

Policy Designs of a Just Transition in Austria: Testing potential outcomes with IO-SFC Modeling

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1. Introduction
2. Definition of a Just Transition
3. Methodology and Data
4. Preliminary Findings
5. Conclusion and Extensions

Introduction

Research aim:

- ▶ estimate the effect of economic policy scenarios of a just transition on output and employment throughout different “green” and “brown” sectors
- ▶ identify regions in Austria that are particularly affected by job losses and others paying a crucial role in the reduction of emissions

Just Transition – Definition, Actors and Actions

- ▶ “fair and equitable process of moving toward a postcarbon society”
McCauley Heffron (2018, p. 2)
- ▶ Shift from “brown” industries, exerting highly extractive activities, to “green” industries, highly sustainable sectors → workers protection at the core
- ▶ Cannot be left to the “free” market → Corporatist industrial planning and militant action – strong unions to prevent “job vs climate” frame
- ▶ No definitive consequences especially for long term impact of employment
 - ▶ small but positive effect of net employment and negative effect on income distribution, which needs to be absorbed by policy intervention
 - ▶ lacking in comprehensive analysis of income dynamics and quality of jobs
 - ▶ supply SFC modelling

How to Model a just transition?

- ▶ Modeling transition scenarios useful to assist policymakers in knowing the consequences of measures before implementing them
- ▶ Stock-Flow consistent models can be used to holistically model the economy
- ▶ Survey of SFC models provided by Nikiforos and Zezza (2017), who identify 4 core principles
 1. Flow consistency: Every monetary flow has to come from and go to somewhere
 2. Stock consistency: Assets of one sector have to be liabilities of another one
 3. Stock-flow consistency: Every flow has to imply a change in one or more stocks
 4. Every financial transaction necessitates a quadruple accounting entry
- ▶ SFC models ...
 1. exist empirically and theoretically
 2. exist regionally, nationally and globally
 3. can include input-output methods and emissions data

Data

- ▶ Like almost all SFC models, we build on national accounts data - in this case provided by Eurostat
- ▶ We supplement national accounts data with inflation statistics by Statistik Austria, interest rates by the Deutsche Bundesbank and population projects from OECD
- ▶ We summarize 64 industries included in Eurostat data into 9 groups
 1. Manufacturing activities with high emission intensity
 2. Manufacturing activities with low to medium intensity
 3. Extraction of resources
 4. Various service activities
 5. Water and air transport
 6. Land transport
 7. Construction
 8. Social services
 9. Electricity, water collection, sewerage and waste management

Transaction Flow Matrix

Flows	Industries 1-9	Households	Government	Total
<i>Intermediate Purchases</i>	+INTP			0
	-INTP			
<i>Final Consumption</i>	+CONS	-CONS_H	-CONS_G	0
<i>GFCF</i>	+/-GFCF			0
<i>Wages</i>	-WB	+WB	0	0
<i>Taxes</i>	-T_IND	-T_INC	+T_IND	0
	-T_INC		+T_INC	
<i>Social Contributions</i>	-SC_EMP	-SC_H	+SC_EMP	0
			+SC_H	
<i>Transfers</i>	0	+TRANSFERS	-TRANSFERS	0

Behavioural equations

$$(1) \text{PROD}_{i,t} = \sum_{j=1}^9 \text{INTP}_{j,i,t} + \text{CONS}_{H,i,t} + \text{CONSG}_{i,t} + a_i \text{GFCF}_t$$

$$(2) \text{INTP}_{j,i,t} = a_j^i \text{PROD}_{j,t}$$

$$(8) \text{GFCF}_{i,t} = i_0^i + i_1^i \text{PROF}_{i,t-1} + i_2^i (r_{i,t} - \pi) + i_3^i u_{i,t}$$

$$(13) \text{INC}_{H,t} = \sum_{i=1}^9 \text{WB}_{i,t} + \text{TRANSFERS}_t - \text{T}_{H,t} - \text{INC-SC}_{H,t}$$

$$(14) \text{CONS}_{H,i,t} = a_H^i \text{INC}_{H,t}$$

$$(15) L_{i,t} = a_{l,i} \text{PROD}_{i,t}$$

$$(21) \text{CONS}_{H,t} = g_0 \text{POP} + g_1 \text{POP}_{0-20} + g_2 \text{POP}_{65+}$$

$$(22) \text{TRANSFERS}_t = v_0 \text{POP} + v_1 \frac{L}{\text{POP}_{15-64}} + v_2 \text{POP}_{0-20} + v_3 \text{POP}_{65+}$$

$$(23) r_t = r_{t-1} + \zeta_1 \text{GAP}_{t-1} + \zeta_2 (\pi_{t-1} - 0.02)$$

Preliminary Findings

Figure 1: Development of Labor demand in base scenario

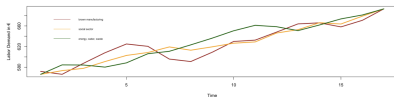
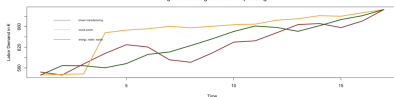


Figure 2: Development of Labor demand with target-oriented government spending



In Period 4:

- ▶ increased Government consumption in Sector 8 and 9, social and energy by 1 000 000 and decreasing by the same amount for Sector 1, brown manufacturing
- ▶ Increased Labor Demand in Sector 8 due to changes in the technical coefficient of labor

Conclusion and Extensions

- ▶ Comprehensive transition plan is necessary for a just transitional process. The question remains what policy can be part of such plan.
- ▶ Macroeconomics models - like this SFC model - can be of use to provide assistance in choosing the proper policy mix
- ▶ IO-SFC models are uniquely suited to take differences between various industries (and potentially regions) into account
- ▶ Our model is still in its infancy and needs more work to take the financial sector and foreign trade into account