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## Work and pay in flexible and regulated labor markets: A generalized perspective on institutional evolution and inequality trends in Europe and the US

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**Work and Pay in Flexible and Regulated  
Labor Markets:  
A Generalized Perspective on  
Institutional Evolution and Inequality Trends  
in Europe and the U.S.**

Earlier versions of this paper were presented at the April 2002 meeting of the Research Committee 28 (Social Stratification) of the International Sociological Association in Oxford, England in July 2003 at the Wissenschaftszentrum Berlin für Sozialforschung, Berlin, and in December 2003 at Nuffield College, Oxford. Partial funding for this research was provided by the INSEE, by Duke University, and by the Social Science Research Center (Wissenschaftszentrum Berlin für Sozialforschung), Berlin. We thank Günther Schmid, Markus Gangl, Francis Kramarz, John Goldthorpe, Richard Breen, Duncan Gallie, and Anthony Atkinson for comments on an earlier version of this paper. Please direct correspondence to: *Thomas A. DiPrete*, Department of Sociology, Duke University, Box 90088, Durham, NC 27708-0088, email: [tdiprete@soc.duke.edu](mailto:tdiprete@soc.duke.edu) or to *Eric Maurin*, Département de la Recherche, Timbre J 310, CREST-INSEE, 3 Avenue Pierre Larousse, 92245 Malakoff Cedex, France, email: [maurin@ensae.fr](mailto:maurin@ensae.fr);

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## ZUSAMMENFASSUNG

In den letzten Jahren hat sich eine "unified theory" aus der Arbeitsökonomik herausgebildet, in der die Meinung vorherrscht, dass die Kombination makroökonomischer Schocks und flexibler Arbeitsmarktinstitutionen in den USA eine starke Zunahme der Lohnungleichheit verursacht habe, während die gleichen Schocks in Europa vor allem für gering qualifizierte Arbeitnehmer eine hohe Arbeitslosigkeit und geringe Beschäftigungsniveaus gebracht hätten als (unerwünschter) Nebeneffekt der durch die strikten institutionellen Regelungen des Arbeitsmarkts in Europa rigiden Löhne.

In der vorliegenden Analyse wird hingegen argumentiert, dass Institutionen in Europa eigene Formen der Flexibilität entwickelt hätten, die – im Gefolge der in der "unified theory" beschriebenen Schocks – ebenfalls zu einer zunehmenden Ungleichheit in Europa geführt hätten, aber eben in anderer Gestalt. In Frankreich sei beispielsweise die Ungleichheit bei der Arbeitsplatzsicherheit schneller gewachsen als in den USA. Darüber hinaus hätten Entwicklungen auf dem französischen Arbeitsmarkt dazu geführt, dass sich gering qualifizierte Arbeitnehmer in unsicheren Beschäftigungsverhältnissen konzentrierten.

Diese Ergebnisse stellen eine Herausforderung an die Sichtweise dar, dass Arbeitslosigkeit der Hauptmechanismus sei, durch den die europäischen Arbeitsmärkte asymmetrische Schocks auf der Arbeitsnachfrageseite absorbierten. Ebenso wird in Frage gestellt, dass Europa nicht bereit sei, Ungleichheit zu tolerieren; vielmehr wird die Annahme gestützt, dass der Hauptunterschied auf den beiden Seiten des Atlantiks in dem *Typus* von Ungleichheiten liegt, den die jeweiligen Gesellschaften zu tolerieren bereit sind.

## ABSTRACT

In recent years a “unified theory” has emerged out of labor economics, which argues that a combination of “macroeconomic shocks” and flexible labor market institutions in the U.S. has produced strong upward trends in wage inequality, while these same shocks have produced high unemployment and low employment growth in Europe as a side effect of the wage stability preserved by that continent’s rigid labor market institutions. This paper argues instead that European institutions in fact have evolved their own form of flexibility, which, in combination with the macroeconomic shocks described in the unified theory, have also led to rising inequality in Europe, but of a different form. Taking France as an example, inequality of employment security has risen faster here than in the U.S. Furthermore, trends in the French labor market have led to increased concentration of low-skill workers in these insecure job statuses. These results challenge the view that unemployment is the main mechanism through which European labor markets absorbed asymmetric shocks to their demand for labor. They also challenge the view that Europeans have intolerance for inequality, but instead suggest that the main difference between the two sides of the Atlantic concerns the *nature* of the inequalities that each society is willing to tolerate.

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## 1. Introduction

“... the U.S. experience of declining unemployment, falling to steady real wages, and rapidly rising wage inequality and the EU experience of rising unemployment, rising real wages, and comparatively stable relative-wage levels are two sides of the same coin. The United States permitted real and relative wages to adjust, while many countries in Europe ... chose to let employment take the brunt of the shocks.”

Blau and Kahn (2002, p. 256)

Comparisons between the performance of the American and European labor markets has been a topic of growing interest both among scholars of the labor market and of the welfare state. The reason for this attention is the evidence that labor market trends have moved in separate directions on the two sides of the Atlantic Ocean. The American labor market has experienced a sharp rise in earnings inequality. In Europe, the most notable change has been stagnant job growth and high unemployment. Whereas unemployment in western European countries was lower than in America in the 1970s, unemployment is now relatively high in Europe while wages remain relatively high and inequality remains low in comparison with the U.S.

Why do the experiences of Europe and America appear to be trending in different directions? A group of scholars have recently analyzed a decade of research by labor economists and argued that these apparently divergent experiences can be explained by what has been termed a “unified theory” (Blank 1977; Blau and Kahn 2002; see also Krugman 1994). As shown in the quotation at the start of this paper, the unified theory argues that differences in the labor market structure of European and American countries have produced two distinct reactions to a common set of macroeconomic “shocks.” According to this theory, the U.S. tolerates large differences in individual-level labor market outcomes, while Europe prefers relatively homogeneous outcomes for workers. The interaction between the “shocks” of the past twenty five years and these different institutional preferences has led to the divergence in labor market outcomes between the U.S. and Europe.

The current paper challenges this theory's depiction of European institutions as rigid and preserving of relatively egalitarian outcomes for workers at the expense of those not able to work (who are then supported by the safety net of the European welfare state). We challenge also the empirical contrast between a Europe with stable inequality at the cost of low employment growth and high unemployment and a U.S. with rising inequality. We argue instead for a generalized theory of labor market evolution that takes a broader perspective on both institutional flexibility and on inequality than does the unified theory.

Our generalized theory sees institutional flexibility as growing on both sides of the Atlantic, though both the trend and the pattern of flexibility take a different form in Europe than in the U.S. We further argue that rising institutional flexibility has generated increasing levels of inequality on both sides of the Atlantic. However, the inequality is of a more generalized nature than commonly portrayed. When one understands a job as an employment relationship, one sees that the "returns" to the job go beyond wages to include employment security as well. Either component of a job's "returns" can be more or less unequal across the population of employed workers. Considering both outcomes together yields a concept that might be termed "generalized inequality." Generalized inequality, we suggest, actually has been increasing on both sides of the Atlantic, but institutional differences have caused inequality in the employment security component to grow relatively rapidly in Europe, while inequality in the wage component grew rapidly in the U.S. We present empirical evidence to support this for the case of France, which is portrayed by the unified theory as a typical European country having a highly regulated labor market, stability in wage inequality, and high unemployment relative to the U.S.

In particular, this paper demonstrates several important differences between trend and distribution of insecure job positions in a typical continental European country like France and in the U.S. First, just as low wages in the U.S. characterize the employment experience of young and low-skill workers, low-security jobs in France are heavily concentrated among young and low-skilled workers. Second, just as market globalization and technological changes have increased the proportion of low-paid jobs in the U.S. and induced stagnation in American real wages, these forces have increased the overall proportion of low-security jobs in France in the past two decades; this *increase* in job insecurity has been larger in France than in the U.S. Third, the increase in job insecurity has been more significant for *low-skilled* than for *skilled* French workers. This trend is a direct consequence of the interaction between the flexible employment regulations implemented in France (as in most European countries) in the 1980s and the recent macroeconomic shocks emphasized by the unified theory. The empirical results of this paper challenge the view that unemployment is the main mechanism through which European labor markets absorbed asymmetric shocks to their demand for labor, and also challenge the unified theory's assertion that levels of inequality are relatively stable for those French workers who



do have a job. In generalized terms, we find that inequality has risen rapidly in France just as in the U.S.

## 2. A Generalized Theory of Labor Market Evolution

During the early 1970s, unemployment in Western Europe was under 3% while U.S. unemployment was almost 5% and a source of serious political concern. But between the early 1970s and the late 1990s, western European unemployment had tripled while American unemployment had fallen. Wage inequality in the U.S., however, increased dramatically during these years even as real wage growth was stagnant; in contrast, wage inequality has increased only modestly in Western Europe. How should we explain such different relative positions of these regions in the 1970s and the present time?

An emerging new “unified theory” of labor markets seeks to explain these trends as the product of an interaction between “macroeconomic shocks” and relatively stable but cross-nationally variable labor market institutions. The unified theory can be summarized in terms of three propositions: [1] the major institutional features of major industrialized countries have remained relatively stable since the 1970s (when unemployment was relatively low in Europe and high in the U.S), [2] the macroeconomic context has changed considerably since the 1970s; specifically, the industrialized world has experienced a common set of “macroeconomic shocks” during this period, and [3] the labor market outcomes in a country are a product of the *interaction* between that country’s institutional features and the common global “macroeconomic shocks.”

The unified theory’s assertion of institutional stability over time and heterogeneity across countries can be expressed in more sociological terms as the assertion that European countries have a preference for relatively egalitarian employment relationships. Labor market outcomes are defined at the social as well as the individual level (what the Germans call the “Sozialmarkt”), and this social character is preserved even to the detriment of economic and employment growth. In contrast the U.S. has a preference for an efficient labor market. Labor in the U.S. is more fully commodified, labor market outcomes are more “individual” in character, and differences in worker productivity translate into wage inequality in order to maintain strong incentives to work and high rates of economic growth.

The major common “macroeconomic shocks” to global labor markets during the past thirty years have been [1] low productivity growth, [2] inflation in the 1970s followed by disinflation in the 1980s and 1990s, [3] growing levels of in-

ternational trade, and [4] a technologically driven steady decline in the relative demand for low-skilled labor (Blank 1997, Blau and Kahn 2002). According to the unified theory, these three macroeconomic shocks produced downward pressure on low-skill wages and upward pressure on wage inequality in all industrialized countries. However, the realization of these pressures as actual trends in labor market outcomes depended on the character of national labor market institutions.

According to the unified theory, the impact of these shocks on the American labor force was largely unbuffered by labor market regulation. While not an explicit part of the unified theory, it is arguable that the flexibility of American labor markets increased even further over this period, mainly because of the Reagan era decline in the power of American unions but also because of changes in the compensation policies of American corporations, which used (now empirically discredited) theories of performance-based executive compensation to further erode already only weakly-constraining wage norms in the U.S. Because U.S. wage setting mechanisms are flexible, American wages adjusted to these shocks and their impact on employment levels was relatively small. In contrast, the rigidity of European wage-setting mechanisms minimized the impact of these shocks on the wage structure and redirected their impact onto unemployment and employment levels for low-skill workers. American and European arrangements represent two opposite responses to the same basic growth-equality trade-off.

Supporters of the unified theory cite many empirical studies as support for the theory's main hypotheses (Blau and Kahn 2002). At the same time, however, important aspects of the empirical record are not obviously consistent with the theory's predictions. One conundrum concerns the experience of countries like the Netherlands, Denmark, Norway or Austria, who have unemployment rates comparable to U.S. rates even as their wage-setting institutions are comparatively centralized, their unemployment insurance is generous and their level of wage inequality is low. Also, despite extensive empirical investigation, there exists only mixed evidence that the high European wage floors have reduced relative employment levels for lower-skill workers, so a key component of the unified theory remains in some doubt (Blau and Kahn 2002, chapter 6, see especially p. 223).

For example, recent research on unemployment in the U.S. and Germany finds that the rate of employment growth for low skill workers in Germany was almost identical to that in the U.S. despite dissimilar wage trends (Krueger and Pischke 1997). Specifically, the wages for low skill workers have risen in Germany in recent decades, in both absolute and relative terms, while they have been declining in the U.S. (Krueger and Pischke 1997, Juhn, Murphy and Pierce 1993). These facts are at odds with the unified theory, which predicts that low skilled German workers should experience especially low employment growth

rates because the persisting high floor on their wages should price them out of the labor market. Additional research finds that growth in unemployment among German workers was not concentrated among low-skill workers (Gottschalk and Smeeding 1997). Moreover, Card, Kramarz and Lemieux (1999) found that while the relative wages of French workers with low skills did not fall from the beginning to the end of the 1980s (which contrasts sharply with the American experience), employment growth among low skill groups was not slower in France than in the U.S. (see also Nickell and Bell 1995, 1996 for additional contrary evidence). While the opposing evidence may not be decisive,<sup>1</sup> it has led to a search for alternative explanations for the different inequality trends in the U.S. and France than that offered by the unified theory.<sup>2</sup>

The current paper criticizes the unified theory, but also goes beyond criticism to develop a plausible alternative theory of relative inequality trends on the two sides of the Atlantic. In our view the empirical failings of the unified theory arise from limitations in its conception of institutional change and of core labor market outcomes. On the institutional side, the unified theory does not fully acknowledge the importance of changes that took place in Europe in the early eighties, when new flexible labour contracts became possible and when the costs to employers of making layoffs were reduced.<sup>3</sup> On the macroeconomic side, it neglects the rapid globalization of western economies, where financial and physical capital is increasingly mobile and markets increasingly instable (Morris and Western 1999). Because of these two omissions, the unified theory

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- 1 One limitation of the evidence in Card, Kramarz and Lemieux (1999) and Kreuger and Pitsche (1997) is that it does not control for industry. Arguably the unified theory's prediction of a tradeoff between the wage and employment levels of low-skill labor would occur within specific industries, not at the level of the aggregate economy. Acemoglu (2002) modeled the relationship between changes in relative wages and changes in relative employment levels between high skilled and low skilled labor both under the assumption that technology is the same in Europe and America and under the assumption that technology in Europe is the same as in America after a fixed lag. He found that changes in relative wages are equally responsive to changes in relative labor supply of high and low skilled workers in Germany as in the U.S., which would support the unified theory, but not in Belgium, Denmark, or Sweden, which does not support it. However, his evidence is not definitive because of data comparability issues and his need to make specific assumptions about the elasticity of substitution between skilled and unskilled labor across the countries under analysis. Additional crude evidence that would appear to be not inconsistent with the unified theory is the fact that the ratio of high skill to low skill employment growth was greater in France and Germany than the U.S. during the 1990s, which was a time when wage inequality continued to grow faster in the U.S. than in the two European countries (although the country contrast on inequality trends is not as strong for the 1990s as for the 1980s) (OECD 2003, pp. 41, 44). However, such evidence is only weakly suggestive when age and industry have not been controlled.
  - 2 Acemoglu (2002), for example, has recently conjectured that wage compression in Europe may have motivated European employers to invest more in technology that improved the productivity of less skilled workers, thereby preserving higher than expected employment for this group.
  - 3 Our positing of an institutional theory of relative inequality trends can be seen as a response to the challenge put forward by Morris and Western (1999) for sociology to pay attention to recent trends in inequality, and to develop institutional theories for these trends.

produces a biased picture of American and European choices and outcomes. As will be argued below, one consequence of these omissions is an excessive attribution of trends in labor market outcomes to dynamic shocks as opposed to dynamic institutional structures. A second consequence is an inattention to dynamics in the structure and distribution of employment relationships, which we will show is essential for a complete understanding of the macrostructure and dynamics of inequality in Europe.

Institutional change over the past twenty years has created important new sources of flexibility in European labor markets, and specifically in the labor market of France. Many European countries have overcome the institutional resistance to wage adjustment by legislating employment flexibility. These legislative acts created the possibility of a fixed term contract (FTC), and thereby diminished the cost of laying off permanent workers. From a formal perspective, the use of these contracts is restricted. In France, FTCs are currently allowed by law when the job in question fills a potentially temporary increase in demand, or when the work is inherently seasonal, or when the fixed term worker is temporarily replacing an indefinite term contract (ITC) worker who is absent from the labour force. Furthermore, French employers have an incentive to give an FTC worker an ITC at the end of the maximum 18 month fixed term contract (including renewals) to avoid paying a “termination tax.”<sup>4</sup>

Yet in spite of these limitations, the employment share of FTC and temporary jobs has increased dramatically in France over the two recent decades, from barely 2% in the early eighties to about 9% in 2001. About 80% of workers’ entries and exits in French establishments involve temporary contracts (Goux, Maurin and Pauchet 2003).

The unified theory views institutional constraints on wage flexibility as potentially pricing low-skill labor out of European labor markets. But, while these wage constraints are real, the introduction of FTC jobs has clearly decreased the relative cost of unskilled workers in Europe. Unskilled jobs are indeed the most exposed to the cyclical and seasonal variations in economic activity, and as a consequence, those which suffered the most from employment legislation that imposes rigidities on the labor market. Also, unskilled tasks are by their nature almost as easy for new hires as for experienced workers to perform. Consequently, the low tenure of FTC workers offers no productivity disadvantages to the employer, while the possibility of low cost terminations offers definite reductions in the employer’s overall adjustment costs in case of cyclical downturns.

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4 The precise details of these conditions have changed somewhat over time. Generally speaking, the conditions under which FTC could be used were loosened in 1985 and tightened somewhat in 1990, though these tighter regulations seem to have been inconsequential in practice (Michon and Ramaux 1993; OECD 1999)

Generally speaking, FTCs have provided European employers with a new tool for redistributing labor adjustment costs and employment security across highly skilled and less skilled workers. A major hypothesis of this paper is that European labor markets have absorbed skill-biased technological change by allocating an increasingly large share of unskilled workers to flexible jobs.

Labor adjustment costs have become all the more important and strategic for employers because recent decades have witnessed heightened competition and market instability, and changes not only in the nature of the technological progress, but also in its rhythm. The somewhat loosely defined “globalization” literature sees these changes as forces that have weakened employment security across all industrialized countries. These forces, it is argued, have increased rates of job displacement and have increased the growth rate of “bad jobs” (Kalleberg, Reskin, and Hudson 2000). They also have increased the attractiveness to employers of nonstandard employment that builds employment instability into the job itself. By so doing, employers can more easily respond to turbulence in demand, which is seen as characteristic of advanced economies in a globalizing world. Trend analyses, which document a rising density of contingent jobs during the past fifteen or so years (Golden 1996; Segal and Sullivan 1997; de Grip, Hoevenberg and Willems 1997; Estevão and Lach 2000; Levenson 2000), provide empirical support for this view.

By neglecting the forces of globalization and the differences between secure and insecure job positions, the unified theory provides only an incomplete interpretation of the differences between American and European labor market institutions and performance, and makes predictions that appear to be at variance with empirical observation. The unified theory’s prediction that adjustment to “macroeconomic shocks” occurs mainly through wage inequality and unemployment rates ignores a major aspect of European adjustment, namely adjustment through increased use of contingent jobs.

Our approach remedies this deficiency. We argue that European labor markets have absorbed asymmetric macroeconomic shocks not through rising wage inequality and falling real wages to low-skill workers (as in the U.S.), and not simply through adjustments in their demand for workers possessing various levels of skill, but importantly through the creation of low-adjustment cost/low-security jobs and through the allocation of an increasingly large share of low-skilled workers to these jobs. European adjustment strategies have thereby produced rising inequality, but rising inequality in the employment security rather than the wage component of the employment relationship. Furthermore, we argue that skill increasingly predicts the level of employment security attached to a job, that is, we hypothesize growing “employment security” returns to skill in Europe, which parallel the rising wage returns to skill in the U.S. Thus, we see increases in what we have termed “generalized inequality” on both sides of the

Atlantic; the specific components of the employment relationship that display growing inequality vary, but that fact of a trend is common.

In the next sections, we will review the empirical evidence for our claims. We first develop a comparative approach to the measurement of employment insecurity as a job attribute in France and the U.S. Then we test the key hypotheses underlying our approach, namely that (1) institutional change in labor market structure has indeed occurred in France in response to the “macroeconomic shocks” described in the unified theory, (2) these institutional innovations have led to a genuine increase in labor market flexibility, as measured by changes in the distribution of jobs according to their levels of employment security, (3) inequality in employment security has grown faster in France than in the U.S., even as inequality in wages has grown faster in the U.S. than in France and (4) employment insecurity is increasingly related to skill in France, and thus becomes a major and distinctive labor market response to the macroeconomic “shocks” described in the unified theory. Taken together, our hypotheses imply that “generalized inequality” and generalized returns to skill have grown in both countries, but the different character of institutional flexibility in the two countries has caused the employment security component of the employment relationship to trend more strongly in France while the wage component has trended more strongly in the U.S.

### **3. Concepts and Data**

#### **The Definition of job insecurity in France and the US**

To test the assumption that the forces of globalization and technological change have impacted differently the level and distribution of job insecurity in France and the US, we need to formulate comparable definitions of insecure jobs in the two countries. In this section, we describe the main similarities and differences in contingent jobs and other insecure employment statuses between France and the U.S.

Employment contracts are required by law in the “regulated” labor market of France. However, the laws concerning employment contracts have changed significantly in the past two decades. The legal introduction of FTC dates back to 1979. Before that time, all employment contracts in France provided protection against termination. In 1979, however, a second type of labor contract was legally authorized. This new contract was of limited duration and provided for low-termination costs, but its use was legally restricted to special circumstances;

it was allowable only for the replacement of temporarily absent workers and in the cases of seasonal activity or temporary variations in demand for the company's product.

Several modifications to French labor law since that date have potentially influenced that country's distribution of employment security. Modifications since 1979 have alternatively tightened (in 1982), loosened (in 1986), and again tightened (in 1990) the applicability of FTCs (with the direction of change varying systematically with the left or right orientation of French governments). These changes have generally involved either the set of situations in which employers were permitted to use FTCs, or the tools available to the French administration to enforce labor contract laws. Other changes to French labor law have also potentially affected the distribution of employment security in France. In 1972, the legal framework for temporary help agencies was introduced. In 1986, important changes were made concerning the termination costs a firm must pay: With the elimination of the "autorisation administrative de licenciements", a firm was allowed to lay off workers without first obtaining authorization from the French administration. From 1990 to 2001, there have been no significant changes in the legal framework for FTC.

French labor law in effect creates four levels of attachment to the labor force. At the bottom is unemployment, where attachment to the labor force comes solely from the search activity to find a job. The next most secure status is a FTC. More secure still is an ITC with low employer tenure.<sup>5</sup> The highest level of security comes from an ITC with higher levels of employer tenure, or from a government job. Self-employment stands apart from these categories as a highly heterogeneous status, where employment security is correlated with years of tenure in the business in question.

From a legal perspective, flexible jobs have a manifestly different standing in the United States than in France. In contrast to the French situation, American employers have no legal requirement to define the duration of a job, or even to sign an employment contract with a person they hire.<sup>6</sup> Indeed, in the American

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5 The greater security of ITC workers is enforced by powerful sanctions only after a worker has accumulated two years of seniority. Workers with less than six months seniority in an ITC job do not have the right to prior notification of layoff, while workers who are discharged with less than two years seniority are not entitled to severance pay (Goux, Maurin and Pauchet 2001).

6 The American legal "employment at will" doctrine has been eroded in recent years by court decisions that see an exception to this doctrine in the cases of "public policy" "implied contracts," or "covenants of good faith." However, the "public policy" exception is essentially a (partial) protection against "wrongful" discharge (e.g., firing an employee for refusing a company's order that he perjure himself in a court of law). The "implied contract" exception may see a protection against termination in the provisions of a company's employee handbook, but there is no legal requirement that the company make such representations to its employees. The "covenant of good faith" exception is the broadest challenge to the employment at

context there is no legal definition of a contingent job. Instead a contingent job is defined behaviorally by the Bureau of Labor Statistics (BLS) in more or less restrictive ways based on whether the worker is employed by a temporary agency or on a limited contract, has limited tenure, and has expectations that the job will last only for a fixed duration (for further details, see Polivka 1996).

From a purely behavioral perspective, however, FTC jobs in France and contingent jobs in the U.S. are similar in the expectation that these jobs will terminate in the near future. Employer-provided rationales for contingent jobs in the U.S. — the need to meet unexpected or short-term demand for labor (Houseman 2000) — are consistent with the legally allowable reasons for creating FTC jobs in France. Most (53%) contingent workers in the U.S. report that their jobs will last only until the end of their current project, 18% are hired for a fixed time period, 9% are temporarily replacing another worker, and 8% are seasonal (Hipple 2001).<sup>7</sup> These expectations of American contingent workers concerning the duration of their jobs are likewise consistent with French legal conditions for the creation of FTC jobs. In the U.S. as in France, the distinction between “temporary” and “probationary” workers is ambiguous; in practice, roughly half of all employers who use contingent workers indicate that they “often,” “occasionally,” or “sometimes” move workers from these positions into regular jobs (Houseman 1998). Contingent jobs in the two countries are similar in one additional respect: the holders of these jobs sometimes work for temporary help agencies and sometimes are directly hired as short-term workers by the company at which they physically do the work.<sup>8</sup>

Yet despite the behavioral similarity of FTC jobs in France and contingent jobs in the U.S., the national incidence rates and the trends in these rates are very different. While the BLS did not collect data explicitly about contingent jobs until 1995, indirect and partial evidence suggests that the use of contingent workers generally increased in the U.S. from 1972 until the middle 1990s (Segal and Sullivan 1997).<sup>9</sup> The BLS estimated that, by its most expansive definition, about 4.3% of American workers were contingent in the middle 1990s, but that the proportion of contingent workers in the labor force has gradually declined

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will doctrine, but “the vast majority of courts have rejected reading such an implied covenant into the employment relationships.” (Muhl 2001, p. 10).

7 Note that the CPS survey is in February, a time when the seasonal workforce is relatively small.

8 In the U.S., roughly 25% of contingent workers are employed by temporary help agencies, with the rest being either direct short-term hires or self-employed short-term contractors. In France, the temporary help agency business is actually slightly larger (in proportion to the work force) than it is in the U.S. In 1996, temporary work business revenues in France were \$11.3 billion, vs. \$47.1 billion in the U.S. This ratio is somewhat larger than is the ratio of population in the two countries (Si Review 2002; see also OECD 1999).

9 The share of total employment provided by the temporary help services industry in particular rose from 0.3% in 1972 to more than 1.8% in 1995 (Segal and Sullivan 1997).



between 1995 and 2001 (Hipple 2001; Bureau of Labor Statistics 2001).<sup>10</sup> With the loosening of employment security regulations in the 1980s, French utilization increased dramatically between 1982 and 1991, and has continued to increase during the 1990s; the proportion of French workers holding temporary jobs increased from about 6% in the mid 1990s to about 10% in the late 1990s and is now much higher than the American figure (Bloch and Estrade, 1999). Also, about 80% of all new hires into French for-profit firms were hired into FTC jobs (Goux, Maurin and Pauchet 2001).

One possible interpretation of the large and increasing cross-national difference in these percentages is that French contingent jobs do not correspond in their level of job security to American contingent jobs. If the different short-term career outcomes of contingent and non-contingent jobs in the French labor market were relatively small, then the higher level of employment security inequality in France suggested by the above-mentioned statistics would not correspond to actual inequality in the career experiences of French workers. Therefore, it is important to establish the consequences of working in jobs with different levels of employment security in the two countries. In the next sections, we compare the employment and wage consequences of three distinct insecure job statuses: unemployment, working in a contingent job, and working in a non-contingent job with one year or less of tenure with the employer. Once we have established the comparability of the behavioral consequences of these job categories, we then proceed to a test of the primary hypotheses of this paper.

## Data and Measures

We use data on contingent jobs from the Contingent and Alternative Work Arrangements Supplement to the Current Population Survey in 1995, 1997, 1999 and 2001 to analyze the cross-sectional distribution and very recent trends in the United States.<sup>11</sup> For the French case we analyze distribution and trends over a longer period of time with the Labor Force Surveys for 1982, 1991, 1995, and 2001, all of which contain information on the type of labor contract (including FTC). We use data from the NLSY79 for the years 1994-2000 to analyze the consequences of insecure employment on subsequent employment, wages, and

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10 The most expansive definition of contingent work used by the BLS ("estimate 3") includes self-employed workers and independent contractors with tenure and expectation of continued employment of one year or less, as well as temporary workers and contract workers, regardless of their current tenure. Unlike more restrictive estimates, estimate 3 does not require that the worker expect their jobs to end within one year. The job is contingent so long as the employee views the job as temporary for reasons related to the structure of the job. For further details, see Polivka (1996).

11 The CPS did not begin using questions designed to measure contingent jobs until 1995.

wage growth for American workers.<sup>12</sup> To analyze individual-level outcomes in France, we use the *Formation et Qualification Professionnelle* (FQP) Survey. The FQP survey was conducted in May 1993 by the French *Institut National de la Statistique et des Etudes Economique* (INSEE). It covers a sample of 18,000 people between the ages of 20 and 65, is representative of the French population, and provides information on employment status in May 1988 and May 1993, total compensation (earnings plus benefits) in calendar year 1992, and other relevant factors such as education (highest degree), age, occupation, type of contract (e.g., FTC, ITC), and the employer's industry. Sample members of the NSLY were between 29 and 37 years old in 1994. To create a comparable analysis, we analyzed career outcomes for French workers in this same age range.<sup>13</sup>

The French definition of contingent job includes all wage and salaried employees who do not hold a regular indefinite-term contract, which includes workers under fixed-term contracts (including seasonal contracts), workers sent by temporary help agencies, workers with temporary contracts in the public sector (i.e., *contractuels, auxiliaires, vacataires, pigistes*, etc.), and trainees and workers who benefit from subsidized contracts for job market integration or trial periods. The 1994, 1996, and 1998 waves of the NLSY79 contain questions that allow an operationalization of contingent work similar to that used in recent BLS studies (Polivka 1996; Hipple 1998, 2001). We used these questions to operationalize contingent work as those workers who said they were a temporary worker sent by a temporary help agency, or that they were a temporary worker hired directly by the company. Our analysis of CPS data made use of the BLS definition 3 of contingent workers (self-employed and independent contractor workers with tenure and expectation of continued employment of less than one year, plus temporary workers and contract workers regardless of their tenure or expectation of future employment), but was modified to exclude the self-employed to correspond more closely with the French definition.

To make industry measures comparable, we classified workers in both countries into the 17 industry categories from the International Standard Industrial Classification (ISIC). We coded education in both countries into the CASMIN (Comparative Social Mobility in Industrial Nations) categories (Müller et al. 1989; Shavit and Müller 1998). The full set of categories consists of: (1a) Inadequately completed general education, (1b) General elementary education, (1c) Compulsory elementary education and basic vocational qualification, (2a)

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12 Unlike the NLSY79 data used in previous studies (e.g., Ferber and Waldfogel 1998, 2000), the 1994, 1996, and 1998 waves of the NLSY79 contain explicit measures of whether a sample member worked in a contingent job.

13 According to data from the CPS (Hipple 2001), 26% of all contingent workers in the U.S. were between 25 and 34 years old, and another 18.5% were between 35 and 44 years old. Thus, the age range covered by the NLSY79 contains a numerically significant proportion of all contingent workers in the U.S.

Secondary, intermediate vocational qualification or intermediate general qualification *and* vocational qualification, (2b) Secondary, intermediate general qualification, (2c\_gen) Full *general* maturity certificate (secondary school), (2c\_voc) Full vocational maturity certificate or general maturity certificate *and* vocational qualification, (3a) Lower tertiary education, and (3b) Higher tertiary education (including the successful completion of a traditional academically-oriented university education). The operationalization of these categories for the U.S. and France are indicated in the table notes of this paper, with the details of the French operationalization available in Maurin and Goux (1998).

#### **4. Results – Comparing Contingent Jobs in France and the U.S.**

Because we have shorter-interval panels for the American case, we analyze employment consequences there over both a two and a four year period. The data for France allow us to measure employment effects five years after the respondent's May 1988 employment status. We used a propensity score analysis to estimate the effects of employment status on job outcomes. A propensity score analysis matches sample individuals in a particular "treatment" state with other sample individuals who have the same probability of being in the treatment state but who are in fact in the "control" state. For analyzing the instability implications of unemployment, the treatment state is unemployed and the control state is employed. For analyzing the instability implications of being in a contingent job, the treatment state is contingent job and the control state was non-contingent job. For analyzing the instability implications of having low tenure in a non-contingent job, the treatment state was low tenure in a non-contingent job and the control state was higher tenure levels in a non-contingent job. Appendix A provides more details on the matching methods used in this paper.

The three panels of table 1 compare outcomes two years in the future between American contingent and non-contingent workers, unemployed and employed workers, and low tenure and higher-tenure workers, respectively. Within each panel, the first column compares differences in the proportion of workers in the treatment and comparison group who were employed at time 2. The second column reports average differences in wage levels at time 2 conditional on the matched cases actually working at time 2. The third column compares differences in wage growth between times 1 and 2, conditional on working at both times 1 and 2. Column 4 compares differences in the change in log wage, conditional on working at both times 1 and 2. Columns 5, 6, and 7 contain estimates of wage outcomes, wage change, and change in log wage

both for cases who were and who were not working at time 2.<sup>14</sup> By setting the wage at zero for those not working, columns 5, 6, and 7 provide an estimate of the combined wage effect that is produced by differences in wages for those working and the lack of a wage for those not working.<sup>15</sup> Because workers who were unemployed at time 1 have no wage for that time, we do not estimate the average wage change effects of unemployment.

The results in table 1 show a lower probability of employment two years later for contingent workers relative to noncontingent workers in the U.S. For comparison, the second panel shows the effect of unemployment on employment two years later. The effect of unemployment on future employment is larger than the effect of contingent status on future employment for men, while for women the reverse pattern holds. These two patterns cancel each other; the average effects of unemployment and contingent job status on future employment in the two-gender sample are approximately the same size.

The third panel demonstrates that low tenure in a noncontingent job is also an insecure employment status, with an average impact on future employment that is about one-third the magnitude of contingent job status or unemployment. We interpret this effect as due partly to the probationary status of many workers in low-tenure situations, though the determination and termination of a “bad match” can sometimes be made by the employee as well as by the employer. The estimated effect of low tenure on future employment provides a more nuanced interpretation of the effect of contingent job status; about one third of the negative employment effect of contingent job status on future employment may arise from the lack of a strong attachment to the job that is typical for low-tenure workers, while the other two-thirds may be attributable to the explicitly temporary character of contingent jobs.

The contrasts between the three insecure statuses change noticeably when the outcome is wages as opposed to employment. Contingent workers (especially men) experience lower wages two years later than do otherwise comparable non-contingent workers. There is little evidence in the propensity score analyses that contingent job holders face lower rates of wage growth; rather the results suggest that their working in a contingent job puts them (at

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14 In a small proportion (less than 2%) of the NLSY79 cases, workers in contingent jobs reported wages that were either very low relative to the minimum wage, or were very high. Given the heterogeneity found in this group of workers in the American context, some of these values may be true, while others are probably errors in the data. To keep these values from unduly affecting the comparison, we capped wages in 1996 constant dollars below \$3/hr at \$3/hr and those above \$100/hr at \$100/hr (in fact, this transformation had no qualitatively significant effect on our estimates).

15 For the change in log wage analysis, those not working were assigned a wage of \$1 (which implies a log wage of zero). Because we do median comparisons for analyses involving the change in log wage, the results are unaffected by the specific positive wage value that we choose for those not working in the change in log wage analysis.

least temporarily) on a lower but parallel wage track than otherwise comparable noncontingent workers. A more revealing comparison, however, is with low-tenure holders of noncontingent jobs, who, as table 1 shows, have higher average wage growth than more senior workers. Like low-tenure noncontingent workers, contingent workers also generally have low tenure in their jobs. Unlike low-tenure noncontingent workers, however, contingent workers cannot expect higher wage growth to compensate for the risk of higher employment instability. In short, contingent workers are disadvantaged relative to low-tenure noncontingent workers in both future employment prospects and wage growth. They are less disadvantaged than the unemployed however, whose risk of future employment instability is as great as is the risk faced by contingent workers, and whose wage penalties appear to be even greater.

Generally speaking, the consequences of insecure employment relationships four years in the future show the same pattern as two years in the future, but the size of effects is somewhat diminished. Table 2 shows that the effects of both contingent status and unemployment on employment status four years in the future are negative but no longer statistically significant. The low-tenure effects on future employment status are of similar magnitude as the effects of contingent status or unemployment though they retain statistical significance; it is probably the larger sample size for the low-tenure analysis that accounts for the difference in standard errors for these estimates. Unemployment continues to have a negative effect on wages in the four-year as in the two-year analyses, while low-tenure status continues to have a positive effect. The effects of contingent status on wage levels four-years in the future remain fairly similar in magnitude to the two-year effects, but they are not statistically significant at conventional levels. The effects of contingent job status continue to lie between the other two statuses, with unemployment offering the worst prospects and low-tenure status offering the best.

Having established the American case as a point of comparison, we then performed a propensity score analysis of employment and compensation outcomes using the French data over a five year time period (for employment) and over a four year time period for compensation. The results are presented in table 3. The employment consequences of being in a contingent job in France appear somewhat worse than are the consequences in the U.S. French contingent workers have greater employment risks than do French low-tenure workers. The point estimate for contingent job status in France is even larger than the point estimate for unemployment, but table 3 suggests that the ordering of these two insecure statuses depends on gender. Specifically, the future employment risks from contingent job status are greater than the risks from current unemployment status for French men, while the reverse is true for French women. The French five-year results look rather similar to the American two-year results in terms of risk patterns. This pattern suggests that insecure employment

statuses generate future employment risk in both countries, but that the risk tends to decay faster in the U.S. than it does in France.

Recall that the French data provides information about yearly compensation rather than wages. Similarly to the analyses of U.S. data reported above, we estimated both the mean compensation difference between the treated and control samples, and also the median difference in log compensation differences between each matched case from the treatment and from the control groups.<sup>16</sup> Because the measure of compensation applies to the calendar year prior to the survey time, we estimated compensation effects unconditional on employment status at the survey time. Because no information on compensation in the treatment year (1988) is available in the French data, we can estimate the effects of the treatment on compensation levels, but not on change in compensation, as we did for the American sample.

According to the propensity score analyses, the effects of contingent status on future compensation in France are somewhat more negative than in the U.S. For example, the estimated cost of contingent job status for French male workers (FF22,790 per year four years later, or about \$4,272) is greater than the American result (US\$1.44/hr, which equals about \$2,880 for a full-time worker).<sup>17</sup> These differences in the point estimates derive from cross-national differences in the wage/compensation effects for women in the two countries. If we focus solely on men, the French effect (FF18,760 per year four years later, or about \$3,520) is actually smaller than is the American effect (\$2.77/hr or about \$5,440 for a full-time worker). The standard errors are wide enough, however, that we cannot reject the null hypothesis that the male effects and also the combined gender effects are of similar magnitude in the two countries. The French results share the American pattern of showing more negative average earnings effects from unemployment than from contingent jobs, with the best wage outcomes arising from the status of low-tenure noncontingent worker. Thus for France, like the U.S., contingent jobs appear to be an insecure labor force status that is similar to, but not as disabling, as unemployment, with more negative effects for contingent jobs than for low-tenure noncontingent jobs both in terms of future employment prospects and in terms of future compensation.

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16 Column 3 of table 11 allows one to interpret compensation differences in percentage terms as opposed to the absolute differences (in French francs) reported in column 2. Note that these differences in log compensation between the treatment and the control group involve wage levels, and thus are not directly comparable to the differences in the *change* in log compensation over two or four years between the treatment and the control group that are reported in tables 9 and 10 for U.S. workers.

17 The exchange rate was FF5.3346 per U.S. dollar on May 3, 1993 (source: Bank of Canada). The most comparable estimate for American workers would be somewhat higher than the 2000\* \$1.44 or 2000\* \$2.77/hour figures used in the text, because this figures assume that there are no differences in hours worked in the future year for workers who were or who were not in a contingent job in the treatment year.

In summary, the main difference between the outcomes of insecure employment statuses in the two countries is the higher future employment insecurity risk for French than for American contingent workers. Clearly, the behavioral impact of contingent job status in France is at least as consequential for short to medium term career outcomes as in the U.S. We therefore proceed next to examine whether French labor markets have shown a flexible response to the macroeconomic shocks generating wage inequality in the U.S. by stimulating rising inequality in employment security instead.

## **5. Results — Testing the Generalized Perspective on Inequality Trends**

The key behavioral hypothesis of the generalized theory is that while U.S. labor markets have responded to macroeconomic shocks via growing wage inequality, continental European countries like France have absorbed recent asymmetric shocks to labor demand neither through unemployment or wage inequalities, but through increasingly large inequalities in employment protection. American trends in wage inequality are already well documented in the literature (see e.g. Katz and Autor 1999 or Morris and Western 1999). Furthermore, comparative evidence demonstrates that the trends in wage inequality in the U.S. are much stronger than are trends in wage inequality in continental Europe (Freeman and Katz 1995; Acemoglu 2002).

Wage trends for France in particular do not show rising inequality or declining real wages for low skill workers (Card, Kramarz, and Lemieux 1999). According to the unified theory, French labor markets should compensate for their rigid wage structure via declining employment of unskilled workers. However, Card, Kramarz, and Lemieux (1999) have shown that during the crucial decade of the 1980s, when American relative wages for low skilled workers dropped considerably and when French relative wages remain highly stable, the pattern of relative employment growth for low skill workers was very similar in France and the U.S. This pattern does not correspond to the unified theory's prediction. The conclusion of Card, Kramarz and Lemieux (1999) is that wage flexibility alone cannot account for the employment dynamics observed in western economies and that an explanation for the relative employment performances of the U.S. and Europe is still lacking.

Our generalized theory of inequality trends proposes to explain this paradoxical result. We argue that the macroeconomic shocks discussed above have in fact driven an overall increase in job insecurity (i.e., an overall increase in the share of low-adjustment costs/low-security jobs) in France in exactly the same

way as they have generated an increase in low-paid jobs and stagnant average real wages in the U.S. We test our key hypotheses by first comparing trends and the contemporary distribution of insecure employment statuses in the two countries. Then we examine trends in skill-based inequality of employment security and analyze whether it is the experience of low-skilled workers that was especially affected by the macroeconomic shocks discussed above.

## The Overall Distribution of Employment Insecurity in France and the U.S.

As we have already noted above, unemployment rates trended down in the U.S. from the early 1980s to the middle 1990s and, while rising somewhat during the present recession, have remained lower than European levels.<sup>18</sup> Also as noted above, overall rates of contingent job utilization declined in the U.S. between 1995 and 2001, while overall rates continued to rise in France. Table 4, which disaggregates these trends by industry, shows rates of contingent job use in American industries for 1995 and 2001, while table 5 shows comparable rates for France. Tables 4 and 5 show that contingent jobs were already more heavily utilized by 1991 in France than in the U.S. labor market of 1995 in most service sector industries, in manufacturing, and in construction. In the succeeding ten years, rates of utilization of contingent jobs continued to surge in France while remaining relatively stable or even declining somewhat in the U.S.

Table 6 shows the proportion of workers in three categories of employment insecurity according to labor force survey data for 2001 by age. These statistics demonstrate three important facts. First, workers in both France and the U.S. move into increasingly secure employment statuses over the life course, but insecurity remains a problem for a considerable fraction of workers even in the oldest age range. Second, the overall proportion of insecure workers is higher in France than in the U.S. at all age ranges. Third, the breakdown of workers across the three insecure statuses differs considerably in the two countries. Despite the notably downward sloping gradient in unemployment risk, workers in France had sharply higher unemployment rates than did American workers. Furthermore, despite the even more sharply downward sloping gradient in contingent jobs, a much higher proportion of workers in France were in contingent jobs than in the U.S. If we limited attention to these two insecure statuses, we would conclude that the risk of being in an insecure employment status in France was three times as high as in the United States.

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<sup>18</sup> U.S. unemployment rates were 7.4% in 1984, 5.6% in 1995, 4.2% in 1999, and 4.8% in 2001. French unemployment rates were 9.7% in 1984, 11.7% in 1995, 11.3% in 1999, and 8.5% in 2001.



The factor that partially equalizes the aggregate risk of insecurity between the two countries is the proportion of workers with low tenure. As table 6 shows, the proportion of workers who are in low-tenure non-contingent jobs is almost twice as high in the American as in the French labor market.<sup>19</sup> The relatively high rate of low-tenure workers in the U.S. comes from higher rates of separation (for both voluntary and involuntary reasons) in the United States as compared with France among low-tenure workers. OECD statistics (1997, table 5.10) show separation rates for all workers with less than one year of tenure with the employer were 65.9% in the U.S. as compared with 41.6% in France. The difference in these rates creates a larger pool of low-tenure non-contingent workers in the U.S. than in France. However, the larger quantity of low-tenure non-contingent workers in the U.S. than in France is not large enough to offset the aggregate greater employment insecurity in France stemming from the larger quantity of French workers in unemployment and in contingent jobs. Furthermore, existing evidence (Neumark, Polsky and Hansen 2000; Gottschalk and Moffitt 2000) suggests that the rising trends in job insecurity in the U.S. during the 1990s were modest compared with the sharp rise in contingent jobs in the French labor market.<sup>20</sup>

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19 Our findings are consistent with published OECD (1997) statistics, which come from the European Community Labour Force Survey for France and the CPS for the U.S. They show that average tenure on the job for French workers aged 25-44 was 9.0 years in 1995 vs. 6.2 years in the United States. They also show that 15% of all French workers in 1995 (regardless of age) had less than one year of tenure on the job, vs. 26% in the U.S. Finally, and again consistent with our data, they show a rising risk of insecurity in France, with 12.2% of the French labor force having less than one year of tenure in 1985 vs. 14.4% in 1995.

20 One final relative source of insecurity needs to be considered, of course, and that concerns high-tenured non-contingent workers. The main risks to workers in this category come from job displacement. These risks in the aggregate have been well studied in the American case through the Displaced Worker Surveys. According to the 1998 Displaced Worker Survey (see Hipple 1999, table 3), the two-year rate of job displacement in the U.S. in the middle 1990s was about 4% on average and about 2.8% for those with more than 3 years of tenure, which would correspond to a rate of about 1.5% per year. Hipple (1999, table 3) found a two year displacement rate of 5.5% for those with fewer than 3 years of job tenure. For higher tenured groups, the two-year displacement rate was: 3.7% (for 3-4 years of tenure), 3.3% (for 5-9 years of tenure), 2.4% (for 10-14 years of tenure), and 2.5% (for 15-19 years of tenure). While precisely comparable statistics do not exist for France, Givord and Maurin (2001) have analyzed the yearly rate of transition between employment and unemployment using the French Labor Force surveys. Whereas the yearly risk of job loss for workers with at least a year of seniority in the 1984-1988 period was about 1.6% for workers with at least a high school diploma and 3.1% for workers with less than a high school diploma, the yearly rates for these two groups had risen to 2.6% and 3.6% per year, respectively for the 1993-1998 period (the transition rates reported in Givord and Maurin (2002) by should be adjusted by 0.9, because, as they estimate, about 90% of these transitions are involuntary.) The U.S. rates exclude firings, which are included in the French statistics (in a firing, the job continues to exist, but the incumbent is terminated). Nonetheless, such an adjustment would still leave the French job loss rates for more senior workers at least as high as the American rates. Furthermore, it is likely that the French rates underestimate displacement because some workers who are displaced find new jobs without an intervening spell of unemployment (Margolis 2000).

## Skill-Based Inequality of Employment Security in France and the U.S.

Next we test our key trend hypothesis, namely that the institutional innovations in French labor markets produced rising skill-based inequality of employment security as the primary counterpart to the rising skill-based inequality of wages in the U.S. Tables 7 and 8 provide an empirical test for our key hypotheses. Table 7 focuses on the population of French male workers observed in the French LFS in 1990, 1996, 2002. The first column shows the results of a logistic regression where the dependent variable is unemployment and where the independent variables are age, education (measured using the CASMIN categories as described in Shavit and Müller 1998 and the notes to tables 7 and 8), and dummy variables for survey date. As it turns out, the regression reveals neither significant nor systematic trends in the inequality of unemployment risks across the different categories of workers. Significant inequalities in unemployment risk across educational level and age do exist, but these inequalities did not increase between 1990 and 2002. In particular, the differences between the log odds of college graduates (level 3b) and high-school dropout (1a) are virtually the same in 1990, 1996 and 2002.

The second column of Table 7 focuses on the population of male workers who hold a job and shows the results of a logistic regression where the dependent variable is whether the worker held a contingent job and where the independent variables are the same as in the first model, plus a set of industry dummy variables. Consistent with our hypotheses, the regression shows a significant increase in the probability of being contingent over time. Also consistent with our hypotheses, the results show that this increase is much more significant for non-educated workers than for educated ones. Holding age and industry constant, the difference between the log odds of college graduates and high-school dropouts being contingent workers increased significantly by about 0.6 (which corresponds to an increase of 1.8 in the relative odds). Meanwhile, the difference between the log odds of college graduates and high-school graduates (level 2) being contingent workers increased by about 0.4 (or an increase of 1.5 in the relative odds).

The third column of Table 7 focuses on the population of male workers who hold non-contingent jobs and shows the results of a logistic regression where the dependent variable is whether the worker is low-seniority and where the independent variables are the same as in the second model. As discussed above, low-seniority workers are much less protected in France than high-seniority ones, even when they hold permanent contracts. Holding age and industry constant, the regression shows a significant increase in the odds of being low-seniority for the least educated workers. Holding age and industry constant, the difference between the log odds of low-seniority status for college graduates and

high-school dropouts increased by about 0.5 and the difference between the log odds of college graduates and high-school graduates increased by about 0.3.

Table 8 shows that the regressions reveal similar trends for women as for men. We do not find any systematic trend in the determinants of being unemployed. Specifically, the two groups of women who have been least affected by the general increase in unemployment risks are the most and the least educated (i.e., college graduates and high-school dropouts). In contrast, the increase in the probability of holding either contingent jobs or (poorly protected) low-tenure non-contingent jobs grows differentially for low-educated workers.

Taken together, the findings in tables 7 and 8 show an increasingly large proportion of jobs with low security are held by low-educated workers in France. To put it another way, French employers, who were not able to reduce the relative wages of low-skill workers as were American employers, instead increasingly concentrated these low skill workers in jobs with low-adjustment costs.

Because the concept of the contingent job is relatively new (Polivka and Nardone 1989), there are no data available for a trend analysis across the same set of years in the U.S. From 1995 onwards, it is possible to measure the share and distribution of contingent jobs across skill categories in the American labor force with the Contingent and Alternative Work Arrangements Supplement from the CPS. Because of the short span of time covered by the American surveys (coupled with the fact that 2001 is a recession year), we cannot definitively address the shape of trends in skill-based inequality with these data.<sup>21</sup> However, we can use these data to address the extent to which allocation to contingent and low-tenure jobs in the U.S. is done on the basis of education.

Tables 9 and 10 contain our results for male and females, respectively. They provide Wald tests showing that the interactions between education and survey year never reach the 0.05 significance level for American males, despite the large sample sizes. Unemployment is heavily skill-biased in the United States; the probability for the lowest skill workers being unemployed is much higher than for high school or college graduates. The same is true in France, but the U.S. labor market differs from the French labor markets in showing a big gradient in the probability of unemployment between secondary and tertiary educated workers.

The U.S. is also similar to France in that workers with less than a secondary school diploma have a higher probability of being in a contingent job relative to workers with a high school degree. However, the U.S. differs from France in the

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21 Fully interactive specifications involving education and survey year are available upon request from the authors.

nonsystematic relationship between education and contingent job status. Table 9 shows that male workers with some college were as likely to be in a contingent job as were workers with 9-11 years of high school. This table also shows that college educated male workers in the U.S. had the same probability of being in a contingent job as high school educated workers. Table 9 also shows that there is no systematic relationship between education and having low tenure in a non-contingent job in the U.S. U.S. males with only a 9<sup>th</sup>-11<sup>th</sup> grade education are more likely to have low-tenure status in a non-contingent job than are high school educated workers, but there is no difference in the probability of being low tenure for high school and college educated workers. This lack of difference contrasts strongly with the French case. Furthermore, there is no evidence of systematic trends in the effects of skill on employment insecurity in the U.S. (see the Wald tests in Table 9); which again contrasts with the growing skill gradient in France. To summarize, the effects of skill on employment insecurity in the U.S. are not systematic, and there are no systematic trends in the effects of skill in the American data. In contrast, skill clearly increases employment security in France, and this skill gradient has been growing.

Table 10 shows the relationship between skill and employment security for American women. The pattern of coefficients in the unemployment model is similar for the two genders. The same can be said for the contingent job model. In this latter case, our statistical analysis actually shows strong interactions between survey year and education. Part of this is due to a sudden reduction in the probability of college educated women being in contingent jobs in 2001 relative to 1995, 1997 or 1999, and partly to a rise in the probability of being in a contingent job for female workers with less than a high school degree in 2001 relative to the earlier years. Whether this shift is a trend or a consequence of the post-2000 U.S. recession is not answerable with these data. Finally, the pattern of low-seniority employment for American female workers is if anything even more skill biased, though, as with males, there is no evidence that the pattern has changed over time.

The results of our statistical analysis demonstrate two central differences between labor force trends in France and the U.S. First, the proportion of the labor force that suffered employment insecurity either directly through unemployment or through working in an insecure job was trending up faster in France than in the U.S. during the 1990s. Second, the effect of low education on the probability of being located in an insecure employment status was also trending up in France. While there is weak evidence of recent upward trends in the effect of low-skill on being in a contingent job for American women, the trends are more systematic and long-lasting in France, encompassing both low-tenure work and contingent jobs for both male and female French workers.

## 6. Discussion

In their still contemporary review of the literature on rising earnings inequality in the U.S., Morris and Western (1999, p. 642) argued that “market explanations dominate research on rising inequality,” and that while institutional explanations have received some attention, “the focus has been narrow, restricted largely to the two major wage-setting institutions: the minimum wage and unions.” Their review article primarily addressed the literature for American trends in inequality, which they described in terms of “unresolved debates” and “few concrete answers.” In order to shed light on these debates, we have taken a comparative approach, which allows greater attention to institutional variation and change as potential explanatory factors. Our particular focus has not been on wage setting institutions, but rather on institutions that determine employment flexibility.

In the American context, it is difficult to distinguish “institutional” from market determinants of employment flexibility, because constraints on an employer’s staffing strategy are relatively minor. In the broader international context, however, constraints are more evident. Thus, our comparative strategy allows an examination of the effects of an “institutional interaction” concerning employment flexibility and wage-setting on inequality trends within a globalizing macroeconomic environment.

Our approach emphasizes the importance of a broad perspective on the employment relationship when trying to explain societal and market trends. The unified theory builds from two dominant characteristics of the employment relationship, namely employment and wages, and constructs an explanation that emphasizes macro-level tradeoffs between levels of employment and wage distributions as a response to technologically-based changes in the relationship between productivity and skill, coupled with the possibility of institutional constraints on labor market adjustment. But this effort founders on the failure of empirical analysis to find a differential employment response between the U.S. and European countries that would offset the manifestly different wage response between the U.S. and Europe. Our approach accounts for this anomaly by emphasizing the dynamic nature of the employment relationship, and by attending to institutional innovation in the control of European employers over the terms of the employment contract, and the price they must pay to gain dynamic flexibility over the size and composition of their workforces.

We certainly do not argue that European labor markets have achieved the flexibility of the American labor market. Rather, it is the restricted character of innovation in Europe that creates the distinctive inequality trends on both sides of the Atlantic. Importantly, our approach overcomes the problems identified by Krueger and Pischke (1997) or Card, Kramarz and Lemieux (1999) by demonstrating an employment response in France that offsets the lack of a wage

response to the changing demand for and value of skill in industrialized labor markets.

Our approach shows how the French labor market absorbed the recent macroeconomic shocks that arguably generated a surge of inequality in the American labor market. French employers responded to macroeconomic shocks through a significant change in the relative protection of the jobs held by the different groups of workers even as the wage structure remained relatively stable. As it turns out, relative wages are not the only determinant of the relative demand and supply for labor, and wage flexibility is not the only institution for labor market clearing. Another key ingredient appears to be the relative level of employment protection attached to jobs. On the demand side, more protected jobs correspond to higher adjustment costs which decrease the demand from employers. On the supply side, more protected jobs correspond to higher permanent income, which increase the supply from workers. French institutions make it relatively difficult to absorb skill-biased shocks through changes in the structure of relative wages, but modifications to these institutions have allowed employers to respond to these shocks by reallocating labor across jobs to produce a relative decrease in the employment protection of low skilled workers.

The unified theory sees a trade-off between wage inequalities and employment growth. In this paper, we propose an alternative perspective that sees the main difference between American and European responses to recent macroeconomic shocks not in the degree of institutional tolerance for inequality, but rather in the *type* of inequality that is tolerated as a market strategy for adjusting to shocks. In particular, the results of this paper demonstrate that the distribution of insecure job positions across workers is much more unequal in a typical continental European country like France than in the U.S. In particular, job insecurity in France is much more concentrated among the young workers and the low-skilled workers. American workers in contrast face a more diffuse form of insecurity.

Our results also demonstrate that the *increase* in job insecurity over the last decades has been much more significant and unequally distributed in France than in the U.S. Most notably, the rise in job insecurity has been much more significant for the least skilled French workers than for the most skilled ones. The relative job security of highly skilled workers has increased the same way as the relative wages of highly skilled workers. This trend can be interpreted as a direct consequence of the interaction between the flexible employment regulations implemented in France (as in most European countries) in the eighties and the recent macroeconomic shocks emphasized by the unified theory. In combination with other work, our research challenges the view that unemployment is the main mechanisms through which European labor markets have absorbed asymmetric shocks to their demand for labor.

There is an important normative as well as positive implication of the research reported here. Much of the comparative literature on labor markets contains an explicit or implicit premise that Europeans are less tolerant of inequality than are Americans. This tolerance is expressed not just as a matter of public opinion, but as stronger support for labor unions and for a political constellation that makes it difficult even for right-leaning governments to implement policies that increase social inequality. Our findings suggest that this view is too simple. The differences between the American and French institutions are plausibly not differences in the *degree* of tolerance for inequalities, but in the *nature* of the inequalities that are tolerated. The true contrast is not between efficient America and egalitarian Europe, but rather between an America where employers have substantial freedom to structure individual employment relationships and a Europe where egalitarian tendencies are expressed more in terms of relative equality of compensation than relative equality in the form of labor market participation. One might argue that Europe is more egalitarian than America, but that European institutions recognize that not all forms of equality can be optimized simultaneously (cf. Swensen 1989), and thus show increased tolerance for inequality in some areas as a way of protecting equality in other areas.

While advancing our understanding of the *relative* trends in France and the U.S., this paper does not address other important aspects of the problem. First and foremost, the empirical question of the generalizability of results to other European countries must be addressed. In addition to France, temporary jobs accounted for more than half of total employment growth during the 1990s in Austria and Italy, while temporary jobs actually accounted for all the job growth in Germany (permanent jobs in Germany declined by 0.5% per year) (OECD 2003). However, temporary jobs accounted for less than 1/5 of total employment gains in Sweden, while temporary employment actually fell in Denmark at the expense of permanent jobs (OECD 2003). We think it probable that variations in labor market institutions and in the industrial composition of the economy will generate different responses to common trends even if the underlying technological adaptation is similar, which itself is a disputable point (Acemoglu 2002).

Second, it is beyond the scope of this paper to develop or test alternative explanations for the relatively low level of economic and employment growth in Europe. But there clearly exist several possible explanations which do not contradict our perspective of partially flexible European labor markets and rising inequality of a particular type in Europe. These explanations include, for example, the possibility of relatively low level of R&D investments in Europe and a deepening technological gap between Europe and the U.S.

Finally, while our paper plausibly accounts for differences in trends between the U.S. and Europe, it is not intended to address directly the sources of rising wage inequality *within* the U.S. Our research, however, does suggest the plausibility of new institutional approaches to this question. Most research on

American wage inequality takes for granted that American labor markets are flexible, and looks for explanations in terms of supply and demand shocks that are worked out within a flexible labor market. Our comparative approach, however, emphasizes that fairly subtle forms of institutional innovation can have major impacts on labor market performance and worker outcomes. Our results suggest that institutional changes in the wage-setting mechanisms even of a generally flexible labor market such as that found in the U.S. might be an important component of the explanation for U.S. specific trends. The research challenge is to devise studies that can subject such institutional theories to empirical test.

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## Appendix: Matching Methodology

We did the matching several ways in order to ensure the robustness of the matching procedure. We first matched workers in the treatment state with workers in the control state based on a Mahalanobis-metric matching on gender, survey year, and the estimated probability of being in the treatment state, and on the time interval in question (either 1994→1996, 1996→1998, or 1998→2000). In a second procedure, we used caliper matching where we required a potential match to be within  $\frac{1}{4}$  of a standard deviation of the treated case's estimated propensity score, and where we forced perfect matches on gender and on survey year. According to the mathematical properties of propensity score matching (Rosenbaum and Rubin 1983), consistency of the matching estimator with respect to bias arising from selection on observable variables requires matching only on the propensity score that is a function of these variables, not on the actual values of these variables themselves. Nonetheless, to improve precision, we did a third matching on estimated propensity scores with a  $\frac{1}{4}$  standard deviation caliper, where gender and survey year were perfectly matched, and where the lagged wages of all matched pairs were forced to lie within \$2 per hour of each other or, if not working, where the matching observation also was not working. Even with this additional condition, we were still able to match most of the treated cases with a control case whose propensity score was within  $\frac{1}{4}$  of a standard deviation from that of the treated case.<sup>22</sup> We used matching with replacement, because research has shown this procedure to produce less bias than matching without replacement (Dehejia and Wahba 1998, 1999). These three alternative methods gave qualitatively similar results, and so we present only the results from our third matching procedure in the tables.

The propensity scores themselves were estimated for the NLSY sample from a logistic regression of being a contingent worker on race, marital status, number of children ever born, the SMSA unemployment rate or non-SMSA state unemployment rate, education, potential labor force experience, employment status and hourly wage (or zero if not working) two years prior to the treatment time,<sup>23</sup> whether R is working in a full-time or part-time job at the treatment time, the number and square of the number of job displacements since 1979 in R's main job, and the number of job displacements from all other jobs besides the main job.<sup>24</sup> For the French sample, we estimated the probability of an individual

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22 For the U.S., we could not match 3% of the contingent and 6% of the low tenure treated cases. However, all unemployed treated cases were matched. For France, 2% of contingent and 1% respectively of low tenure and unemployed treated cases could not be matched.

23 Note that the estimated propensity for being in a contingent job is estimated to be a function of lagged wage (or zero if not working) as opposed to the current wage. Because the current wage is arguably a consequence of contingent job status, we do not want to confuse the consequences of one's employment status with the propensity to be in that status in the first place.

24 In our analyses, job information is based on the "CPS" job. The CPS job is defined as the

being in each of the three insecure employment statuses in 1988 as a function of the following covariates: gender, region of residence, education, labor force experience, contingent status in first job, and the prestige of first job.<sup>25</sup>

Because we have more closely spaced panel data for the U.S than for France, we analyzed outcomes for Americans both two and four years in the future, while for the French sample we estimated outcomes five years in the future. We estimated two year effects based on the NLSY79 subsample of individuals who were in the treatment state in 1994, 1996, or 1998. We deleted duplicate observations for all individuals who were in the treatment state in more than one of these years, and we then matched the remaining observations with other sample members who were in the control state.

While our central focus concerns employment security, we also estimated the impact the different insecure statuses on wages in the American case and total compensation in the French case. We do this because one of the major reasons why employment insecurity is of theoretical and policy significance is because of its connection with earnings and income insecurity. For American workers, we present three outcomes of the wage analysis (see note 12). The first compares wages (in dollars) at a specific future time point for the treatment and control group. The second compares wage change (in dollars) between the first and second time point for the two groups. The third analysis compares change in the log wage between the first and second time point for the two groups. This third analysis can be given an interpretation of percentage changes. For employment outcomes, and for wage and wage change outcomes, we estimated the mean difference between the treatment and control groups. For the analysis involving the change of log wages, we estimated the median difference of the change in the log wage for each treatment and matched control case, and test for differences in the median with a sign test (Sprent 1993).<sup>26</sup> For the French data, we estimated the effects of the various insecure statuses on total compensation four years later.

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“current or most recent job” or (if multiple jobs) the job at which R worked the most hours.

25 Because the French data lack information about prior wages, we matched using the information on prestige of first job in place of lagged wages. As in the American case, we avoided using prestige of 1988 job to avoid confusing the propensity of being in a contingent job with the possible consequences of being in a contingent job. We also used 0.25 standard deviation caliper matching on the French data where we further forced the matched cases to lie within 5 prestige points of each other (with perfect matching on gender as well).

26 Median differences are not sensitive to the size of outliers (rare matches where the difference in log wage or log compensation was very large, and where the impact on the sample mean would be a function of how we capped or trimmed these values). The test statistic for the sign test,  $n^+$  is the number of differences that are greater than zero. Under the null hypothesis that the probability of a difference being positive is equal to the probability of a difference being negative, then  $n^+$  is Binomially distributed, i.e.,  $n^+ \sim \text{Binomial}(n, p=1/2)$ , where  $n$  is the total number of matched pairs. The test was implemented in Stata.

Table 1. Consequences of Contingent Job, Unemployment, and Low-Tenure Status Two Years in the Future by Gender, for U.S. workers 29-41 years old

	Employment	Conditional on Working at Time 2			Unconditional on Working at Time 2 <sup>a</sup>		
		Wage	Wage Change	Change in ln(Wage) <sup>c</sup>	Wage	Wage change	Change in ln(Wage) <sup>c</sup>
<b>Contingency</b>							
All (N=309) (N=238)	-0.12** (-3.7)	-1.06 (-1.9)	-0.23 (-0.3)	0.03	-1.99** (-3.2)	-1.05 (-1.6)	-0.08
Men (N=138) (N=109)	-0.12* (-2.5)	-1.78* (-2.2)	0.51 (0.4)	0.01	-2.68* (-2.6)	-0.17 (-0.1)	-0.12
Women (N=171) (N=129)	-0.12** (-2.7)	-0.48 (-0.6)	-0.83 (-1.0)	0.01	-1.47* (-2.0)	-1.74* (-2.2)	-0.06
<b>Unemployment</b>							
All (N=731) (N=545)	-0.12** (-5.0)	-2.10** (-3.7)			-2.88** (-5.8)		
Men (N=344) (N=249)	-0.17** (-5.1)	-2.12* (-2.4)			-3.60** (-4.7)		
Women (N=386) (N=296)	-0.07* (-2.2)	-2.15** (-3.0)			-2.28** (-3.6)		
<b>Low Tenure<sup>b</sup></b>							
All (N=2808) (N=2401)	-0.04** (-4.0)	-0.25 (-0.7)	0.88** (2.8)	0.05**	-0.82* (-2.4)	0.38 (1.3)	0.03**
Men (N=1437) (N=1271)	-0.04** (-3.1)	-0.30 (-0.6)	0.80 (1.7)	0.06**	-0.32 (-0.6)	0.50 (1.1)	0.04**
Women (N=1371) (N=1130)	-0.04** (-2.6)	-0.84 (-1.9)	0.97* (2.4)	0.05**	-1.31** (-3.1)	0.26 (0.7)	0.02

Note: Matching was done using a 0.25 caliper along with perfect matching on gender and survey year, and constrained matching on wages. See text for details.

<sup>a</sup> Those not working at time 2 are assigned a wage of 0.

<sup>b</sup> Contingent workers are excluded from these analyses.

<sup>c</sup> The median differences are reported here. See text for details.

Source: NLSY79 data for 1994-2000.

T-values in parentheses

\* =  $p < .05$ , \*\* =  $p < .01$ , two-sided.

N is the number of matched pairs of observations— The first N is for the “Conditional on working at time 1” sample, and the N below it is for the “Conditional on working at time 1 and 2” sample.

Table 2. Consequences of Contingent Job, Unemployment, and Low-Tenure Status Four Years in the Future by Gender, for U.S. workers 29-39 years old

	Employment	Conditional on Working at Time 2			Unconditional on Working at Time 2 <sup>a</sup>		
		Wage	Wage Change	Change in In(Wage) <sup>c</sup>	Wage	Wage Change	Change in In(Wage) <sup>c</sup>
<b>Contingency</b>							
All (N=216) (N=182)	-0.03 (-0.9)	-1.44 (-1.6)	-0.68 (-0.6)	0.02	-1.61 (-1.8)	-1.10 (-1.0)	0.03
Men (N=97) (N=84)	-0.08 (-1.4)	-2.77 (-1.5)	-0.11 (-0.04)	0.03	-3.43 (-1.9)	-1.15 (-0.5)	0.03
Women (N=119) (N=98)	-0.001 (-0.01)	-0.41 (-0.5)	-1.17 (-1.2)	0.01	-0.23 (-0.3)	-1.09 (-1.2)	0.03
<b>Unemployment</b>							
All (N=539) (N=429)	-0.05 (-1.9)	-2.04** (-3.2)			-2.20** (-3.3)		
Men (N=257) (N=209)	-0.06 (-1.5)	-2.29* (-2.1)			-2.68* (-2.3)		
Women (N=281) (N=219)	-0.04 (-1.1)	-1.52* (-2.4)			-1.61* (-2.4)		
<b>Low Tenure<sup>b</sup></b>							
All (N=1958) (N=1692)	-0.04** (-3.2)	0.15 (0.4)	1.06* (2.5)	0.04*	-0.44 (-1.1)	0.73 (1.8)	0.02
Men (N=1013) (N=896)	-0.04** (-2.7)	0.27 (0.4)	0.88 (1.4)	0.02	-0.39 (-0.6)	0.45 (0.7)	0.01
Women (N=945) (N=796)	-0.04 (-1.9)	-0.01 (-0.02)	1.27* (2.4)	0.05*	-0.50 (-1.0)	1.02 (1.9)	0.03

Note: Matching was done using a 0.25 caliper along with perfect matching on gender and survey year, and constrained matching on wages. See text for details.

<sup>a</sup> Those not working at time 2 are assigned a wage of 0.

<sup>b</sup> Contingent workers are excluded from these analyses.

Source: NLSY79 data for 1994-2000.

T-values in parentheses

\* =  $p < .05$ , \*\* =  $p < .01$ , two-sided.

N is the number of matched pairs of observations – The first N is for the “Conditional on working at time 1” sample, and the second N is for the “Conditional on working at time 1 and 2” sample.



Table 3. Consequences on Employment in 1993 and Total Compensation in 1992 of Contingency, Unemployment and Low Tenure in 1988 by Gender, for French Workers 29-39 Years Old in 1988

	Employment in 1993	Total compensa- tion in 1992 (in 1,000s of FF)	Natural log of total compensation in 1992 (in 1,000s of FF) <sup>b</sup>
Contingency in 88			
All (N=117)	-0.12** (-3.2)	-22.79* (-2.4)	-0.29*
Men (N=52)	-0.15** (-2.7)	-18.76 (-1.6)	-0.31*
Women (N=65)	-0.09 (-1.8)	-26.01 (-1.8)	-0.13
Unemployment in 88			
All (N=148)	-0.08* (-2.4)	-39.18** (-6.2)	-0.51**
Men (N=65)	-0.02 (-0.3)	-43.99** (-4.0)	-0.42**
Women (N=83)	-0.13** (-3.2)	-35.40** (-5.4)	-0.54**
Low tenure in 88 <sup>a</sup>			
All (N=289)	-0.03 (-1.2)	-9.64 (-1.4)	-0.13
Men (N=191)	-0.03 (-1.0)	-6.38 (-0.7)	-0.12
Women (N=98)	-0.03 (-0.7)	-15.99 (-1.8)	-0.15

Source: FQP Survey 1993, INSEE.

<sup>a</sup> Contingent workers are excluded from these analyses.

<sup>b</sup> The median differences are reported here. See text for details.

T-values in parentheses

\* =  $p < .05$ , \*\* =  $p < .01$ , two-sided.

N is the number of matched pairs of observations

Table 4. Proportion of Workers in Contingent Jobs, by ISIC industry group for American Male and Female Workers, February 1995 and 2001

	1995	2001	Odds Ratio
A – Agriculture, hunting and forestry	0.049	0.056	1.2
C – Mining and quarrying	0.027	0.010	0.4
D – Manufacturing	0.030	0.020	0.7
E – Electricity, gas and water supply	0.037	0.008	0.2
F – Construction	0.075	0.056	0.7
G – Wholesale and retail trade; Repair of motor vehicles, motor cycles and personal and household goods	0.025	0.024	1.0
H – Hotels and restaurants	0.051	0.063	1.3
I – Transport, storage and communications	0.027	0.016	0.6
J – Financial intermediation	0.018	0.012	0.6
K – Real estate, renting and business activities	0.072	0.051	0.7
L – Public administration and defense; Compulsory social security	0.036	0.031	0.9
M – Education	0.123	0.097	0.8
N – Health and Social work	0.046	0.039	0.8
O – Other community, social and personal service activities	0.030	0.027	0.9
P – Private households with employed persons	0.177	0.101	0.5

Source: Current Population Survey, 1995 and 2001.

Note: The CPS definition 3 of contingent jobs was used here, but it was modified to exclude the self-employed. Definition 3 of contingent jobs includes self-employed workers and independent contractors with tenure and expectation of continued employment of one year or less, as well as temporary workers and contract workers, regardless of their tenure or expectation of employment duration. Due to the very small number of observations in these categories, results for the B-Fishing and Q-Extra-territorial organizations and body industries were omitted from these tables.

Table 5. Proportion of Workers in Contingent Jobs, by ISIC industry group for French Male and Female Workers

	1982	1991	1995	2001	Odds Ratio 82-91	Odds Ratio 91-01
A – Agriculture, hunting and forestry	0.004	0.026	0.055	0.087	6.9	3.5
C – Mining and quarrying	0.017	0.014	0.051	0.067	0.8	5.1
D – Manufacturing	0.016	0.075	0.098	0.137	5.0	2.0
E – Electricity, gas and water supply	0.013	0.034	0.062	0.082	2.7	2.5
F – Construction	0.032	0.079	0.099	0.126	2.6	1.7
G – Wholesale and retail trade; Repair of motor vehicles, motorcycles and personal and household goods	0.032	0.070	0.082	0.106	2.3	1.6
H – Hotels and restaurants	0.045	0.119	0.134	0.133	2.9	1.1
I – Transport, storage and communications	0.011	0.050	0.095	0.100	4.6	2.1
J – Financial intermediation	0.012	0.042	0.048	0.052	3.5	1.2
K – Real estate, renting and business activities	0.024	0.079	0.098	0.109	3.5	1.4
L – Public administration and defense; Compulsory social security	0.014	0.145	0.315	0.367	11.9	3.4
M – Education	0.182	0.311	0.512	0.456	2.0	1.9
N – Health and Social work	0.015	0.094	0.159	0.143	6.6	1.6
O – Other community, social and personal service activities	0.050	0.176	0.228	0.239	4.1	1.5
P – Private households with employed persons	0.003	0.034	0.040	0.064	11.8	1.9

Source: French Labor Surveys 1982-2001.

Note: Due to the very small number of observations in these categories, results for the B-Fishing and Q-Extra-territorial organizations and body industries were omitted from these tables.

Table 6. Proportion of Workers in Insecure Statuses by Gender, U.S. and France 2001

	U.S. 2001			France 2001		
	All	Men	Women	All	Men	Women
<b>18-28 years</b>						
Unemployed	7.3%	8.2%	6.2%	16.8%	14.5%	19.5%
Contingent	6.7%	6.6%	6.9%	37.2%	35.8%	39.1%
Low tenure but not contingent	34.5%	32.4%	36.7%	18.5%	19.6%	17.2%
No. of obs. <sup>a</sup>	7850	4014	3836	13928	7443	6485
	7284	3693	3591	11575	6380	5195
<b>29-39 years</b>						
Unemployed	3.4%	3.2%	3.8%	10.2%	7.8%	12.9%
Contingent	3.0%	2.8%	3.3%	10.8%	9.4%	12.6%
Low tenure but not contingent	16.4%	14.9%	18.1%	10.3%	10.6%	9.9%
No. of obs. <sup>a</sup>	10399	5516	4883	24506	13185	11321
	10033	5330	4703	22108	12232	9876
<b>40-64 years</b>						
Unemployed	2.7%	2.8%	2.6%	9.1%	7.7%	10.8%
Contingent	2.7%	2.6%	2.8%	5.5%	4.4%	6.9%
Low tenure but not contingent	9.3%	8.2%	10.5%	4.6%	4.6%	4.7%
No. of obs. <sup>a</sup>	18344	9576	8768	40316	21451	18865
	17865	9317	8548	36718	19869	16849

Source: Current Population Survey, Contingent Workers Supplement, 2001; French Labour Force Surveys 2001.

<sup>a</sup> The first number of observations reported refers to the population in the labor force, while the second refers to the employed population (from which both the contingency and non-contingent low tenure rates were calculated).

Table 7. Trends in the distribution of unemployment and insecure jobs across French male workers

Independent variables	Dependent Variables Unemployed	Contingent (conditional on employed)	Low-tenure (con- ditional on non contingent)
Intercept	-2.52 (.09)	1.23 (.20)	-.32 (.25)
Date (ref=1990):			
1996	.42 (.10)	.61 (.14)	-.55 (.19)
2002	.34 (.09)	.48 (.14)	-.59 (.18)
Educational levels × Date (ref :3b)			
3a× 1990	-.36 (.14)	-.50 (.11)	-.11 (.10)
3a× 1996	.12 (.09)	-.14 (.09)	-.16 (.13)
3a× 2002	-.02 (.09)	-.18 (.08)	-.26 (.12)
2× 1990	.18 (.10)	-.20 (.10)	-.36 (.10)
2× 1996	.22 (.08)	.11 (.08)	-.11 (.12)
2× 2002	.07 (.08)	.20 (.07)	-.09 (.11)
1c× 1990	.25 (.09)	-.29 (.08)	-.62 (.08)
1c× 1996	.35 (.07)	.01 (.07)	-.37 (.10)
1c× 2002	.14 (.07)	.13 (.07)	-.21 (.10)
1b× 1990	.36 (.11)	-.19 (.11)	-.49 (.12)
1b× 1996	.47 (.09)	.25 (.09)	-.03 (.14)
1b× 2002	.52 (.09)	.44 (.09)	-.02 (.14)
1a× 1990	1.06 (.08)	.22 (.08)	-.44 (.08)
1a× 1996	1.06 (.07)	.59 (.07)	-.16 (.11)
1a× 2002	1.14 (.07)	.76 (.07)	-.03 (.11)
Age × 1996	-.001 (.002)	-.010 (.003)	-.002 (.004)
Age × 2002	.002 (.002)	-.007 (.003)	-.001 (.003)
Age dummy vars. (9 categories)	(Yes)	(Yes)	(Yes)
Industry dummy vars. (16 categories)	(no)	(Yes)	(Yes)
Number of Observations.	126,800	114,479	99,200
Likelihood ratio (DF)	4827 (26)	18,740 (44)	3,772 (44)

Note: Standard errors are in parentheses. Education is measured using the CASMIN categories (cf. Müller and Shavit 1996). These categories are as follows: 3b= BA+, 3a = Some Tertiary, 2 = Secondary, 1c = Basic Vocational, 1b=Compulsory Elementary, 1a=Inadequately Completed Elementary Education.

\* =  $p < .05$ , \*\* =  $p < .01$ , two-sided.

Source: French Labor Surveys 1990-2002.

Table 8. Trends in the distribution of unemployment and insecure jobs across French female workers

Independent variables	Dependent Variables		
	Unemployed	Contingent (conditional on employed)	Low-tenure (conditional on non contingent)
Intercept	-1.96 (.11)	1.57 (.26)	.47 (.41)
Date (ref = 1990):			
1996	.62 (.12)	.50 (.13)	-.38 (.20)
2002	-.04 (.12)	.59 (.13)	-.29 (.19)
Educational levels × Date (ref :3b)			
3a× 1990	-.48 (.12)	-.67 (.10)	-.35 (.11)
3a× 1996	-.28 (.08)	-.37 (.08)	-.20 (.13)
3a× 2002	-.06 (.08)	-.20 (.07)	-.04 (.11)
2× 1990	.16 (.10)	-.31 (.09)	-.56 (.11)
2× 1996	.27 (.07)	.04 (.07)	-.52 (.14)
2× 2002	.44 (.07)	.26 (.06)	-.05 (.12)
1c× 1990	.70 (.09)	-.19 (.08)	-.75 (.10)
1c× 1996	.60 (.07)	.19 (.07)	-.48 (.12)
1c× 2002	.82 (.07)	.32 (.06)	-.01 (.11)
1b× 1990	.69(.10)	-.09 (.24)	-.62 (.12)
1b× 1996	.55 (.08)	.25 (.09)	-.17 (.15)
1b× 2002	.94 (.08)	.48 (.09)	.26 (.14)
1a× 1990	1.31 (.09)	.16 (.08)	-.60 (.10)
1a× 1996	1.20 (.06)	.61 (.07)	-.27 (.12)
1a× 2002	1.45 (.07)	.97 (.06)	.01 (.12)
Age × 1996	-.004 (.002)	-.009 (.003)	-.009 (.005)
Age × 2002	..004 (.002)	-.009 (.003)	-.015 (.004)
Age dummy vars. (9 categories)	(Yes)	(Yes)	(Yes)
Industry dummy vars. (16 categories)	(no)	(Yes)	(Yes)
Number of Observations.	106,581	91,964	80,523
Likelihood ratio (DF)	5688 (28)	12,752 (44)	3,338 (44)

Note: Standard errors are in parentheses. Education is measured using the CASMIN categories (cf. Müller and Shavit 1996). These categories are as follows: 3b= BA+, 3a = Some Tertiary, 2 = Secondary, 1c = Basic Vocational, 1b=Compulsory Elementary, 1a=Inadequately Completed Elementary Education.

\* =  $p < .05$ , \*\* =  $p < .01$ , two-sided.

Source: French Labor Surveys 1990-2002.

Table 9. The determinants of unemployment and insecure jobs in the American Labor Market for Males Aged 18-64

Independent Variables	Unemployment	Contingent Job	Low-Tenure in Non-Contingent Job
Intercept	-3.101** (.106)	-1.170** (.359)	-1.822** (.442)
Education (Ref = H.S. diploma)			
1a - <9 <sup>th</sup> grade	0.475** (.063)	0.567** (.099)	0.083 (.064)
1b - 9th-11th grade	0.719** (.041)	0.259** (.078)	0.301** (.040)
3a Some College	-0.450** (.039)	0.256** (.054)	0.055 (.028)
3b BA+	-1.037** (.049)	0.031 (.061)	-0.013 (.031)
Survey Year (Ref =2001)			
1995	0.361** (.126)	0.498** (.176)	0.309** (.101)
1997	0.369** (.130)	0.283 (.183)	0.434** (.103)
1999	0.039 (.135)	0.552** (.179)	0.324** (.103)
Age (Ref= 61-64)			
18-24	0.890** (.126)	1.008** (.167)	2.025** (.104)
25-29	0.385** (.120)	0.306 (.158)	1.284** (.098)
30-34	0.164 (.114)	0.152 (.149)	0.841** (.093)
35-39	0.129 (.108)	-0.158 (.143)	0.595** (.090)
40-45	0.054 (.104)	-0.122 (.136)	0.418** (.088)
45-49	0.037 (.102)	-0.222 (.133)	0.256** (.087)
50-54	-0.031 (.103)	-0.345* (.137)	0.099 (.090)
55-60	-0.022 (.106)	-0.133 (.139)	0.186* (.094)
Interaction			
1995*age	-0.004 (.003)	-0.008 (.005)	-0.009** (.003)
1997*age	-0.005 (.003)	-0.005 (.005)	-0.013** (.003)
1999*age	-0.001 (.004)	-0.013** (.005)	-0.010** (.003)
Industry Dummy Variables (16 categories)	No	Yes	Yes
Number of Observations	124,280	99,538	92,637
Likelihood Ratio (DF)	2368 (18)	2135 (33)	5949 (33)
Wald Test of Education*Survey Year from Model with Interactions (p-value)	.063	.125	.118

Notes: Robust standard errors are in parentheses. Interactions between age and survey date measure age as a continuous variable.

Model coefficients are from a model that omits interactions between education and survey year. Wald test is from a model that includes these interactions.

\* =  $p < .05$ , \*\* =  $p < .01$ , two-sided.

Source: Current Population Survey, 1995, 1997, 1999 and 2001 February Surveys, Contingent and Alternative Work Arrangements Supplement.

Table 10. The determinants of unemployment and insecure jobs in the American Labor Market for Females Aged 18-64

Independent Variables	Unemployment	Contingent Job	Low-Tenure in Non-Contingent Job
Intercept	-3.582** (.137)	-2.598** (.187)	-2.180** (.137)
Education (Ref = H.S. diploma)			
1a - <9 <sup>th</sup> grade	1.004** (.076)	0.589** (.135)	0.226** (.080)
1b - 9th-11th grade	0.828** (.049)	0.395** (.084)	0.388** (.044)
3a Some College	-0.372** (.041)	0.195** (.051)	-0.001 (.027)
3b BA+	-0.866** (.053)	-0.033 (.055)	-0.078** (.030)
Survey Year (Ref =2001)			
1995	0.555** (.147)	0.747** (.173)	0.068 (.103)
1997	0.763** (.146)	0.382* (.176)	0.286** (.103)
1999	0.491** (.154)	0.555** (.180)	0.251* (.102)
Age (Ref= 61-64)			
18-24	1.092** (.155)	1.089** (.177)	2.364** (.112)
25-29	0.790** (.148)	0.289 (.167)	1.684** (.107)
30-34	0.661** (.141)	0.075 (.159)	1.336** (.103)
35-39	0.438** (.135)	-0.022 (.148)	1.065** (.099)
40-45	0.424** (.131)	-0.123 (.141)	0.902** (.097)
45-49	0.402** (.128)	-0.109 (.137)	0.697** (.097)
50-54	0.217 (.131)	-0.273* (.138)	0.495** (.099)
55-60	0.068 (.139)	-0.103 (.143)	0.368** (.104)
Interaction			
1995*age	-0.009* (.004)	-0.013** (.005)	-0.003 (.003)
1997*age	-0.014** (.004)	-0.005 (.005)	-0.009** (.003)
1999*age	-0.012** (.004)	-0.011* (.005)	-0.008** (.003)
Number of Observations	113,361	91,166	84,510
Likelihood Ratio (DF)	1860 (18)	1903 (32)	5601 (32)
Wald Test of Education*Survey Year from Model with Interactions (p-value)	.286	0.000	.264

Notes: Robust standard errors are in parentheses. Interactions between age and survey date measure age as a continuous variable.

Model coefficients are from a model that omits interactions between education and survey year. Wald test is from a model that includes these interactions.

\* =  $p < .05$ , \*\* =  $p < .01$ , two-sided.

Source: Current Population Survey, 1995, 1997, 1999 and 2001 February Surveys, Contingent and Alternative Work Arrangements Supplement.



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