
WOODFUELS AND THE LOCAL ECONOMY

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ECONOMIC IMPACT ASSESSMENT

- An economic impact assessment traces spending through the economy and measures the cumulative effects of that spending
- The size of the impact region can vary from entire country level to province or municipality levels
- Estimation of economic impacts of a project can be helpful process for understanding the potential benefits of various forms of growth
- Not always specific amounts - gives likely order of magnitude of impacts
- Economic impacts are only one piece of a puzzle: in a broader decision-making also socio-ecological impacts should be considered (SSE sustainability)



MEASURING ECONOMIC IMPACTS

(After: Government of Ontario 2004)

- Economic impacts are almost never contained within the boundaries of a single municipality: some of the economic costs and benefits leak beyond the municipal boundaries
- It is essential to estimate the proportion of employment and spending that will occur in the municipality
- There are several measures of economic impacts:
 - Employment levels (jobs)
 - Value added (or gross regional product)
 - Aggregate wages or salaries
 - Wealth (including property values)
 - Business output (sales volume or spending)
- Here the focus is on employment and income effects



DIRECT, INDIRECT AND INDUCED IMPACTS

- One form of economic activity almost always leads to others
- Economic impact = direct impacts + indirect impacts + induced impacts
- Direct impacts
 - The initial, immediate economic activities generated by a project or development (jobs and income)
- Indirect impacts
 - Production, employment and income changes occurring in other businesses or industries in the region that supply inputs to the project industry
- Induced impacts
 - Effect of the household's spending in the local economy as the result of direct and indirect effects from an economic activity (e.g. employees spend their new income in the region)



MULTIPLIERS

- The multiplier effect is the relationship of one form of economic activity and the total additional activity it generates
- Estimates how much additional economic activity results from an investment: the total impacts are larger than initial, direct impacts
- Multipliers can vary between sector and by region
- Sophisticated economic impact models (I-O models) calculate multipliers for each sector of the economy and for different geographical regions
- The multiplier values:
 - National impacts: avg. 2,5 - 3,5
 - Provincial impacts: avg. 2,0 - 2,5
 - Local area, municipalities: avg. 1,5 - 2,0



PRACTICAL EXAMPLES - WHAT IS THE SCALE OF IMPACTS? (1 MW = 2 jobs?)

- BIOSEM Scenarios for 2 MW biomass heat system, Ortenaukreis, Baden-Württemberg (Becker 1999):
 - Net additional labor income: 80 000 - 86 000 €
 - Net additional profit: 22 000 - 30 000 €
 - Total net additional income and profit: 102 000 - 116 000 €
 - Direct jobs generated: 2,9 jobs
 - Indirect jobs generated: 1,1 - 1,4 jobs
 - Induced jobs: 0,6 - 0,9 jobs
 - Total jobs: 4,8 - 5,2 jobs
- Finland, the municipality of Perho, energy cooperative, 1,5 MW biomass heat system (Ahonen 2004):
 - Estimation of the local net additional income and profit: 51 300 €
 - Local direct incomes approximately 55 % of the total impact
 - Direct employment: 2,5 jobs
 - Indirect employment: 0,5 jobs



PRACTICAL EXAMPLES - WHAT IS THE SCALE OF IMPACTS? (1 MW = 2 jobs?)

- BIOSEM case study for 1 MW_e combined heat and power plant, Fermanagh, Northern Ireland (ETSU 1999):
- Different impacts in feedstock and conversion components of the project
- Regional development perspective: Severely Disadvantaged Less Favoured Area
 - Net additional labor income (after tax): 52 696 €
 - Net additional profit (after tax): 33 108 €
 - Net additional regional income and profit: 85 804 €
 - Additional regional income resulting from the respending of additional regional income: 24 445 €
 - Net additional regional income after the first multiplier round: approximately 110 000 €
 - Net additional direct jobs: 2,4 jobs
 - Net additional indirect jobs: 0,5 jobs
 - Net additional induced jobs: 1,4 jobs
 - Total net additional jobs: 4,3 jobs
- Reduced income in feedstock production, if production is switched from suckler cows to short rotation coppice production
- Important to complement and diversify existing production



CONCLUSIONS

- Small-scale bioenergy plants result in significant employment and income gains because they do not displace conventional large scale energy supply systems
- They should neither damage the supply-chains of competing activities
- Induced impacts (investments and employment) are significant and much of them take place in the service sector
- Local fuels and operations important to ensure rural development effects (minimising the leakages)
 - Regional/local fuel resources and supply-chains
 - Local entrepreneurs
- Local development objectives and challenges should be considered in the planning process of heating schemes/projects



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