Identifying future labour market imbalances

- Confronting labour demand and supply
- How do occupations and types of education match?
- Allocation processes
- How to use the forecasting figures of labour demand and supply?

Overview of my contribution

- For the long term feedback mechanisms seems to be very important
- To what extent in our forecasting work?
- How to measure a labour market imbalance or skill gap?
- How to interpret it?

Feedback mechanisms at macro level

- At the macrolevel (CE-model) they are more or less included
- Employment by industry is indirectly dependent on income, wages and unemployment
- Technological change is exogenous and implicitly accounted for

Feedback mechanisms at macro level

- **Examples**
- **Downward trend in agricultural sector and many manufacturing industries**
- **Upward trend in many service sectors**

Feedback mechanisms at labour demand side: occupations

- **Reasonable assumption: not so important for occupational projections**
- **Economic sector structure is given by the CE-model**
- **Occupational structure changes according to an exogenously given time trend (i.e. technological change)**

Feedback mechanisms at labour demand side: occupations

- **Examples: downward trend in agricultural occupations and huge increase of IT-workers**
- **You could try to find drivers of technological change**

Feedback mechanisms at labour demand side: types of education

- Here the interaction with the supply side becomes important
- This is the weak point of the current framework
- Use of skills within occupations may change due to both SBTC and changes in relative supplies (i.e. relative productivities and wages)

Feedback mechanisms at labour demand side: types of education

- Changes in allocation of types of education over occupations
- Substitution processes by employers
- Changes in the choice of study

Example

	Occ. 1	Occ. 2	Occ. 3	Unempl.	Total Edu.
Edu. 1	90	20	0	0	110
Edu. 2	10	140	100	40	290
Edu. 3	0	40	200	60	300
Total Occ.	100	200	300	100	700

Change in demand due to SBTC

	Occ. 1	Occ. 2	Occ. 3	Unempl.	Total Edu.
Edu. 1	90	20	0	0	110
Edu. 2	10	140	100	40	290
Edu. 3	0	40	200	60	300
Total Occ.	150	150	300	100	700

Shortage of Edu. 1

	Occ. 1	Occ. 2	Occ. 3	Unempl.	Total Edu.
Edu. 1	*90*	*20*	*0*	*0*	110
Edu. 2	*10*	*140*	*100*	*40*	290
Edu. 3	*0*	*40*	*200*	*60*	300
Total Occ.	150	150	*300*	*100*	700
Shortage	50	-50	*0*	*0*	

Reallocation and substitution

	Occ. 1	Occ. 2	Occ. 3	Unempl.	Total Edu.
Edu. 1	105	5	0	0	110
Edu. 2	45	140	85	20	290
Edu. 3	0	5	230	65	300
Total Occ.	150	150	315	85	700
Shortage	0	0	0	0	

What happens?

- (Larger) shortage of Edu. 1
- (Larger) excess of supply of Edu. 2 and 3
- However, relative wage of Edu. 1 rises
- Other mix of skills within three occupations: more workers of Edu. 2 in Occ. 1, etc.
- More people of Edu. 2 and 3 may get unemployed

Skill mixture is not fixed, due to:

- **Changes in relative wages**
- **Changes in unemployment, working at other level or outside domain**
- **Changes in educational structure (react on return to education)**

Conclusions

- **We can not predict numbers of shortages or excess supplies**
- **We can predict the frictions and say something about the responses, like wage changes, substitution, migration**