UNEMPLOYMENT AND JOB CREATION

Jan Svejnar
Second IZA/WORLD BANK Conference on
Employment and Development
Bonn
June 8, 2007

Basic Ideas

- In most developing economies, concern about persistent unemployment (*U*) and limited job creation (*JC*)
- Open v. disguised *U*
- Desirability of informal sector employment
- Quality of jobs
- Jobless growth (productivity)
- What are these phenomena and what drives them?
- What research programs are needed?
- => Outline some stylized facts and give an example of a research program

Latin America

(Pages, Gaelle and Scarpetta, 2007)

- *U* and *JC* – major issues (despite reforms)
- Urban *U* varies from 4% in Mexico to 15% in Colombia
- Informal employment rising
  - Voluntary (optimal) or involuntary?
- Reallocation of labor across firms
  - People worried about losing jobs
- Leading explanations?
  - Weak macro performance
  - Large cyclical fluctuations
  - Frequent crises
- Proposed remedies
  - Raising labor demand by improving investment climate
  - Improve education and skills (labor supply)
  - Relax credit and information constraints
  - Promote adaptable labor markets and safety nets for displaced workers

Latin America (2)

- Argentina (Galiani and Hopenhayn, 2003)
  - *U* spells tend to be short but re-incidence of *U* spells makes *U* risk high and comparable to Europe
  - This *U* risk has risen in the last decade and is shared unequally (e.g., young unskilled are high risk)
  - => high turnover and low long-term *U* incidence rates in LAC do not mean unemployment risk is evenly distributed
- Duryea and Szekely (1998)
  - Rise in young workers share in labor force raises unemployment on account of search problems (demographic factors)
- Maloney (1998)
  - Attractiveness of self-employment => efficiency wages => informality
  - => Labor market rigidity may not be a major issue

Latin America (3)
(Perry and Olarreaga, 2007)

- Contrary to expectations, liberalization accompanied by increased skill premia and wage inequality
- The effects of trade liberalization mostly coincided with reductions in poverty
  - Fall in the cost of consumption goods of the poor and coincidence of short-term *U*, together with significant overall outflows of people from *U* (v. Galiani and Hopenhayn, 2003)
  - Liberalization may give poor better possibilities to adjust; role of informal sector not necessarily negative (v. Mitra and Yemtsov, 2007, on transition economies)

Unemployment and Institutions (LAC)

- Effect of minimum wages on:
  - *Unemployment*
    - Increases unemployment of most vulnerable in Latin America – women, young, least educated (World Bank, 2006)
    - Increase unemployment only of those with secondary education in Honduras (Gindling and Terrell, 2007)
  - *Wages* and *Employment* in the Covered Sector
    - Positive effect on wages - maybe in the middle of the distribution rather than at the bottom (Arango and Pachón, 2003)
      - but compliance an issue
    - Employment mostly found to be negative (Neumark and Wascher, 2006; Pages and Micos, 2003; etc.)
  - *Wages* and *Employment* in the Uncovered (Informal) Sector
    - Wage effect: *Positive* ("lighthouse" effect) in Brazil (Kristensen and Cunningham, 2006; Maloney and Núñez, 2003); *Negative* in Costa Rica; *No effect* in Honduras (Gindling and Terrell, 2007)
    - No information on employment in informal sector

Other Developing Country Evidence

- Rama (1999) -- Sri Lanka
  - Compensation gap between good and bad jobs; bad job vacancies abound => voluntary unemployment
  - => increase competition, lower job security, reform government pay and employment policies (remove artificial benefits associated with good jobs and improve bad jobs)
- Ruppert (1996) – Algeria
  - To avoid high long-term *U* – pursue active labor market policies (supply side) and private sector development (demand side)
- Mcdonald and Yao (2003) – Mauritius
  - *U* is seen as resulting from skill-biased technical change and centralized wage bargaining (mismatch between labor demand and skill availability; yet wages cannot adjust)
  - => invest in education and make bargaining more flexible

Central-East Europe – World Bank (2006)

- Insufficient rates of job creation -- high cost of doing business
- Output growth not a problem – key problem is "jobless growth."
  - Desirable outcome of rising productivity and competitiveness in global economy based on undesirable initial conditions (low productivity).
- Wages rather than employment rising with output and productivity
  - Efficiency wages v. wages set by unions or government?
  - High wage dispersion in East Europe could reflect flexibility in wage setting or regulated outcomes
- Shift from stable formal jobs to casual and less formal jobs, including self-employment
  - Reflects in part strict employment protection legislation in some countries and also flexibility on the part of firms and workers in coping with the situation

Europe (Munich and Svejnar, 2007)

- Central-East Europe -- *U* = still a problem two decades after fall of Berlin Wall
- West -- *U* = an issue in many countries for decades
- => Are similar or different factors at play?
- => What policies could be deployed?
- Central-East Europe: 3 hypotheses
  - Economic structure (mismatch)
  - Macroeconomic policies or major external shocks
  - Ongoing transition from plan to market in the presence of globalization
- Western Europe: 3 hypotheses
  - Structural (mismatch) shocks
  - Aggregate demand shocks
  - Hysteresis (see e.g., Jackman, Pissarides and Savouri, 1990, and Jackman and Layard, 2004)

Example of a Research Project

- A group of researchers, with several teams examining different aspects of the 3 reasons for high *U* in Central-East Europe
- Will review here main findings to date of several teams and present preliminary results of one study (Münich-Svejnar) in more detail

Labor Market Institutions and Unemployment
(Olivier Blanchard, Simon Commander and Axel Heitmueller)

- Calculate measures of L mkt institutions in six TEs
  - Unemployment Insurance (UI): net replacement rates (declining)
  - UI: strictness (flat or increasing)
  - Wage bargaining (high or increasing decentralization)
  - Employment protection (not strong by EU standards)
  - Tax wedge, employer + employee income tax (high and stable)
- *U* not related to institutions in regressions
  - Except possibly for initial UI benefits and tax wedge
- Conclude: *U* not explained by labor market institutions alone
  - If institutions matter, likely in combination with other factors

Job Destruction, Job Creation and Unemployment (Giulia Faggio)

- L in new sector has not replaced L lost in old sector
- Q: Is labor reallocation (transition) still at work?
  - Looks at JC, JD and *U* as initial conditions and policies vary
  - Amadeus database => construct JC ad JD rates for 10 TEs
- Macro-level regression findings:
  - Unemployment has a negative effect on JC in new firms
    - High U associated with higher UI benefits and taxes => lower JC?
  - Current long-term *U* depends on history of short term *U* and hence JC and JD
- Firm-level regression results:
  - Foreign ownership has a positive effect on employment growth

Initial Human Capital (HC) and Regional L Mkt (Stepan Jurajda and Katherine Terrell)

- Transition: High dispersion and lack of convergence in regional *U* rates
  - focus on regional differences in HC endowments
  - Idea: Skill and skill-capital complementarities explain high regional dispersion in unemployment
- Findings (BU, CR, HU, UKR):
  - Over one-half of variation in regional *U* rates explained by concentration of HC
  - Regional variation in HC is wide and rising
  - K and skilled L move to regions with high skill concentration

Skill Endowments in the CE Countries (Janos Köllo)

- Thesis: Presence of many workers with only primary or vocational education => low employment rates
  - Industry and agriculture (simple tasks) declined in CEs
  - Growing tertiary sector demands higher skills (communication)
  - => Employment of low skilled workers fell dramatically
  - Other explanations: SBTC (ltd. evidence) and wage rigidity
- Evidence: IALS, workplace skill requirements, panel data on L and W of unskilled in occupations, firm-level skill share equations (response to tech. change)
- => Policy issues related to education and training

UNEMPLOYMENT IN EAST AND WEST EUROPE

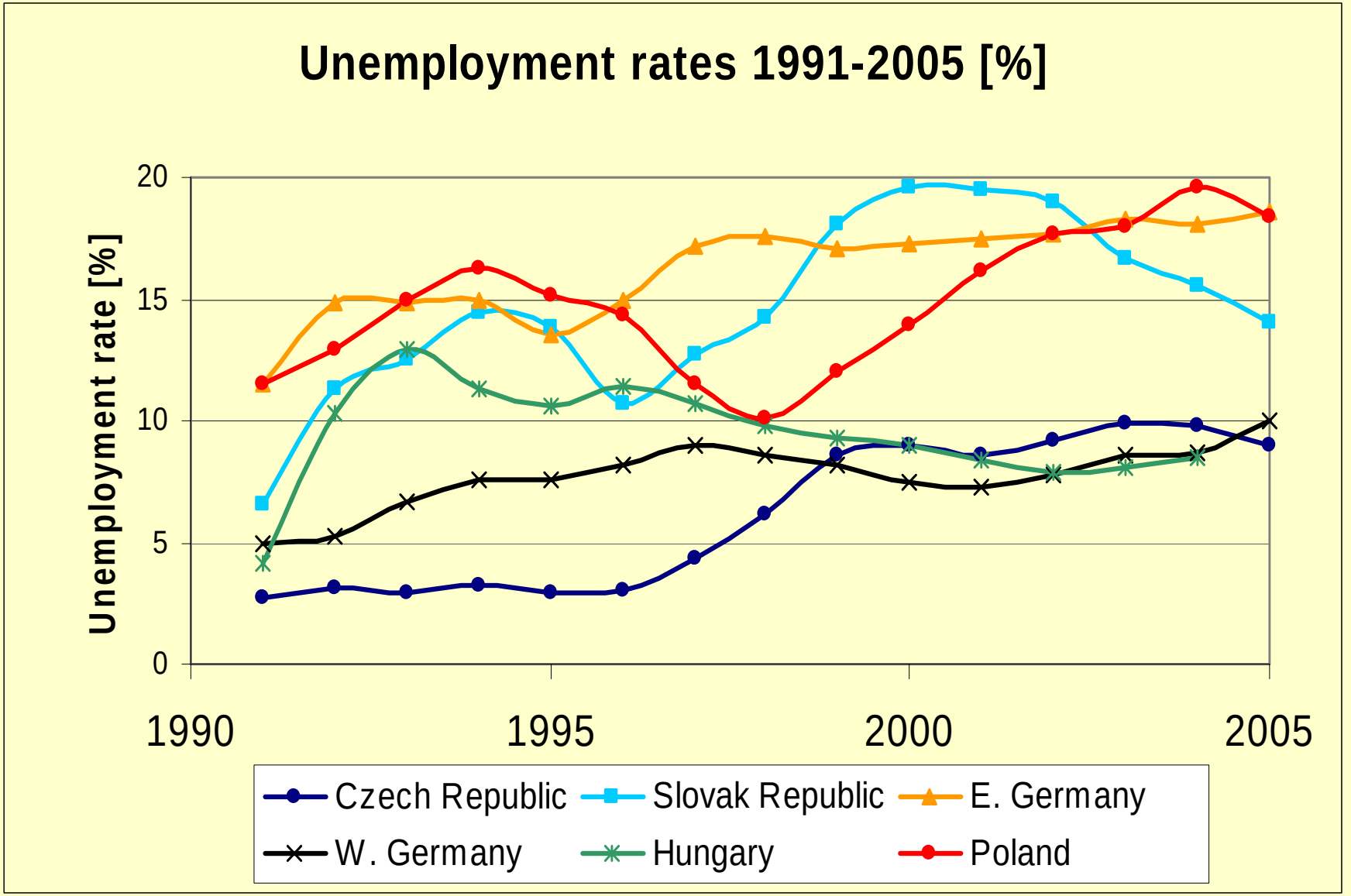
Daniel Münich
Jan Svejnar

Basic Ideas

- Q: Is unemployment a result of
  - ongoing transition (restructuring)
  - macroeconomic policies and external shocks
  - economic structures (mismatch) => focus on L mkt institutions (as in Western Europe), labor mobility and skill formation

- Use *national* and *district-level panel data* on
  - the unemployed *U*, vacancies *V*, inflow *S* into unemployment, and outflow *O* from unemployment
  - in CR, HU, PO, SR, and East and West parts of Germany

- Examine the three hypotheses in the context of inflow into unemployment and efficiency of matching of the *U* and *V*


Unemployment rates 1991-2005 [%]
Unemployment rate [%]
20
15
10
5
0
1990
1995
2000
2005
Czech Republic
Slovak Republic
E. Germany
W. Germany
Hungary
Poland

Two aspects of research

- Examine the relationship between economic activity and *U (*and its dynamics) by focusing on
  - inflows *S* into *U* (labor turnover/job destruction in firms)
  - Outflows *O* from *U* (matching of the unemployed and vacancies)

Setting

- Outcomes in the U-V space seen as an intersection of the Beveridge (UV) curve and the vacancy supply (VS) curve
- UV curve characterizes labor market equilibrium – *U* exists (*U* and *V* do not match instantaneously) and *S* = *O*
- The UV curve is negatively sloped -- supply of more vacancies implies lower unemployment
- The VS curve maps combinations of *U* and *V* that reflect the employment and wage setting behavior of firms and workers
- The intersection of the UV and VS curves gives the equilibrium rate of unemployment and vacancies
- one can distinguish three types of shifts in the U-V space
  - aggregate demand shocks
  - structural (mismatch) shocks
  - hysteresis

Beveridge curve dynamics

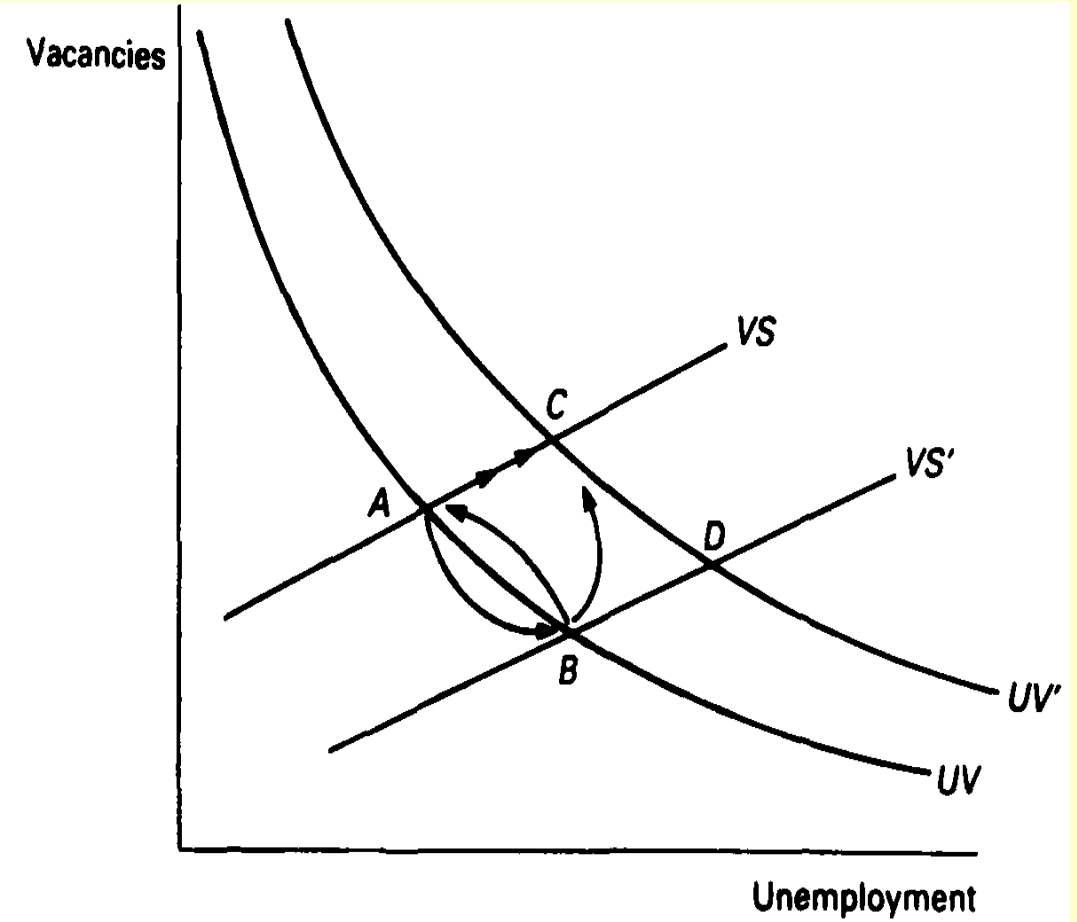
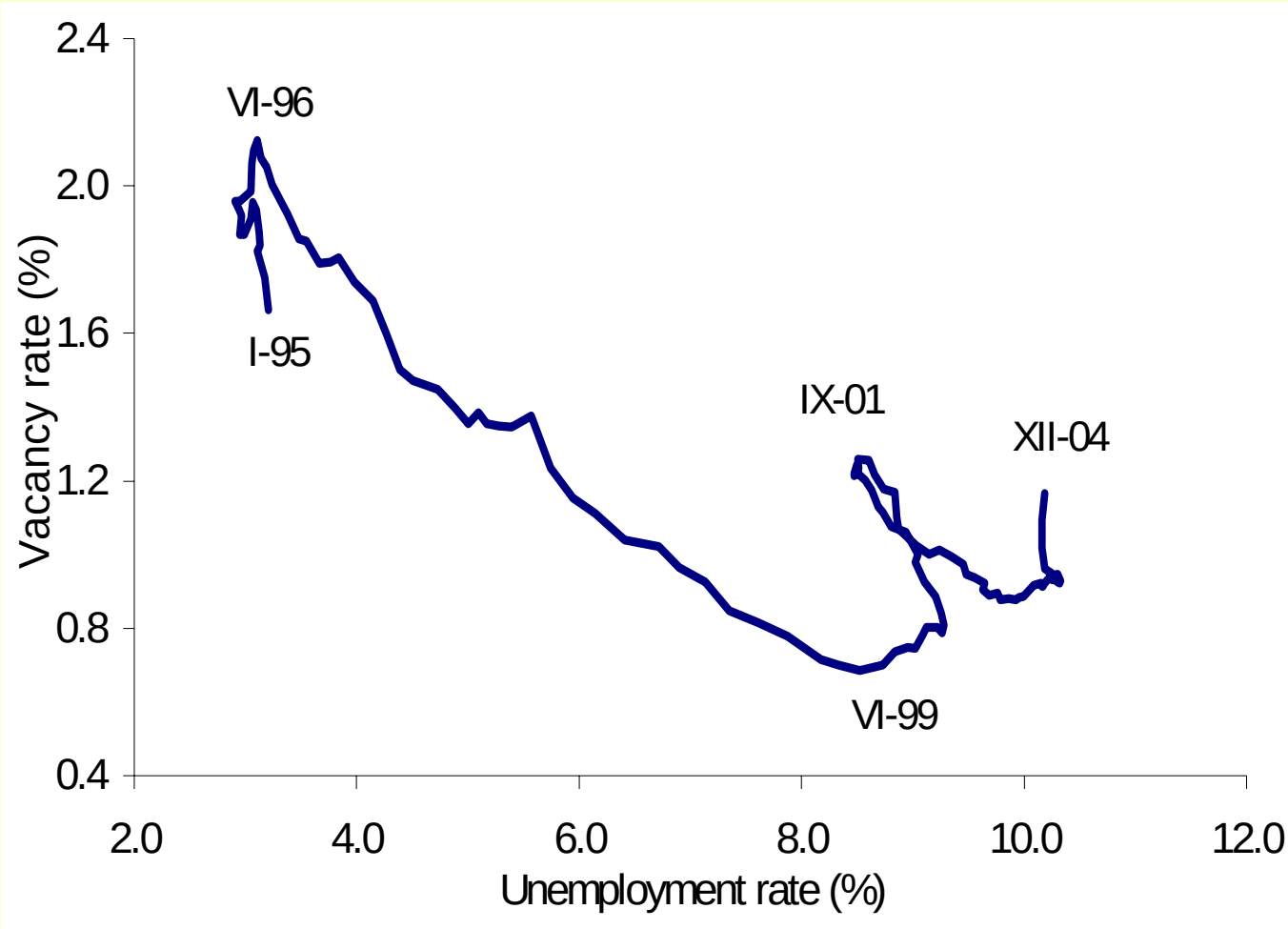
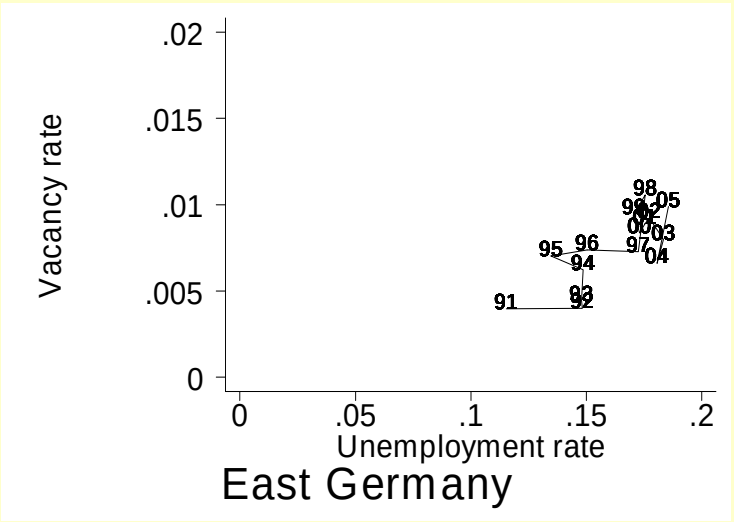


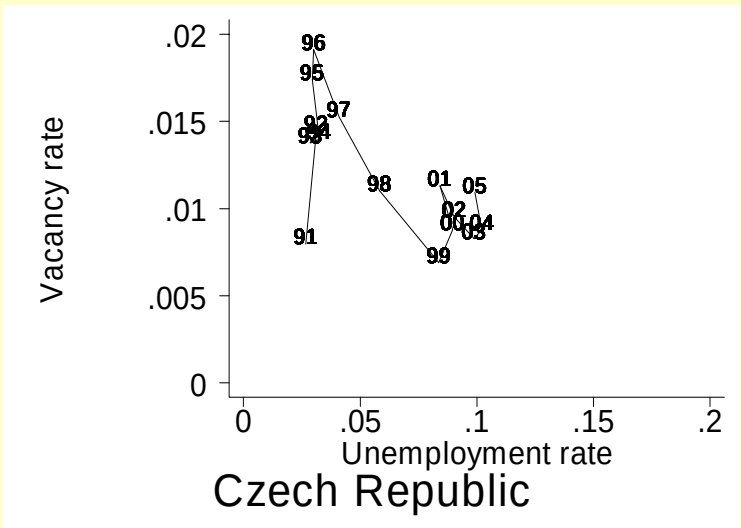
Figure 4. Three types of shocks in Beveridge space

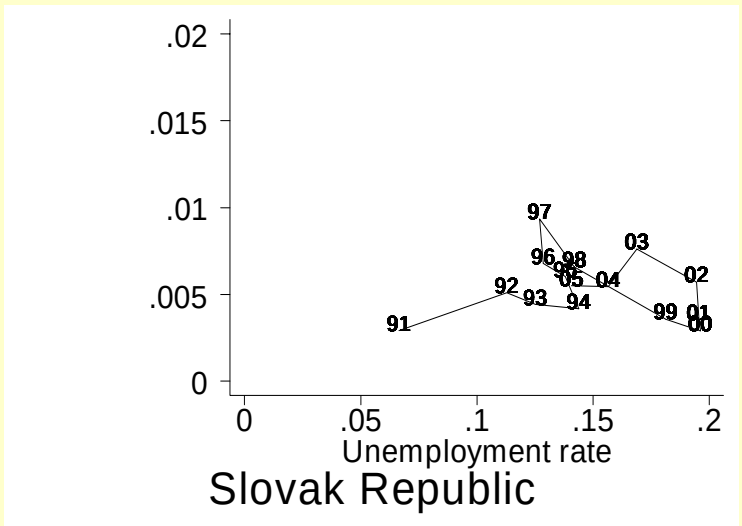
Beveridge curve (Czech Republic, seasonally adjusted data)

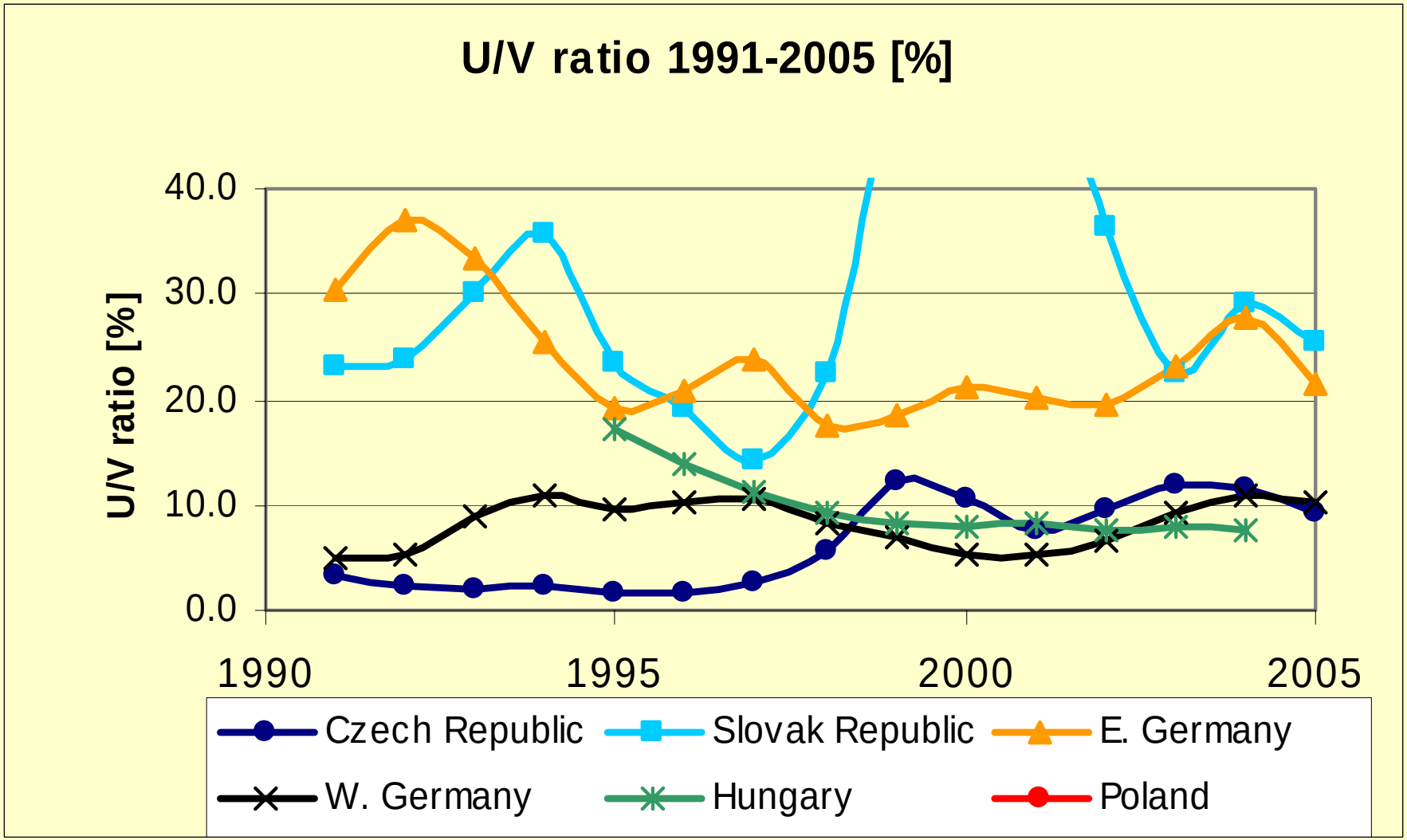


Beveridge curves (selected)



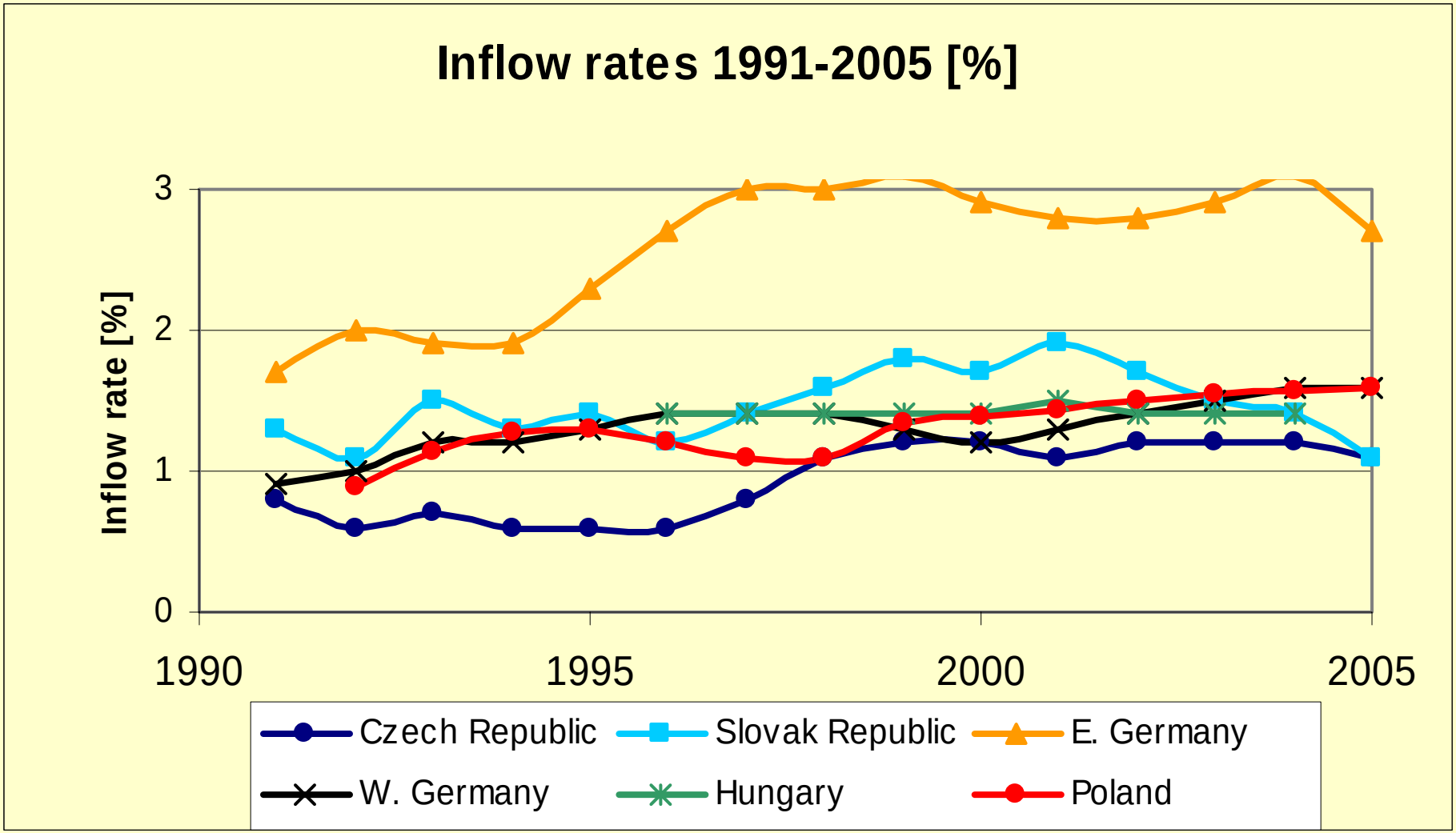





U/V ratio 1991-2005 [%]
U/V ratio [%]
40.0
30.0
20.0
10.0
0.0
1990
1995
2000
2005
Czech Republic
Slovak Republic
E. Germany
W. Germany
Hungary
Poland

Inflow side

- Models of transition assume that the turnover (inflow) rate would rise dramatically as the old state sector sheds workers who go through *U* into new jobs in the new private sector (Aghion and Blanchard, 1994, Blanchard, 1997, and Castanheira and Roland, 2000)
- => Prediction: *S* will be first very high and gradually decline to the level observed in similar market economies (e.g., West Germany)
- The five transition economies -- the *S* rate trajectories have been very different from the theoretical prediction


Inflow rates 1991-2005 [%]
Inflow rate [%]
0
1
2
3
1990
1995
2000
2005
Czech Republic
Slovak Republic
E. Germany
W. Germany
Hungary
Poland

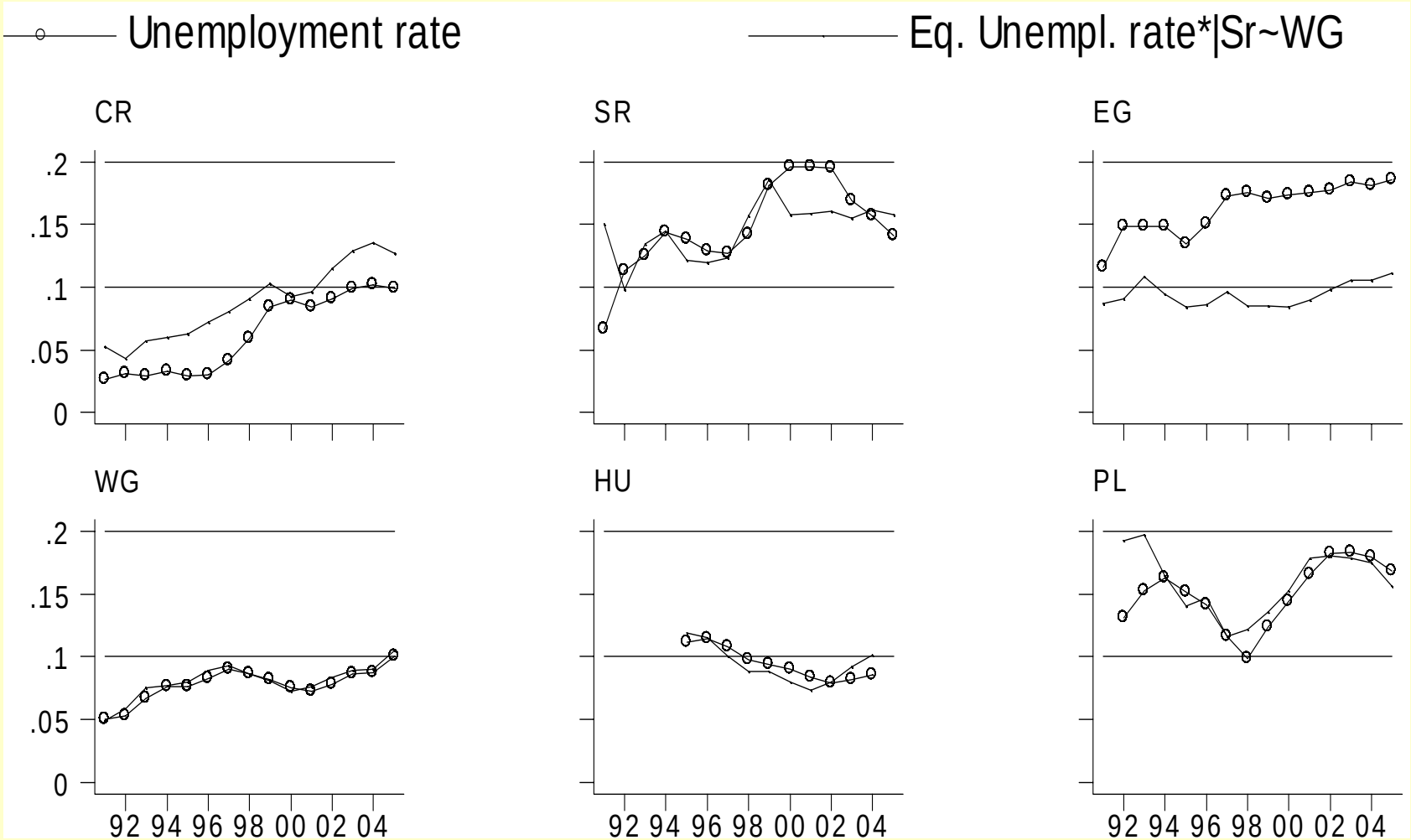
What explains this pattern?

- A leading hypothesis -- significant job-to-job mobility rather than job-to-unemployment flows (Boeri 1999, Terrell and Sorm, 1999, Münich, Svejnar and Terrell, 2003, and Jurajda and Terrell, 2003, and Boeri, Burda and Köllo, 1998)
- Another explanation -- amount of restructuring not as large as expected relative to market economies (Könings et al. 1996**)**
  - Market economies restructuring substantially in view of globalization
  - TEs such as Hungary and Poland were already in part restructured
  - Other TEs such as Czech and Slovak republics proceeded slowly in cutting off current and former state-owned firms from subsidies (Lizal and Svejnar, 2002)
- East Germany is a special case (ALMPs)

Transition-related shocks?

- To what extent *U* in transition economies caused by shocks related to policies pursued by these countries versus shocks that affect them and similar market economies?
- => Take West German economy as a benchmark and calculate the *U* rate that each transition economy would have, had it had the same *S* rate as West Germany

Actual and hypothetical unemployment rates during 1992-2005



Outflows and efficiency of matching

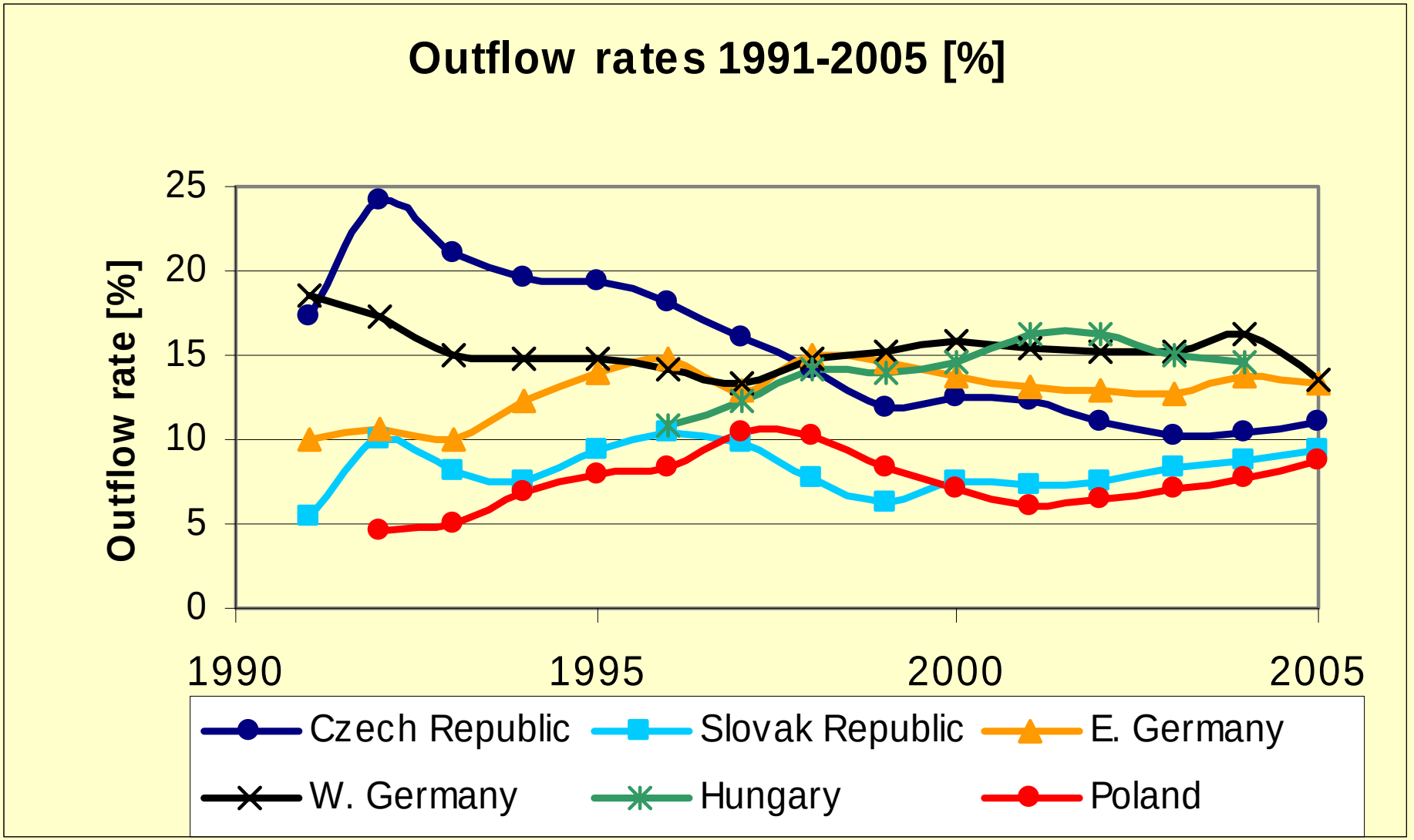
Conceptual framework of matching functions

- $O = M(U,V)$
- Some authors expect the matching function M to display constant returns to scale (CRS)
- Others identify reasons such as externalities in the search process, heterogeneity in the unemployed and vacancies and lags between matching and hiring, why increasing returns (IRS) may prevail
- IRS may constitute a necessary condition for multiple equilibria and a rationale for government intervention
- We are finding that increasing returns appear to be an important phenomenon
  - especially in the later (1997-2003) than the earlier (1993-96) period

Hypotheses about reasons for high U

- H1: restructuring still at work -- inflow *S* (from old jobs) high => *U* high due to high turnover
- H2: *U*-*V* matching “fine”, high *U* caused by low L demand (macro policies, exchange rate, shocks) => low *V* relative to *S*
- H3: inefficient *U*-*V* matching (L mkt institutions or geographical or skill mismatch) => *U* and *V* both high but not in the same districts or skill groups

AGGREGATE TIME SERIES OF REMAINING KEY VARIABLES


Outflow rates 1991-2005 [%]
Outflow rate [%]
25
20
15
10
5
0
1990
1995
2000
2005
Czech Republic
Slovak Republic
E. Germany
W. Germany
Hungary
Poland

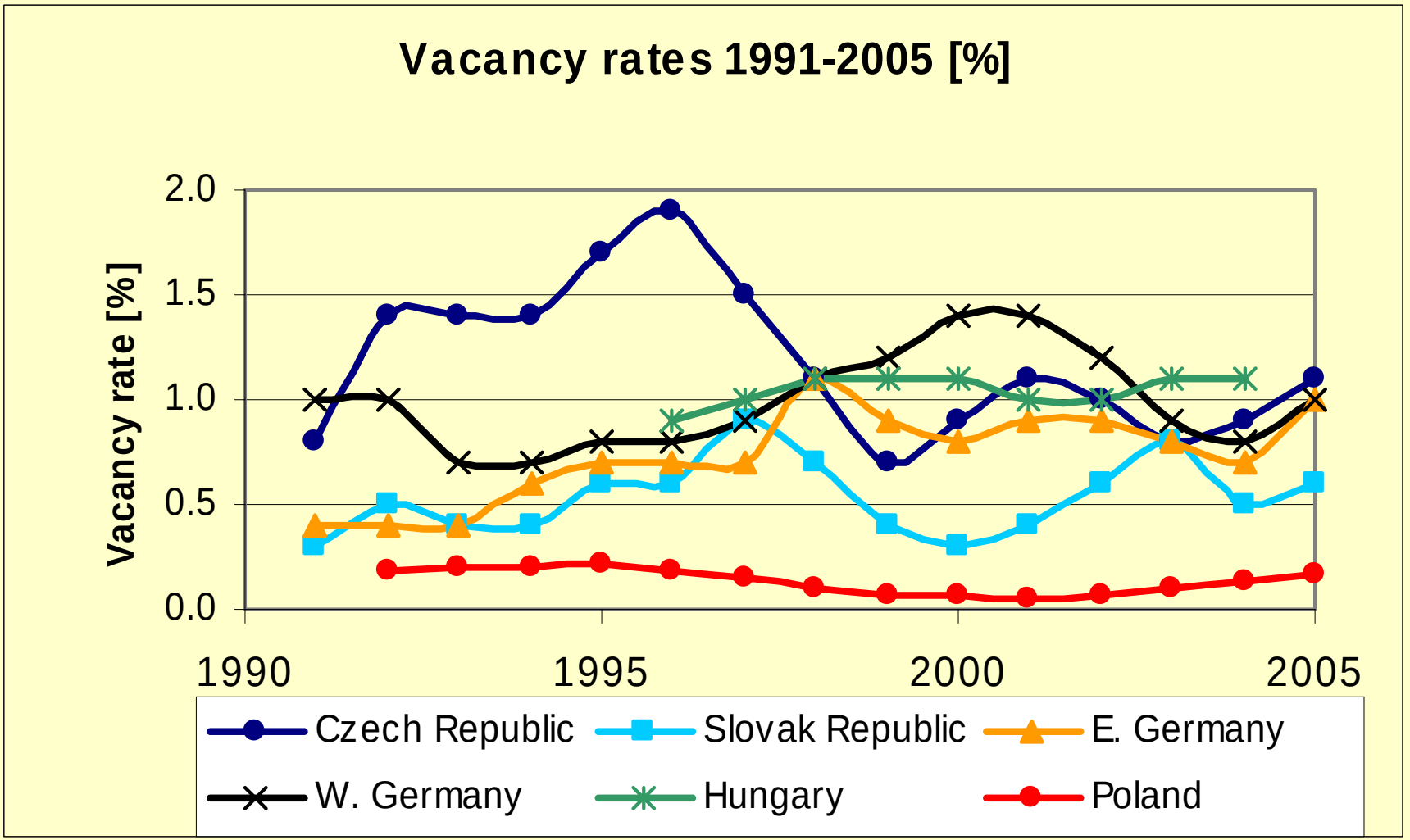

Vacancy rates 1991-2005 [%]
Vacancy rate [%]
2.0
1.5
1.0
0.5
0.0
1990
1995
2000
2005
Czech Republic
Slovak Republic
E. Germany
W. Germany
Hungary
Poland

Table 2: Persistence of Regional Differentials - Pearson's Rank Correlations

Base Year 1992							Base Year 1999						
Year	**CR**	**SR**	**EG**	**WG**	**HU**	**PL***	**Year**	**CR**	**SR**	**EG**	**WG**	**HU***	**PL**
						Unempl. Rate							
1996	0.81	0.82	0.54	0.94	n.a.	0.90	**2002**	0.95	0.95	0.87	0.96	0.95	0.86
1999	0.73	n.a.	0.32	0.94	n.a.	0.83	**2005**	0.91	0.92	0.71	0.89	0.92	0.83
						Inflow Rate							
1996	0.79	0.75	0.60	0.89	n.a.	0.90	**2002**	0.94	0.93	0.87	0.97	0.96	0.94
1999	0.70	n.a.	0.47	0.87	n.a.	0.87	**2005**	0.90	0.82	0.51	0.80	0.95	0.92
						Outflow Rate							
1996	0.50	0.57	0.43	0.84	n.a.	0.48	**2002**	0.86	0.88	0.68	0.87	0.86	0.45
1999	0.38	n.a.	0.46	0.84	n.a.	0.47	**2005**	0.83	0.86	0.54	0.78	0.66	0.72
						Vacancy Rate							
1996	0.33	0.25	-0.03	0.51	n.a.	0.55	**2002**	0.69	0.35	0.66	0.81	0.85	0.8
1999	0.29	n.a.	0.01	0.51	n.a.	0.46	**2005**	0.40	0.34	0.00	0.38	0.50	0.6
						U/V ratio							
1996	0.81	0.82	0.54	0.94	n.a.	0.90	**2002**	0.95	0.95	0.87	0.96	0.95	0.86
1999	0.73	n.a.	0.32	0.94	n.a.	0.83	**2005**	0.91	0.92	0.71	0.89	0.92	0.83

Literature on matching in TEs

- Grown rapidly
- Produced contradictory results
- Studies use different methodologies and data
- Methodologically, they differ especially with respect to the
  - specification of the matching function and treatment of returns to scale
  - inclusion of other explanatory variables that might affect outflows
  - extent to which they use static or dynamic models
- In terms of data, the studies differ in whether they
  - use annual, quarterly or monthly panels of district-level or more aggregate (regional) data
  - cover short or long time periods
- None adjusts the data for the varying size of the (district or region)

Our approach

- Unlike other studies, we use a more up-to-date empirical methodology and superior data
  - control for the endogeneity of explanatory variables
  - account for the presence of a spurious scale effect introduced by the varying size across units of observation (districts)
  - use long panels of comparable monthly data from all districts in the countries that we analyze

Empirical Specification (simple, but…!)

- Cobb-Douglas function which may be written in a deterministic form as

$$\ln O_{i,t} = \beta \ln U_{i,t-1} + \gamma \ln V_{i,t-1} + \ln A \qquad (2)$$

- $U_{i,t-1}$ = number of unemployed in district i at the end of period *t-1*
- $V_{i,t-1}$ = number of vacancies in district i at the end of period *t-1*
- $O_{i,t}$ = outflow to jobs during period *t*
- *A* captures the efficiency of matching.

Empirical Specification

- Let lowercase letters stand for logarithms of variables
- a_i be district specific effects
- $\varepsilon_{i,t}$ be an idiosyncratic error term
- Can write (2) as

$$o_{i,t} = \beta u_{i,t-1} + \gamma v_{i,t-1} + a_i + \varepsilon_{i,t} \qquad (3)$$

Estimation problems

$$o_{i,t} = \beta u_{i,t-1} + \gamma v_{i,t-1} + a_i + \varepsilon_{i,t} \quad (3)$$

- OLS not appropriate if a_i are correlated with *u* and *v*
- Correlation likely to exist due to differences between districts
- Specific factor is district size (spurious scale effect)
- With panel data, one can use means deviation or first differencing to remove a_i
- But RHS *u* and *v are* predetermined through previous matching (endogenous) → inconsistent estimates → IV needed → first differencing preferred

- First difference transformation contaminates the transformed variables only with recent error terms $\{\varepsilon_t: t = \text{T-1, T-2}\}$
- To see this, rewrite (5) in a first difference form

$$\Delta o_t \equiv o_t - o_{t-1} = \beta(u_{t-1} - u_{t-2}) + \gamma(v_{t-1} - v_{t-2}) + \varepsilon_t - \varepsilon_{t-1} \quad (6)$$

Lagged outflows in (4) in turn given by a lagged version of (3)

$$U_{t-1} \equiv U_{t-2} + S_{t-1} - O_{t-1} \dashrightarrow o_{t-1} = \beta u_{t-2} + \gamma v_{t-2} + \varepsilon_{t-1}$$

$$U_{t-2} \equiv U_{t-3} + S_{t-2} - O_{t-2} \dashrightarrow o_{t-2} = \beta u_{t-3} + \gamma v_{t-3} + \varepsilon_{t-2}$$

- … and further lags of *U (or S)*, and *V* can be used as valid instruments.

- District mean deviations transformation (fixed-effects): contaminates variables with all error terms.

Newly unemployed

- Studies (e.g., Coles and Smith,1994, and Coles and Petrongolo, 2003) suggest propensity to match higher at time of entry into unemployment
  - Newly unemployed search through all existing vacancies
  - May have not experienced depreciations of skills
- Remaining unemployed match only with the newly posted vacancies
- To reflect this, we include inflow into unemployment as an additional explanatory variable

Other empirical problems

- Measurement error
- Continuous vs. discrete process
- Segmented labor market
- ….

Data

- Panel of data on 76 Czech, 38(79) Slovak, 21 Hungarian, 34 East German and 140 West German districts. The data cover January 1991- 2005 and contain monthly observations for the following variables:
- $O_{i,t}$ = the number of individuals flowing from unemployment in district *i* during period *t*;
- $U_{i,\,t}$ = the number of unemployed in district *i* the end of period *t*;
- $S_{i,t}$ = the normalized number of individuals flowing into unemployment (the newly unemployed) in district *i* during period *t;*
- $V_{i,t}$ = the number of vacancies in district *i* at the end of period *t*;

Matching function estimates for West Germany during 1997-2005

	Trend	Std.Err.	β	Std.Err.	γ	Std.Err.	δ	Std.Err.	RTS	p-value	adjR2
Panel A: Cross-sectional estimators											
OLS	0.012	0.001	0.68	0.00	0.15	0.00	-	-	0.83	0.00	0.85
OLS (Month Dummies)	0.011	0.001	0.69	0.00	0.13	0.00	-	-	0.82	0.00	0.90
OLS (Size Adjusted)	0.010	0.001	0.55	0.03	0.03	0.02	-	-	0.58	0.00	0.62
Panel B: Panel data estimators											
Random Coefficients	0.010	0.000	0.74	0.01	0.08	0.00	-	-	0.81	0.00	0.65
Fixed Effects	0.010	0.000	0.74	0.01	0.07	0.00	-	-	0.81	0.00	0.66
1st Differences	0.013	0.003	1.64	0.06	0.07	0.01	-	-	1.71	0.00	0.64
Panel C: Panel data estimators (preferred estimation methods)											
1st Differences + IV	0.014	0.002	1.31	0.04	0.14	0.03	-	-	1.45	0.00	0.63
1st Differences + IV	0.012	0.002	1.27	0.04	0.16	0.03	0.12	0.01	1.56	0.00	0.64
1st Differences + IV*	0.009	0.002	1.28	0.04	0.13	0.03	0.15	0.01	1.55	0.00	0.63

*Estimated coefficient on lagged outflow added: ϕ=.200 (.033)

Number of observations = 14734

Matching function estimates

Panel A: 1994-1996

Country	Trend	Std. Err.	β	Std. Err.	γ	Std. Err.	δ	Std. Err.	adjR2	RTS	p-value	Nobs
CR	-0.112	0.027	0.75	0.16	0.23	0.11	0.26	0.03	0.65	1.24	0.31	2661
WG	-0.103	0.005	1.27	0.07	0.22	0.04	0.20	0.02	0.67	1.69	0.00	5004

Panel B: 1997-2005

Country	Trend	Std. Err.	β	Std. Err.	γ	Std. Err.	δ	Std. Err.	adjR2	RTS	p-value	Nobs
CR	-0.039	0.008	1.16	0.07	0.51	0.06	0.19	0.02	0.74	1.86	0.00	7770
WG	0.012	0.002	1.27	0.04	0.16	0.03	0.12	0.01	0.64	1.56	0.00	14734

Preliminary Conclusions

- H1 (restructuring – high *S*)
- H2 (low L demand -- low *V* relative to *S*)
- H3 (high *U* and *V* and inefficient *U*-*V* matching)

- West Germany consistent with H1 and H2; *U* has risen with increasing *S* (H1), *V* declined while inflow has risen (H2), *U* and *V* rates high but matching is efficient (not H3)
- Czech Republic starts with low *U* but increasingly conforms to H1 (higher *U* and *S)* and H2 (*V* low relative to *S),* but not H3 (low *V* and efficient matching)

Preliminary Conclusions (2)

- H1 (restructuring – high *S*)
- H2 (low L demand -- low *V* relative to *S*)
- H3 (high *U* and *V* and inefficient *U*-*V* matching)
- East Germany conforms to H1 as well as H2; relatively high *U* and *S*, and low *V* rate
- Slovakia -- high *U*, rising *S* rates and a low *V* rate; consistent with a combination of H1 and H2 (H3 = ?)
- Poland similar to Slovakia but very low *V*
- Because of low *U*, Hungary does not fit clearly into any H: *S* is relatively moderate and *O* is sizable (not H1), *V* rate is not too low relative to *S* (not H2), *U* and *V* are not relatively high (not H3)

Additional conclusions from inflows

- Transition economies may have experienced significant job-to-job mobility rather than job-to-unemployment flows
- Amount and speed of restructuring may not have been as large as theorists expected, relative to restructuring in market economies

Overall Project Conclusions

- Institutions do not seem to drive unemployment (B-C-H); presence of low skilled workers does (K)
- Regional disparities in *U, S* and *O are* persistent (J-T, K, M-S)
- Restructuring proceeding everywhere (F, M-S)