



October 11-15, 2010.

**Norwegian School of Economics and Business Administration**

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*Applied Job Search Models and the Analysis of Individual Wage Data (ECS532)*



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The main objective pursued in this course will be to provide an introduction to microeconomic applications of job search theories with a specific focus on understanding the sources of *wage dispersion* across workers, *wage dynamics* across dates and and *wage profiles* over a worker's life cycle.

Special emphasis will be placed on methods to combine worker-, firm-, and matched worker/firm panel data with structural job search models to address describe and explain real-life phenomena and to provide structural tools for quantitative policy analysis.

The course is supported by the National Research Council ("Nasjonalt fagråd"), and participants not from Bergen can apply to NHH for reimbursement of travel and boarding expenses (subject to a total budget constraint).

The course will consist of the following lectures:

**Day 1**

*Wages: Facts to be Explained*

1. Worker Heterogeneity, Firm Heterogeneity and Wage Inequality
2. Individual Careers: How Wages Evolve Over Time

**Day 2**

*Why Are Similar Workers Paid Differently?*

1. The Bare Bones of Job Search Models
2. Data and Estimation Procedure

**Day 2**

*On-the-job Search and Wage Posting*

1. The Canonical Equilibrium Search and Wage Posting Model
2. Assessing the Fit: Do we Have a Good Model (and if not, where does it go wrong)?

**Day 4**

*Sequential Auctions and Individual Bargaining*

1. A Model of Individual Wage Bargaining
2. Estimation: The wage-productivity relationship and the Source of Worker Rents

**Day 5**

*Why Do Wages Move Over Time the Way they Do?*

1. Wage Dynamics in the Sequential Auction Model
2. Fit Analysis Once Again: Do we Have a Good Model (and if not, where does it go wrong)?
3. A Notable Absentee (So Far): Human Capital

## Practicalities

Downloadable course material will be posted on Postel-Vinay's teaching website.<sup>1</sup> Please check for regular updates.

Finally, before attending this course, you should make sure that you are reasonably comfortable with the following:

- Intermediate (undergraduate-level) microeconomics;
- Basic probability and distribution theory;
- Basic discrete- and continuous-time stochastic processes;
- Basic estimation and inference.

The lecturer is available by email ([Fabien.Postel-Vinay@bristol.ac.uk](mailto:Fabien.Postel-Vinay@bristol.ac.uk)) for any question relating to which subjects are covered in this course.

## Evaluation

To get full credit (5 ECTS) for the course, the student should pass a take home exam.

## Student registration

If you plan to attend, please remember to register for the course. If you have any questions concerning participation, please contact Erik Ø. Sørensen, email: [erik.sorensen@nhh.no](mailto:erik.sorensen@nhh.no), (+47) 55 95 94 36.

To get credit for this course, your registration must be accepted in advance. **Non-NHH PhD students** should send in a completed form where they apply for visiting status ("hospitant status") for ECS532 Applied Job Search Models and the Analysis of Individual Wage Data.<sup>2</sup> If you need help in completing the form for this course, please contact Dagny Kristiansen, Department of Economics, NHH, Helleveien 30, N-5045 Bergen, Norway – Fax (+47) 55 95 95 43, email: [dagny.kristiansen@nhh.no](mailto:dagny.kristiansen@nhh.no).

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<sup>1</sup><http://www.efm.bris.ac.uk/www/ecfybvp/fabsteaching.html>

<sup>2</sup>The form can be found at <http://www.nhh.no/Default.aspx?ID=2462>.

## Reading list

**Notes:** Some references appear more than once. This happens when a reference is relevant to more than one question addressed in the course. Starred (\*) references are especially recommended. Finally, although no single reference will cover the entire course, the one that comes closest to doing that is Dale Mortensen's (2003) book, *Wage Dispersion: Why Are Similar Workers Paid Differently?*, published by the MIT Press. The survey by Jean-Marc Robin and myself ("Microeconomic Search-Matching Models and Matched Employer-Employee Data", see below) also provides a potentially useful overview of these lectures.

### Lecture 1: Wages: Facts to be Explained

- \*Abowd, J. M., F. Kramarz, and D. N. Margolis (1999), "High Wage Workers and High Wage Firms", *Econometrica*, 67, 251-333.
- Guiso, L., L. Pistaferri and F. Schivardi (2005), "Insurance Within the Firm", *Journal of Political Economy*.
- Jolivet, G., F. Postel-Vinay and J.-M. Robin (2005), "The Empirical Content of the Job Search Model: Labor Mobility and Wage Distributions in Europe and the US", *European Economic Review*, 50(4), 877-907.
- Meghir, C. and L. Pistaferri (2004), "Income Variance Dynamics and Heterogeneity", *Econometrica*, 72, 1-32.
- Mortensen, D. T. (2003), *Wage Dispersion: Why Are Similar Workers Paid Differently?*, MIT Press. (Chapter 1.)
- \*Postel-Vinay, F. and J.-M. Robin (2006), "Microeconomic Search-Matching Models and Matched Employer-Employee Data", in R. Blundell, W. Newey and T. Persson, editors, *Advances in Economics and Econometrics, Theory and Applications: Ninth World Congress*, Cambridge: Cambridge University Press.
- Rubinstein, Y. and Y. Weiss (2005), "Post-Schooling Wage Growth: Investment, search and Learning", Tel-Aviv University *mimeo*.

### Lecture 2: Why Are Similar Workers Paid Differently?

- Jolivet, G., F. Postel-Vinay and J.-M. Robin (2005), "The Empirical Content of the Job Search Model: Labor Mobility and Wage Distributions in Europe and the US", *European Economic Review*, 50(4), 877-907.

- Ridder, G. and G. J. van den Berg (2003) “Measuring Labor Market Frictions: A Cross-Country Comparison”, *Journal of the European Economic Association*, 1(1), 224-44.

### **Lecture 3: On-the-job Search and Wage Posting**

- Bontemps, C., J.-M. Robin, and G.-J. Van den Berg (1999), “An Empirical Equilibrium Search Model with Continuously distributed Heterogeneity of workers’ Opportunity Costs of Employment and Firm productivities, and Search on the Job”, *International Economic Review*, 40 (4), 1039-74.
- \*Burdett, K. and D. T. Mortensen (1998), “Wage Differentials, Employer Size and Unemployment”, *International Economic Review*, 39, 257-73.
- Jolivet, G., F. Postel-Vinay and J.-M. Robin (2005), “The Empirical Content of the Job Search Model: Labor Mobility and Wage Distributions in Europe and the US”, *European Economic Review*, 50(4), 877-907.
- \*Mortensen, D. T. (2003), *Wage Dispersion: Why Are Similar Workers Paid Differently?*, MIT Press. (Chapters 2, 3 and 4.)
- Ridder, G. and G. J. van den Berg (1998) “An Empirical Equilibrium Search Model of the Labor Market”, *Econometrica*, 66(5), 1183-1223.

### **Lecture 4: Sequential Auctions and Individual Bargaining**

- Cahuc, P., F. Postel-Vinay and J.-M. Robin (2006), “Wage Bargaining with On-the-job Search: Theory and Evidence”, *Econometrica*, 74(2), 323-64.
- Dey, M. S. and C. J. Flinn (2005), “An Equilibrium Model of Health Insurance Provision and Wage Determination”, *Econometrica*, 73(2), 571-627.
- \*Postel-Vinay, F. and J.-M. Robin (2002), “Equilibrium Wage Dispersion with Worker and Employer Heterogeneity”, *Econometrica*, 70 (6), 2295-350.

### **Lecture 5: Why Do Wages Move Over Time the Way they Do?**

- Bagger, J., F. Fontaine, F. Postel-Vinay and J.-M. Robin (2007) “A Feasible Equilibrium Search Model with Experience Accumulation”, University of Bristol *mimeo*.
- Barlevy, G. (2008), “Identification of Search Models using Record Statistics”, *Review of Economic Studies*, 75(1), 29-64.

- \*Postel-Vinay, F. and H. Turon (2009), “On-the-job Search, Productivity Shocks, and the Individual Earnings Process”. Forthcoming *International Economic Review*.

### **Further reading...**

#### *On the wage-tenure relation:*

- Burdett, K. and M. Coles (2003), “Equilibrium Wage-Tenure Contracts”, *Econometrica*, 71(5), 1377-1404.
- \*Mortensen, D. T. (2003), *Wage Dispersion: Why Are Similar Workers Paid Differently?*, MIT Press. (Final chapter.)
- Stevens, M. (2004), “Wage-Tenure Contracts in a Frictional Labour Market: Firms’ Strategies for Recruitment and Retention”, *Review of Economic Studies*, 71, 535-551.

#### *On wage dynamics and learning:*

- Moscarini, G. (2005), “Job Matching and the Wage Distribution”, *Econometrica*, 73(2), 481-516.
- \*Flinn, C. J. (1986), “Wages and Job Mobility of Young Workers”, *Journal of Political Economy*, 94(3), S88-S109.

#### *On human capital:*

- \*Kambourov, G. and I. Manovskii (2005), “Accounting for the Changing Life-Cycle Profile of Earnings”, University of Pennsylvania *mimeo*.

#### *On Early and Alternative Theories of Wage Dispersion, and Empirical Applications Thereof:*

- Albrecht, J. W. and B. Axell (1982), “An Equilibrium Model of Search Unemployment”, *Journal of Political Economy*, 92(5), 824-40.
- \*Eckstein, Z. and K. I. Wolpin (1990), “Estimating a Market Equilibrium Search Model from Panel Data on Individuals”, *Econometrica*, 58(4), 783-808.
- Lucas, R. E. Jr. and E. C. Prescott (1974), “Equilibrium Search and Unemployment”, *Journal of Economic Theory*, 7(2), 188-209.

- \*Rogerson, R., R. Shimer and R. D. Wright (2005), “Search-Theoretic Models of the Labor Market: A Survey”, *Journal of Economic Literature*, XLIII (December), 959-88.

*On sorting:*

- Shimer, R. and L. Smith (2000), “Assortative Matching and Search”, *Econometrica*, 68(2), 343-370.

*On inequality:*

- \*Bowlus, A. and J.-M. Robin (2004), “Twenty Years of Rising Inequality in US Lifetime Labor Income Values”, *Review of Economic Studies*, 71(3), pp. 709-742.