

Substitution between Employment and Working Hours

An Empirical Analysis for Switzerland

Verlag Paul Haupt Bern • Stuttgart • Wien

Contents

1	Inti	roducti	on	15			
2	Foundations						
	2.1	Introd	uction	.17			
	2.2	Forms	of variation in working hours.	17			
		2.2.1	Reduction in working hours versus part-time work and labor flexibility	18			
		2.2.2	Forms of reduction in working hours.	.19			
	2.3	Unem	ployment and labor market theory.				
	2.4		market developments since 1960.				
		2.4.1	Main findings.	29			
		2.4.2	Employment	.31			
		2.4.3	GDP, industrial production and employment.	.32			
		2.4.4	Unemployment	.34			
		2.4.5	Average working hours.	39			
		2.4.6	Connection between unemployment and working hours	42			
	2.5	Summ	ary	43			
3	Literature overview						
	3.1	Introd	uction	45			
	3.2	Issues	relating to the substitution question.	45			
		3.2.1	Subdivision of the production factor labor into employment and				
			working hours	45			
		3.2.2	Relationship between standard working hours and overtime work	47			
		3.2.3	Relationship between working hours, shift-work and the utilization of capital	/10			
		3.2.4	Impact of technological progress on the relationship between skilled	77			
		J.4. 4	and unskilled labor.	50			
	3.3	Onaci.	fixed production factors.				
	5.5	Quasi.	mad production factors.	.52			

	3.4	Empirical studies concerning the substitution question	55				
	3.5	Conclusions	59				
4	4 Estimation models						
	4.1	Introduction.	61				
	4.2	Generalized Leontief and Translog functions.	62				
	4.3	Model of Konig and Pohlmeier.	62				
		4.3.1 Model setup.	62				
		4.3.2 Applying the Konig-Pohlmeier model.	64				
	4.4 Estimating a production function		67				
	4.5 Model of Morrison		67				
		4.5.1 Model setup	68				
		4.5.2 Model adaptation.	69				
	4.6	Model of Pindyck and Rotemberg	.72				
		4.6.1 Model setup	72				
		4.6.2 Model adaptation	74				
	4.7	Estimation methods.	.77				
	4.8	Summary	.79				
5	Ag	gregate analysis at the manufacturing level	81				
5	Ag 5.1	gregate analysis at the manufacturing level Introduction					
5		•	.81				
5	5.1	Introduction	.81 .81				
5	5.1 5.2	Introduction	81 81 84				
5	5.1 5.2	Introduction. Data. Estimates based on data set 1.	81 81 84 84				
5	5.1 5.2	Introduction Data. Estimates based on data set 1. 5.3.1 Static model with variable factors.	81 81 84 84 91				
5	5.1 5.2	Introduction Data Estimates based on data set 1. 5.3.1 Static model with variable factors. 5.3.2 Static model with quasi-fixed factors.	81 81 84 84 91 93				
5	5.1 5.2 5.3	Introduction Data Estimates based on data set 1. 5.3.1 Static model with variable factors. 5.3.2 Static model with quasi-fixed factors. 5.3.3 Dynamic model with quasi-fixed factors.	81 81 84 84 91 93				
5	5.1 5.2 5.3 5.4 5.5	Introduction Data Estimates based on data set 1. 5.3.1 Static model with variable factors. 5.3.2 Static model with quasi-fixed factors. 5.3.3 Dynamic model with quasi-fixed factors. Static model with data set 2. Conclusions.	81 81 84 84 91 93 95				
5	5.1 5.2 5.3 5.4 5.5	Introduction Data Estimates based on data set 1. 5.3.1 Static model with variable factors. 5.3.2 Static model with quasi-fixed factors. 5.3.3 Dynamic model with quasi-fixed factors. Static model with data set 2. Conclusions.	81 81 84 84 91 93				
	5.1 5.2 5.3 5.4 5.5	Introduction Data Estimates based on data set 1. 5.3.1 Static model with variable factors. 5.3.2 Static model with quasi-fixed factors. 5.3.3 Dynamic model with quasi-fixed factors. Static model with data set 2. Conclusions. ctor-specific analysis Introduction.	81 81 84 84 91 93 95 97				
	5.1 5.2 5.3 5.4 5.5 Sec	Introduction Data Estimates based on data set 1. 5.3.1 Static model with variable factors. 5.3.2 Static model with quasi-fixed factors. 5.3.3 Dynamic model with quasi-fixed factors. Static model with data set 2. Conclusions. ctor-specific analysis Introduction. Sector-specific developments in the past two decades. J	81 81 84 84 91 93 95 97				
	5.1 5.2 5.3 5.4 5.5 Sec 6.1	Introduction Data Estimates based on data set 1. 5.3.1 Static model with variable factors. 5.3.2 Static model with quasi-fixed factors. 5.3.3 Dynamic model with quasi-fixed factors. Static model with data set 2. Conclusions. etor-specific analysis Introduction Sector-specific developments in the past two decades.	81 81 84 84 91 93 95 97				
	5.1 5.2 5.3 5.4 5.5 Sec 6.1 6.2 6.3 6.4	Introduction Data Estimates based on data set 1. 5.3.1 Static model with variable factors. 5.3.2 Static model with quasi-fixed factors. 5.3.3 Dynamic model with quasi-fixed factors. Static model with data set 2. Conclusions. ctor-specific analysis Introduction. Sector-specific developments in the past two decades. J	81 81 84 84 91 93 95 97 99 100				
	5.1 5.2 5.3 5.4 5.5 Sec 6.1 6.2 6.3	Introduction Data Estimates based on data set 1. 5.3.1 Static model with variable factors. 5.3.2 Static model with quasi-fixed factors. 5.3.3 Dynamic model with quasi-fixed factors. Static model with data set 2. Conclusions. ctor-specific analysis Introduction. Sector-specific developments in the past two decades. Estimation results.	81 81 84 84 89 93 95 97 99 100 106 III				
	5.1 5.2 5.3 5.4 5.5 Sec 6.1 6.2 6.3 6.4 6.5	Introduction Data. Estimates based on data set 1. 5.3.1 Static model with variable factors. 5.3.2 Static model with quasi-fixed factors. 5.3.3 Dynamic model with quasi-fixed factors. Static model with data set 2. Conclusions. ctor-specific analysis Introduction Sector-specific developments in the past two decades. Estimation results. Testing for differences in the employment-working hours coefficients Conclusions.	81 81 84 84 91 93 95 97 99 100 106 111				
	5.1 5.2 5.3 5.4 5.5 Sec 6.1 6.2 6.3 6.4 6.5	Introduction Data. Estimates based on data set 1. 5.3.1 Static model with variable factors. 5.3.2 Static model with quasi-fixed factors. 5.3.3 Dynamic model with quasi-fixed factors. Static model with data set 2. Conclusions. ctor-specific analysis Introduction Sector-specific developments in the past two decades. Estimation results. Testing for differences in the employment-working hours coefficients Conclusions.	81 81 84 84 89 93 95 97 99 100 106 III				

A GDP, industrial production and employment	123
* B Different percentages of fixed labor costs	129
C Sector-specific estimations	133
D Differences in the a^{\wedge}_h coefficients	147
E Data sources	155
Bibliography	157