

Review of
“Time Aggregation Bias in Discrete Time Models of Aggregate Duration Data
Unequal Access To Higher Education in the Czech Republic
The Role of Inflation Persistence in the Inflation Process in the New EU Member States”
by Michal Franta

Prepared by Kamil Galuščák, 15th September, 2009

The dissertation consists of three empirical chapters on rather distinct topics in labour economics (unemployment dynamics), applied microeconomics (economics of education) and applied time-series econometrics (inflation dynamics). As the dissertation is empirical, the chapters formulate important policy recommendations. Two chapters have been directly used in the Czech National Bank: the estimates of inflation persistence have been used in regular CNB documents on the economic alignment of the Czech economy with the euro area (see Hajkova et al, 2007, 2008, 2009), while updates of aggregate hazard rates out of unemployment based on the first chapter were used earlier this year in a CNB internal document for the Bank Board assessing the business cycle position of the Czech economy.

These three pieces of research are the best I have ever read from a PhD student and I enjoyed reading them very much. The dissertation warrants a dissertation defence and award of a doctorate title. Below I present minor comments and suggestions which could be incorporated by the author in further publication.

Time Aggregation Bias in Discrete Time Models of Aggregate Duration Data

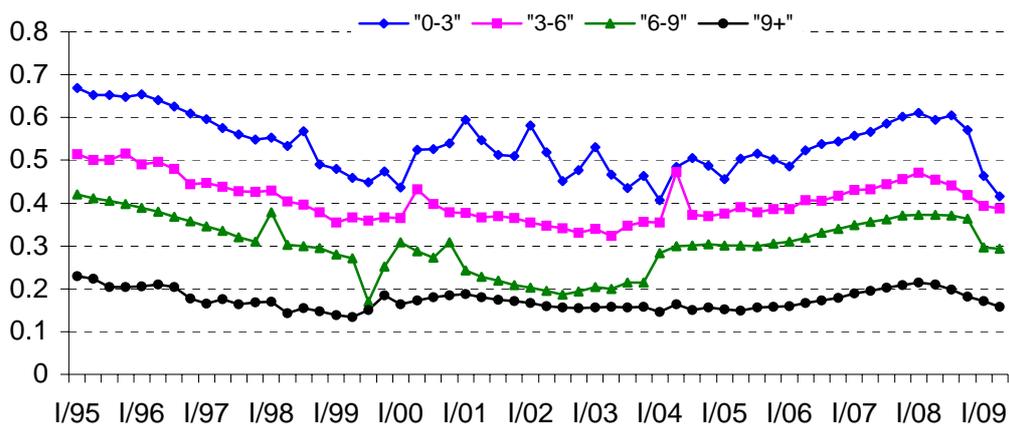
The chapter explains the dynamics of unemployment in terms of unemployment inflow and duration in the Czech Republic in 1992-2007. The chapter brings two novel features to the literature of discrete time models of aggregate unemployment duration data. It accounts for time aggregation bias and investigates the effects of time-varying macroeconomic conditions on individual duration dependence and on the composition of unemployment inflow. In the empirical part the author introduces three models of the hazard rate out of unemployment and derives the system of equations. The system of equations is estimated by non-linear seemingly unrelated regression using the registry data containing all job seekers registered with Labour Offices. Before describing the results, the author provides descriptive analysis of unemployment dynamics (inflows and duration). He also demonstrates how time aggregation bias affects duration dependence.¹

¹ The time aggregation bias is novel in aggregate unemployment duration data models, but it is not new in recent studies explaining contributions of inflow and outflow rates in unemployment, e.g. Shimer (2007) and other studies mentioned on p. 18. For example, Elsby et al (2007) shows that failing to correct for the time aggregation bias increases the role of unemployment inflow in explaining cyclical changes in unemployment. Time aggregation bias is also tackled in papers estimating matching functions (e.g. Galuscak and Munich, 2007).

Specific comments

- The observed negative aggregate duration dependence (Figures 4 and 5) is caused both by individual duration dependence and unobserved heterogeneity (p.27), while the importance of unobserved heterogeneity has increased since the beginning of the 2000s, approaching the situation in Western European economies (p.34). What does this observation suggest in terms of policy implications?
- What is the purpose of the statistical decomposition of unemployment changes in Section 5? It says that both unemployment inflows and outflows are relevant in explaining unemployment dynamics in the Czech Republic (with references to other literature in footnote 17). If one believes that the unemployment rate responds to changes in the business cycle, then unemployment inflows or outflows (or both) must be sensitive to the business cycle. Using equation (13) one could perform simulations of unemployment for particular (e.g. constant) paths of inflows or outflows, but this is beyond the scope of the paper.
- There is probably a typo on p. 24, second paragraph: “those unemployed for less than two months...”
- The author fails to find significant effects of time-varying macroeconomic conditions on unemployment duration (the inverse of unemployment outflows). He admits (on p.34) that the indicators of macroeconomic conditions may not capture the developments in the economy. I believe in this explanation because a simple graphical analysis reveals that unemployment inflows and particularly unemployment outflows are sensitive to the evolution of the business cycle (at least until 2004, see Galuscak, Munich, 2007). Furthermore, the following figure suggests that average hazard rates out of unemployment by duration category responded to the current economic downturn.

Seasonally adjusted average hazard rates out of unemployment by duration category (quarterly data until 2Q2009)



Note: The first duration category is corrected for the time aggregation bias (Franta, 2009).

Unequal Access To Higher Education in the Czech Republic

The Czech Republic exhibits large spatial disparities in human capital and in the availability of local universities. This chapter investigates the unequal access to tertiary education caused by the presence or absence of a local university. Using unique datasets on secondary school graduates and university's admissions in 1998, the author models both a graduate's decision whether to apply to a university and a decision by university about his or her admission. The chapter distinguishes two possible sources of unequal access: costs savings due to the presence of a local university and informational advantage for those applicants living near a university. The results suggest that a highly educated population in the local neighbourhood rather than the presence of university has a positive effect on a graduate's decision to apply.

Specific comments:

- On p.54: "84.2% of individuals in Maturant are matched with respective data in Uchazec." Does it mean that 84.2% of all secondary school graduates apply to a university?
- The analysis is impressive, but policy implications are not clear-cut or even in contradiction. On p. 67 the author puts up-front that "policy makers should consider expanding the system of universities," while on p. 62 he states: "Both the system of financial support of university students and the information availability seem to be sufficient to equalize the differences in the probability of applying caused by the presence/absence of a local university."
- Regarding the policy implications, it may be important to notice that mathematics is an important factor in the application equation with the highest marginal effect (see Table 7 on p. 95).
- The results are not compared with the literature for other countries. For example, I find it particularly interesting and intuitive that the level of parental education (individual socio-economic background) is an important determinant for both application and admission. Is the result the same or different in comparison with other countries?
- The correlation coefficient -0.9 mentioned on p.70 is not reported in Table 11.
- Private secondary school has a negative and significant effect in the admission equation for both gymnasiums and specialized secondary schools (Table 8 and 9 on pp. 96-97). Could the author interpret that observation? It is only marginally significant and positive in the application equation for specialized secondary schools (Table 6 on p. 94).

The Role of Inflation Persistence in the Inflation Process in the New EU Member States

The chapter compares inflation persistence between the New Member States of the European Union and selected euro area countries. This has important policy implications. If the inflation persistence is different in a country compared to the euro area, the country could encounter problems with fulfilling the Maastricht criterion on inflation, while later in the euro area the country could suffer from the inflation divergence. According to statistical tests, the model with time-varying mean is preferred to ARFIMA models for almost all countries. The results indicate that in some New Member States the levels of inflation persistence are similar to those in the selected euro area countries, while other countries exhibit a higher level of inflation persistence stemming both from high intrinsic and expectations-based inflation persistence.

Specific comments:

- The first two sections (Introduction, Related literature) are too long and difficult to read. Both sections refer to the literature.
- The results are not compared to the previous literature.
- Inflation plots on p.131 are presented twice for Slovenia.
- I wonder how to interpret the main findings in that some New Member States have similar (low) inflation persistence as the selected euro area countries, while others are not able to accommodate inflation shocks in the same way as the euro area countries. The author says on p.123 that “countries that face high levels of intrinsic inflation persistence ... face also problems when they try to anchor inflation expectations.” Is that result related to inflation targeting or some other institutional factors? Inflation expectations by the public could be formed, for example, by setting wages (often in the collective bargaining process). The following table compares the value of δ with the proportion of firms which change base wages to past or expected inflation. Except for Belgium, base wage changes are related to expected inflation in countries with high δ . As Babecky et al. (2008) find for the Czech Republic,² the expected inflation enters the wage determination through the collective bargaining process in firms.

Expectations-based inflation persistence and adjustment of base wages to inflation

	δ (Table 5, p. 116)	Automatic link to inflation		No formal rule, but inflation considered		Total
		Past	Expected	Past	Expected	
		CZE	0.31	5.8	2.6	
EST	0.19	2.6	1.3	31.4	15.0	50.3
HUN	0.17	7.2	4.2	14.0	5.9	33.0
LIT	0.12	7.3	3.7	24.3	12.9	48.1
POL	0.13	4.7	2.5	17.3	6.1	30.6
SLO	0.13	20.3	2.7	32.2	5.1	60.3
BEL	0.33	98.2	0.0	0.0	0.0	0.0
ESP	0.33	38.3	16.2	10.9	5.0	70.4
POR	0.45	2.7	6.5	13.3	29.1	51.6

Note: Column 1 is from Table 5, p. 116. Other columns are from Druant et al. (2009), "How are firms' wages and prices linked: survey evidence in Europe", ECB WP No. 1084. They show the percentage of firms; figures are weighted by employment weights and rescaled excluding non-responses.

² Babecky, Dybczak and Galuscak (2008), „Survey on wage and price formation of Czech firms“, CNB WP No. 12/2008.