, as identified by Abraham (1987), is clearly evident, as is a substantial inward shift between 1979-85 and 2000-05. This pattern suggests that the speed and effectiveness of the job-matching process deteriorated in the 1970s through the early 1980s and then improved.

Regional Mismatch

One leading explanation for these movements in the Beveridge curve is changes in the dispersion of employment growth across regions. If labour demand is growing in some parts of the country and shrinking in others, a "regional mismatch" can occur, whereby large numbers of unemployed individuals must move across geographic regions in order to be matched with available jobs. The need for such costly and time-consuming geographic reallocation slows down the job-matching process and increases the likelihood that unemployment and vacancies will both exist at high levels. Indeed, Abraham found that rising regional mismatch accounted

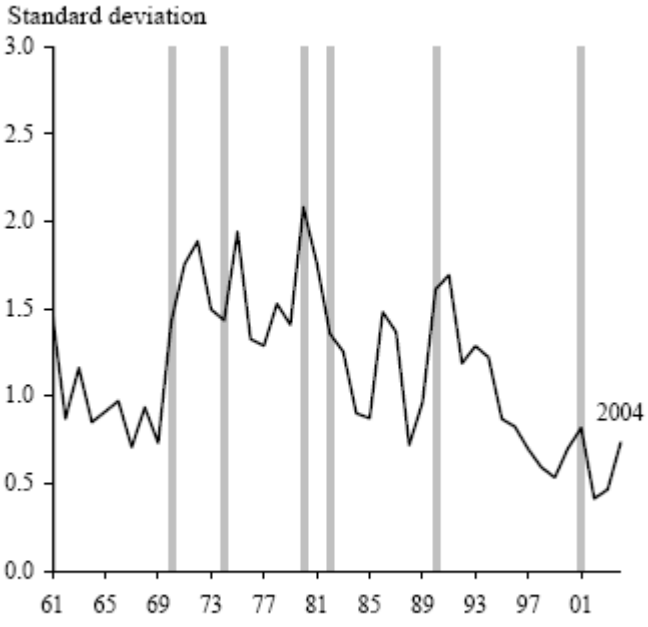
for a large share of the outward shift in the Beveridge curve between the 1960s and early 1980s (as depicted in Figure 1).

Figure 2: Regional Beveridge curves, adjusted



Note: See Figure 1.

Figure 3: Employment growth dispersion



Note: Gray bars denote recessions.

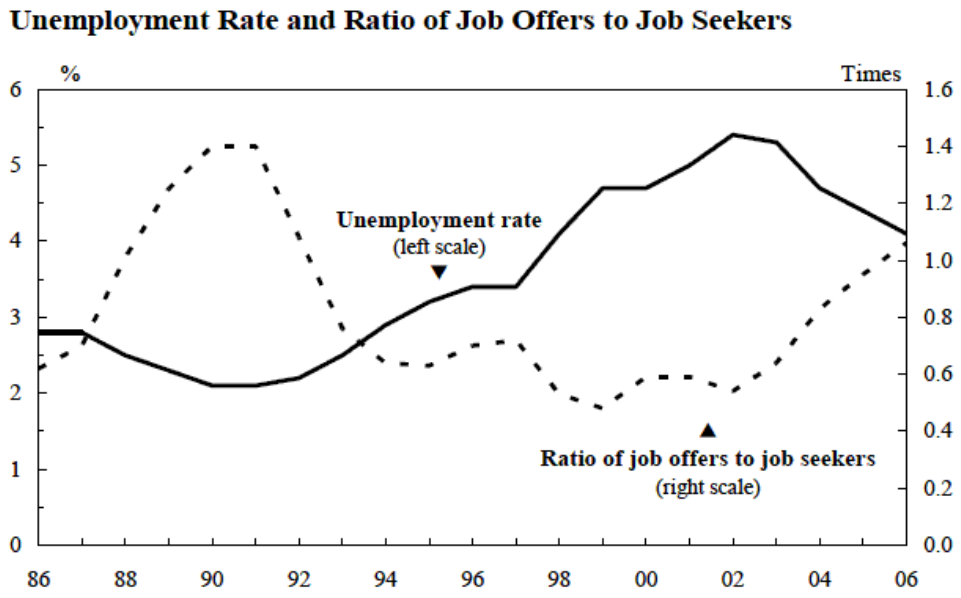
As a graphical illustration of changes in the degree of regional mismatch, Figure 2 displays Beveridge curves for two of the nine census divisions: New England and the Pacific. Their Beveridge curves were far apart during the years 1979-85, reflecting substantial geographic

mismatch in the strength of labour demand. Since then, the regional curves have largely converged, indicating a decline in mismatch. While we only display two regions in Figure 2, this pattern of convergence in labour demand and supply conditions is evident across U.S. regions and states more generally.

The adjusted vacancy and unemployment data that we use indicate that a pronounced inward shift in the position of the Beveridge curve has been evident since the mid-1980s, reversing the earlier pattern identified by Abraham (1987) and implying reduced job reallocation or increased efficiency for the job-matching process in the United States. Our analyses of regional Beveridge curves and the dispersion of labour demand across regions suggest that a decline in necessary job reallocation was responsible for this shift. In particular, the process identified by Abraham (1987), whereby increasing dispersion of labour demand growth across geographic areas caused the Beveridge curve to shift out, has been reversed, causing the Beveridge curve to shift back in.

More generally, our finding of inward shifts in the Beveridge curve over the past two decades reinforce Katz and Krueger's (1999) conclusions regarding improved U.S. labour market performance in the 1990s. The inward shift in the Beveridge curve may underlie the more favorable tradeoff between unemployment and wages that has been estimated for the 1990s. Moreover, we find that these favorable trends continued into 2005. These findings suggest that the Beveridge curve may merit renewed attention by researchers.

Appendix 2. Japanese Unemployment Measured in Terms of Job Offers to New Employees



Source: Statistics Bureau, MIC; Ministry of Health, Labour and Welfare.

Appendix 3. Official Measures of Economic Productivity of Japanese Firms

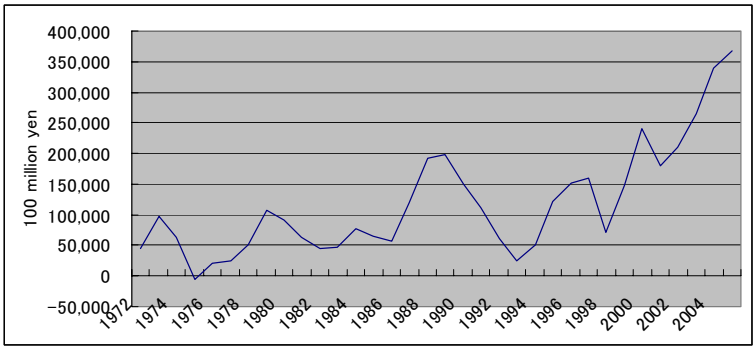


Figure 1. Net Operating Income of Japanese Firms (Source: Ministry of Finance)

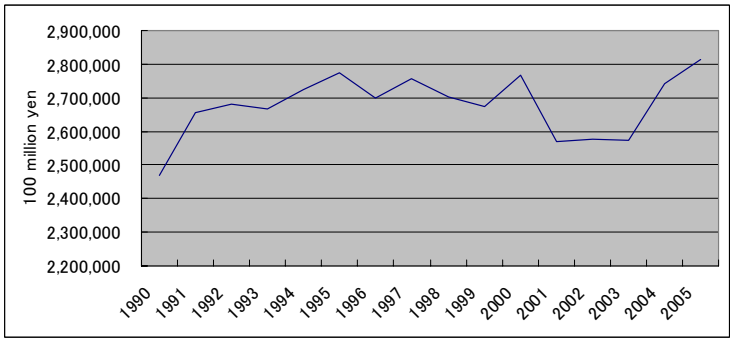


Figure 2. Value Added in Japanese Corporations 1990-2005 (Source: Ministry of Finance)

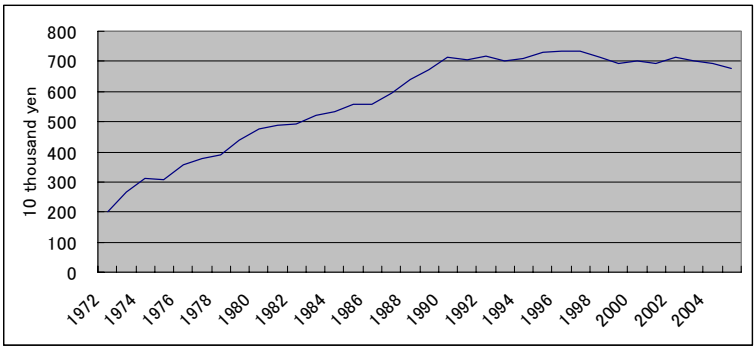


Figure 3. Labour Productivity of Japanese Firms (Source: Ministry of Finance)

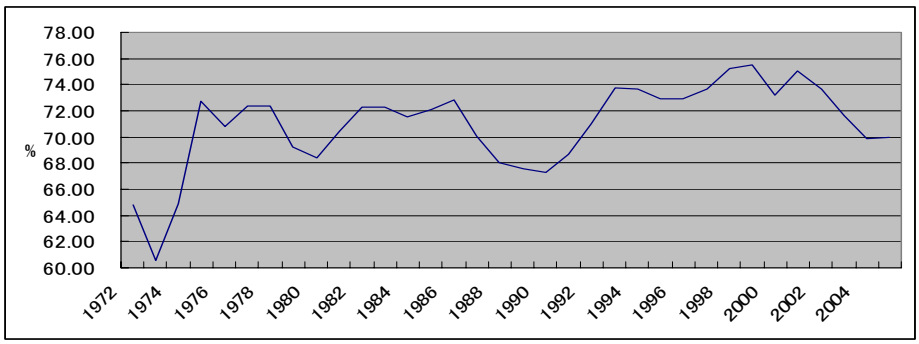


Figure 4. Labour Cost as a Component of Production (Source: Ministry of Finance)

There are a number of obvious trends in even this loose agglomeration of data. First, there appears to be no real increase in labour productivity since the collapse of the bubble economy, suggesting that improvements in profitability have been driven by a combination of reduction in labour costs and improvements in technology. Coupled with the data presented earlier in this paper, this suggests that the labour mismatch may run as high as 5%, and represents a new structural accommodation of Japanese firms to globalization.

Another disturbing implication here is that there is a considerable pattern of dysfunction hysterisis or path-dependence in the structure of the Japanese labour market (see Brunello, 1990; Brunello and Hashimoto 1993; Aoki, 2001, 2006). Aoki's consideration of the T-form organization (ex Williamson) in place of the traditional J-Form organization, where employees invest in largely generalist skills, suggests that this embedded structure in the Japanese labour markets creates not only a mismatch which is structurally embedded as a new form of unemployment, but also that Japan's economy may (post 1990) be more vulnerable to technology shocks than it has previously been (Mortensen and Pissiarides, 1999, Windrum and Birchenhall, 2001).

Notes

1. Different authors date the collapse of the bubble economy differently. In a 1989 visit to Japan, then U.S. Assistant Secretary of Defense Richard Armitage cautioned LDP leaders that Japan's real estate and stock market booms were following the pattern of pre-crash markets in the United States in 1929 and dates the collapse of the bubble economy to the period immediately following the general elections of 1990 (speech to the Association of Former Intelligence Officers, May, 1991). Similar arguments can be found elsewhere, notably in Lu and Mourdoukoutas (1997) and Rozman (2001), etc.

2. Moriguchi and Ono trace these practices to the early post-war era, arguing that "While management was paralyzed by economic disorder and political turmoil, many employee unions won extremely favorable contracts during 1945-49 that stipulated generous wage increases, a variety of welfare benefits, and employment security (Gordon 1985, p.345). By 1950, a large majority of large firms (with 500 or more employees) instituted major corporate welfare programs...Many unions also won a "union shop" provision that required every

regular employee of a company to be a union member, and in exchange, management won a clause requiring every union member to be an employee of the company. This exclusive employee membership later became a hallmark of enterprise unionism. As a dramatic symbol of labour victory, major unions also won pure "seniority wages" in which wages were determined based on employees' age, tenure, and family conditions, rejecting any merit based components insisted by employers" (pp. 11-12) although they immediately note that "Labour's initial victory, however, was soon challenged by management's counteroffensive" (p. 12) for which reason, like Gibney, we look to the 1960's as the beginning of the modern lifetime employment system, notwithstanding either the programs of the early Occupation or the welfare improvements made to labour in many large Japanese corporations during the interwar years (Morley et al.).

3. For simplicity we have borrowed this definition from "What is Macroeconomics?", an undergraduate teaching tool at Northwestern University located at:

http://facultyweb.at.northwestern.edu/economics/gordon/IM_01%20READY.pdf

Understandably, anyone who actually lived through the period of the late 1970's saw many of these apparently constant and well understood macroeconomic relationships confounded by the unfolding of real world events which traditional macroeconomic theory had ruled out as all but impossible (for further details see Reaume, 1996).

4. Christopher Wood (2005), for example, notes that by 1992 the Industrial Bank of Japan and the Long Term Credit Bank of Japan each had three to four billion dollars in outstanding loans on non-performing properties where credit had been extended through relational financing mechanisms. He subsequently argues that as much as 80% of Japanese bank loans during the early 1990's may have been collateralized by vastly over-valued real estate.

5. See Ministry of Health, Labour and Welfare (2004). English summary is available online. See http://www.mhlw.go.jp/english/wp/l-economy/index.html

6. Schaede (2007) likewise notes: "The severe recession of the 1990s culminated in a fundamental reorientation of Japan's legal framework for business and finance, and with it the processes of regulation and oversight. This shift marked a strategic inflection point in Japanese business organization, in that the previous ways and processes of doing things were no longer a means to success; to compete, companies and banks had to completely reorient their business strategies (Burgelman/Grove 1996)… The new strategy that emerged in the early 21st century for corporate reorganization was labelled "choose and focus" *(sentaku to shūchū*). Referring to corporate unbundling, this was a call for companies to identify their core businesses and concentrate all their resources (human, capital and managerial) on winning in these core businesses. This strategy involved shedding all non-core business units and downsizing through outsourcing processes and functions not directly contributive to core profits. All this culminated in a new "Corporation Law" of 2006, which replaced the Commercial Code as the main set of rules on corporate behavior. This law was based on nothing less than a complete reversal in regulatory philosophy, by shifting from the previous logic of "ex ante regulation" (i.e., everything that is not explicitly allowed is therefore

prohibited) towards "post-remedy" rules (everything that is not specifically prohibited is therefore allowed, with courts ruling on problematic issues as they occur)."

7. Abstracted from Valetta, Rob and Hodges, Jaclyn (2006) "Job Matching: Evidence from the Beveridge Curve", Economist's View, Economic Letter, Federal Reserve Bank of San Francisco, 2006 - see

http://economistsview.typepad.com/economistsview/2006/04/revisiting_the_.html