

JÓN ÞORVALDUR HEIÐARSSON  
UNIVERSITY OF AKUREYRI RESEARCH CENTRE



**ECONOMIC IMPACT OF HUNTING  
IN RURAL ICELAND**

**ROVANIEMI**  
18. NOVEMBER 2010



Intensifying cooperation in Europe's Northern Periphery for innovation and employment



European Union  
European Regional Development Fund



**UNIVERSITY OF AKUREYRI  
RESEARCH CENTRE**

**THE AIM OF THIS RESEARCH**

- The aim of this research was to find the economic impact of hunting in rural Iceland
- The main indicator used is the creation of jobs.



Intensifying cooperation in Europe's Northern Periphery for innovation and employment



European Union  
European Regional Development Fund



**UNIVERSITY OF AKUREYRI  
RESEARCH CENTRE**



## ECONOMIC EFFECTS OF HUNTING

- Hunters spend lot of money in hunting
- These expenditures have economic effect
- Most interesting to look at the economic effects in the hunting region
  - The focus is on these effects
- What difference does it make for one region that hunting takes place in that region?



UNIVERSITY OF AKUREYRI  
RESEARCH CENTRE



## MATERIAL AND METHODS

- The method used is input- output analysis
- Basically it means, following the money
- Not perfect method, needs lot of data.
- This research is based on survey that was done among hunters in Iceland
- In input- output analysis it is always inevitable to make some estimates.



UNIVERSITY OF AKUREYRI  
RESEARCH CENTRE



## THE FLOW OF MONEY AND CREATION OF JOBS

- Money can be brought into a community through two means.
  - Simply by delivering the money to persons in that community.
    - In exchange of work
    - As a grant of some kind
  - Buying goods and services in that community
- These two ways have slightly different effects



## THE FLOW OF MONEY AND CREATION OF JOBS

- Assumed that one forth (25%) of delivered money ends as direct wages to others.
  - Partly through taxes
  - Partly through spending
- Assumed in average that 18% of money used to buy goods and services ends as direct wages to workers selling these goods and services.



## REINDEER

- Reindeer hunting are the most interesting hunting from economic view.
- Well defined area, East Iceland
  - No reindeer in Iceland outside East Iceland
- Far away form the capital area.



## BUYING OF GOODS AND SERVICES BY REINDEER HUNTERS IN 2009

Amounts in ISK	Percentage of hunters who pay for this product or service	Average spend	Percentage spent at destination ratio	Esti-mated labour cost	Labour cost (ISK)
Food, beverages, catering	93,1%	16 580	50,0%	0,22	1 697
Accommodation	55,7%	15 994	81,7%	0,28	2 039
Fuel/gasoline	97,0%	23 942	38,7%	0,04	360
Transport by air / bus	18,5%	28 864	9,1%	0,27	131
Rented equipment (car, ATV)	38,3%	22 361	64,0%	0,25	1 371
Hunting equipment	77,5%	45 040	8,2%	0,16	457
Clothing	49,3%	34 683	3,9%	0,19	126
Souvenirs	16,8%	10 435	47,4%	0,17	141
First aid kit	16,3%	5 569	25,8%	0,16	37
Recreation (hot pot, swimming, nature watching)	38,5%	5 834	62,6%	0,30	422
Other	48,6%	16 232	50,0%	0,19	739
<b>Total spent in East Iceland per hunter</b>				<b>39.847</b>	<b>0,189 7.520</b>



## BUYING OF GOODS AND SERVICES BY REINDEER HUNTERS IN 2009

- 1.333 reindeer hunted in Iceland in 2009
- In total estimated that reindeer hunters did spend 53 mISK in goods and services in East Iceland.
- Thereof **9 mISK** went as direct wages to workers in the service sector in East Iceland.



## GUIDANCE AND HANDLING OF MEAT

- Estimated that payments to local people and companies for guidance and handling of meat was in total 37,8 mISK.
  - There of delivered money **29,04 mISK**
  - There of direct wages in service sector **1,48 mISK**



## HUNTING LICENCE

- Reindeer hunters did pay 96,85 mISK for hunting license in 2009.
- Part of this or 14,26 mISK went to two institutes in East Iceland.
  - Thereof delivered money **8,72 mISK**
  - There of direct wages in service sector **0,41 mISK**



## HUNTING LICENCE

- Landowners got the rest or 82,6 mISK.
  - Not all of them living in East Iceland.
- Estimated that local landowners did get **70,2 mISK**. This is delivered money.



## GOVERNMENT FUNDING

- One of the two institutes in East Iceland got as well government funding 6,7 mISK for reindeer research.
  - Thereof delivered money 4,10 mISK
  - There of direct wages in service sector 0,39 mISK



## FORWARD LINKAGE EFFECTS AND CROWDING OUT EFFECTS

- Little forward linkage seems rather limited.
  - Assumed that **one job** is in handicrafts, regarding horns and taxidermy service.
- Crowding out effects probably very limited.
  - Assumed to be zero in this study.



## SUMMING UP

The year 2009 Amounts in millions ISK	Delivered money	Direct wages following buying of goods and services
Buying of goods and services by reindeer hunters, guide excluded	0	9,00
Payments to guide, butcher and slaughtering facilities	29,04	1,48
Hunting licence, the share of UST	6,30	0,18
Hunting licence, the share of NA	2,42	0,23
Hunting licence, the share of landowners	70,20	0
Government funding	4,10	0,39
<b>Total</b>	<b>112,06</b>	<b>11,28</b>

## HOW MANY JOBS DOES THIS CREATE?

- Direct jobs in the two institutes about **3,3**.

0	9,00
29,04	1,48
6,30	0,18
2,42	0,23
70,20	0
4,10	0,39
112,06	11,28

## HOW MANY JOBS DOES THIS CREATE?

- 29,04 mISK to guides and butchers, what does it create many jobs?
- Average wages in service sector in East Iceland assumed to have been 3,7 mISK in 2009.
- 29,04 mISK equates to **7,8 jobs**

	0	9,00
<del>29,04</del>	<del>1,48</del>	<del>1,48</del>
6,30	0,18	0,18
<del>2,42</del>	<del>0,23</del>	<del>0,23</del>
70,20	0	0
<del>4,10</del>	<del>0,39</del>	<del>0,39</del>
112,06	11,28	11,28



UNIVERSITY OF AKUREYRI  
RESEARCH CENTRE



## HOW MANY JOBS DOES THIS CREATE?

- No direct jobs because of payments to landowners.
- So direct jobs are estimated to have been:
- **3,3 + 7,8 = 11,1**

	0	9,00
<del>29,04</del>	<del>1,48</del>	<del>1,48</del>
6,30	0,18	0,18
<del>2,42</del>	<del>0,23</del>	<del>0,23</del>
70,20	0	0
<del>4,10</del>	<del>0,39</del>	<del>0,39</del>
112,06	11,28	11,28



UNIVERSITY OF AKUREYRI  
RESEARCH CENTRE



## HOW MANY JOBS DOES THIS CREATE?

- What happens to the 112,06 mISK after delivered to locals in East iceland?

- Assumed that 25% ends as direct wages to others (28). There of 25% (7) in wages again and so on.

	<del>0</del>	<del>9,00</del>
	<del>29,04</del>	<del>1,48</del>
	<del>6,30</del>	<del>0,18</del>
	<del>2,42</del>	<del>0,23</del>
	<del>70,20</del>	<del>0</del>
	<del>4,10</del>	<del>0,39</del>
	<del>112,06</del>	<del>11,28</del>

- In total 37 mISK equating to **10 jobs**.



## HOW MANY JOBS DOES THIS CREATE?

- What happens to the 112,06 mISK after delivered to locals in East iceland?

- Assumed that 25% ends as direct wages to others (28). There of 25% (7) in wages again and so on.

	<del>0</del>	<del>9,00</del>
	<del>29,04</del>	<del>1,48</del>
	<del>6,30</del>	<del>0,18</del>
	<del>2,42</del>	<del>0,23</del>
	<del>70,20</del>	<del>0</del>
	<del>4,10</del>	<del>0,39</del>
	<del>112,06</del>	<del>11,28</del>

- In total 37 mISK equating to **10 jobs**.

- Indirect jobs



## HOW MANY JOBS DOES THIS CREATE?

- Direct wages following buying goods and services are estimated as 11,28 mISK
- Additionally, 25% of this amount ends as direct wages to others (2,8). and so on.
- In total 15 mISK equating to **4 jobs**.
- Indirect jobs

0	9,00
29,04	1,48
6,30	0,18
2,42	0,23
70,20	0
4,10	0,39
112,06	11,28



## TOTAL NUMBER OF CREATED JOBS

Estimated number of jobs in East Iceland because of reindeer hunting	Number of jobs
Direct jobs because of research, management and guidance	11,1
Indirect jobs because of delivered money	10,0
Indirect jobs because of buying of goods and services	4,0
Forward linkage effects	1
<b>Total</b>	<b>26,1</b>



## EFFECT ON NUMBER OF INHABITANTS

- Rule of thumb in Iceland:
  - 2 persons behind each full job.
- 26 jobs means that about 50 people in East Iceland had the living of reindeer hunting.



## EFFECT ON NUMBER OF INHABITANTS

- Does it mean that without reindeer hunting inhabitants would be 50 fewer than now?
- The answer lies in other question.
- If there were no reindeer hunting at all in EI, would those who now spend money there because of reindeer hunting still come and spend the same amount in the area?
- Highly unlikely, but not investigated.



## EFFECT ON NUMBER OF INHABITANTS

- Experience in Iceland:
  - If jobs are lost in rural Iceland, people move away.
- Conclusion: Inhabitants in East Iceland would be up to 50 fewer if there were no reindeer hunting.



UNIVERSITY OF AKUREYRI  
RESEARCH CENTRE



## IS POSSIBLE TO INCREASE THE EFFECTS?

- The benefit of the natural resource reindeer is not maximised in Iceland.
- Licences are sold on under price.
- That is not efficient according to natural resource economics (maximise NPV)
- If licences would be sold on market price the flow of money would increase to East Iceland.
  - And create more jobs than now.



UNIVERSITY OF AKUREYRI  
RESEARCH CENTRE



## IS POSSIBLE TO INCREASE THE EFFECTS?

- As well it would probably increase the flow of money to Iceland.
- Because it would be more easy for foreign hunters to buy licence.
  - No lottery as it is now.
- Would that bring hunters which would spend even more?

## SMALL GAME HUNTING IN RURAL ICELAND

- Small game hunting in rural Iceland also effects the economy in the hunting regions.
- It was estimated in similar way.
- The result was that 37 jobs are in the hunting regions because of small game hunting.

## SMALL GAME HUNTING IN RURAL ICELAND

- Small game hunting in rural Iceland also effects the economy in the hunting regions.
- It was estimated in similar way.
- The result was that 37 jobs are in the hunting regions because of small game hunting.
- **Total in small game and big game hunting 63 jobs in rural Iceland**



**TAKK FYRIR**

