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The size and distribution of the economic impacts of Namibian hunting tourism

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Abstract

The purpose of this study is to analyse the economic impacts of hunting tourism in Namibia. The economic impacts of hunting that takes place in communal land conservancies and on private lands, respectively, are studied, as well as the distribution of these impacts between different sectors and groups in the country. The study is based on data from a survey of hunters who visited Namibia during the 1998–2002 period. The income generated by hunting tourism, and the distribution of this income, are analysed using a recently developed social accounting matrix. The results indicate that the average hunter visiting a communal land conservancy spends substantially more money in Namibia than the average hunter visiting a private hunting farm. This is partly because conservancy hunters pay more for their hunting, but also because they are more likely to engage in additional tourism activities, generating additional expenditure on goods and services within the country. Because of this, the conservancy hunters have a larger impact on income generation in Namibia than the hunters visiting private game farms.

Keywords*: economic impacts, multiplier analysis, income allocation, Namibia, trophy hunting, hunting tourism*

1. INTRODUCTION

Namibian wildlife policy is directed toward making use of the potential revenue from tourism to encourage wildlife conservation. The hunting tourism industry, which involves guided visits for tourists who hunt wildlife, provides economic benefits for Namibia in the form of foreign exchange revenue and employment generation. The hunting tourism industry also provides incentives for farmers and local communities to protect wildlife (Humavindu & Barnes 2003).

This study aims to improve understanding of the economic impacts from hunting tourism in order to analyse the size of the income generated by Namibian hunting tourism, and how this income is distributed among different socio-economic groups. In order to do this, it is not enough to study the direct effects on the sectors directly influenced; an analysis of how the rest of the economy is affected is also needed. This is done through a so-called multiplier analysis, using a recently developed social accounting matrix, which shows the linkages between different sectors of the Namibian economy.

The study is based on a survey of hunting tourists who visited Namibia during the 1998–2002 period and acquired trophy export permits. The survey was carried out during 2003. Supported financially by the World Wildlife Fund and the Living in a Finite Environment (LIFE) Program funded by the United States Agency for International Development (USAID), the survey included a number of questions about hunting tourists' expenditure. The responses to these questions provided the information used in this study.

In terms of the structure of the paper, the following section begins with a short description of Namibian land tenure, and of how tenure systems and property rights have affected wildlife management. The structure of hunting tourism in Namibia is also described. Section 3 discusses the survey providing data for the study, while section 4 presents descriptive statistics from these survey data. The empirical results from the multiplier analysis are presented in section 5. In section 6, the final section, these results are analysed and some potential conclusions are discussed.

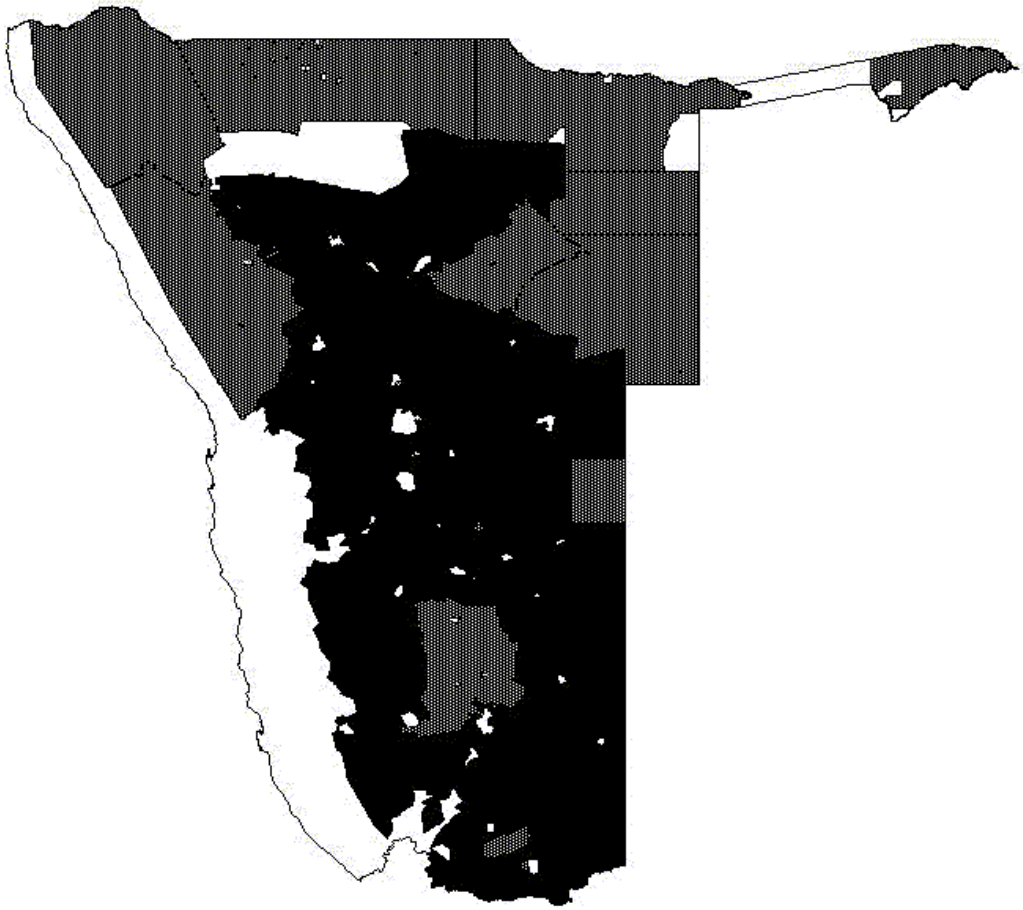
2. HUNTING TOURISM IN NAMIBIA

Figure 1 gives a schematic picture of land ownership and land tenure in present-day Namibia. The areas in white, mostly along the coast and in the northern parts of the country, show lands that are owned and administered by the central government or by municipalities. The lands in the grey areas, mainly in the north, are also owned by the central government but are administered by local traditional authorities. These are known as *communal areas*, where subsistence agriculture is the main economic activity. The lands in the remaining areas, in black, are privately owned lands where commercial farming is the main economic activity (Mendelsohn et al. 2002). Throughout most of the country, farming is restricted to extensive grazing of natural habitats by livestock, though some marginal rain-fed crop production is possible in the north-east.

Before independence in 1990, only private landowners – as opposed to people living in communal areas – were permitted to exploit wildlife. Private landowners have long been permitted to register as game farmers and stock their farms with different wildlife species that tourists could then pay to view or hunt. Private landowners were also able to develop commercial land conservancies, where a number of farmers would pool and manage their

wildlife together. Wildlife in communal areas, on the other hand, was previously classified as government property; so there were few opportunities for local inhabitants to reap any benefits from the wildlife. This meant that local inhabitants had little incentive to protect and conserve wildlife. However, new policies have been developed after independence, which give inhabitants in communal areas greater say in the use of wildlife and natural assets (Ashley & Barnes 1996). These communities can now set up conservancies, register them, and manage and exploit wildlife within them for wildlife-viewing as well as for hunting tourism (Barnes et al. 2002).

Figure 1. Land tenure in Namibia



Legend: White areas show land that is administered by the central government or by municipalities. Land in grey areas is also owned by the central government, but is administered by local traditional authorities. Land in black areas is privately owned.
Source: Mendelsohn et al. (2002)

Hunting tourism is regulated both by government and through private regulations. Before a farm or conservancy can arrange a hunt, government permission has to be obtained. One of the requirements for permission to be granted is a guarantee by the farm/conservancy that a licensed hunting guide will participate in the hunt. There are four types of guides. The ordinary hunting guide can guide hunts on the specific farm or commercial land conservancy where s/he is registered. The master hunting guide can guide hunts on the farm where s/he is

registered, and with government permission, on two additional farms. The professional hunting guide can guide hunts on all lands where hunting permits have been granted. Finally, there is the big game hunting guide, who is a professional hunting guide qualified to hunt dangerous game such as buffalo, elephant and lion.

Hunting tourists visiting the country can choose between pre-specified hunting packages, which include animals from different species. In order to take trophies home, the hunter needs an export permit from the Namibian government. Permission to import certain trophies may also be needed from the hunter's home government.

Foreign hunters pay considerable amounts for their hunting packages. Besides these high fees generating sizeable incomes for the country, the hunters visiting Namibia may also have additional expenditure during their time here, such as transportation costs, purchases of handicrafts, or other purchases of goods or services (Humavindu & Barnes 2003). Therefore, an investigation of how this expenditure affects not only activity in different economic sectors, but also income for different socio-economic groups, is of some interest.

Expenditure by hunting tourists obviously generates income for the economic sectors that are directly affected. However, there are also indirect effects on other parts of the economy. Hunting tourism generates profits for owners of commercial farms, as well as income for conservancy members, income for employees, and revenue for the firms selling various goods and services used in the hunt. These incomes are spent on other goods and services, generating additional income and employment. Similarly, if hunting tourists spend additional money on other tourism activities, this generates revenue and employment for the firms and people involved in organising those activities.

In order to evaluate the economic importance of hunting tourism it is, therefore, not enough to study the direct incomes generated. It is also necessary to look at indirect effects caused by linkages to the rest of the economy. This is typically analysed using multiplier effects either from input-output tables (see Hartmann 1986 for an early Namibian example) or from social accounting matrices, which capture more of the indirect effects than input-output tables do, and thus provide a more complete picture. Such multiplier calculations were not feasible in Namibia before because a recent input-output table for the country did not exist, and nor did a social accounting matrix showing the detailed linkages between different sectors in its economy. Now, however, there is ongoing work on compiling a Namibian social accounting matrix, and by using preliminary figures from this work (Lange et al. 2004), it is possible to assess the economic impacts of hunting tourism.

3. SURVEY OF HUNTING TOURISTS

During 2003, a questionnaire was sent to 983 addresses of people who had, sometime during the preceding five years, visited Namibia and acquired a trophy export permit. These addresses were registered in a database on trophy export permits kept since 1998 by the Namibian Ministry of Environment and Tourism, which regulates hunting tourism in the country. No record is kept of the reason why someone would want to acquire an export permit, but most people who have done so are believed to be hunting tourists taking their trophies back home.

A German version of the questionnaire was sent to 440 recipients in Germany and Austria, while recipients in other countries were sent an English version. Many of the questionnaires

never reached their intended recipients owing to errors when the addresses were entered into the database and the relative age of the information. A total of 306 questionnaires were returned by the postal services in their respective countries, while others may have been lost. A total of 164 responses were received, i.e. 24% of the 677 respondents who may have received the questionnaire responded to it. This rather low return rate is not untypical for this type of survey; a recent survey of South African hunting tourism (Radder et al. 2000) achieved an even lower return rate of approximately 17%. Return rates on postal surveys are frequently low, but an additional explanation for these very low return rates is probably that, for many hunters, the hunt had taken place several years before, so they may not have remembered the hunt in sufficient detail to respond to the survey. In addition to this, it may be noted (Table 1) that the response rates to the survey were better in the countries that have reliable postal services (the United States and some of the European countries) and lower in countries with less reliable postal services. It seems likely that, in the latter countries, many questionnaires were not delivered and/or not returned. Thus, the response rates for different countries probably reflect more on the reliability of those countries' postal services than on the intended recipients' willingness to respond.

Table 1. Questionnaire response rates from different regions

Region of origin	Total question-naires sent	Returns due to unknown address	Possible recipients	Responses	Response rates (%)
Europe					
English version	179	59	120	25	21
German version	440	110	330	95	29
Africa	247	91	156	26	17
America	85	33	52	16	30
Other	32	13	19	2	11
Total	**983**	**306**	**677**	**164**	**24**

Notes: Russia is included in the "Other" category rather than in the "Europe" category. Response rates are calculated as shares of the people who could have responded, i.e. the "Responses" divided by the "Possible recipients".

The questionnaire presented 15 questions, 7 of which were used in this study. The first question used for this study asked how much the respondent had paid for his/her hunting package, and whether this was inclusive or exclusive of the price of travel to and from Namibia. The second question used here asked for any hunting-related expenditure that was paid separately, i.e. not as part of the hunting package. The two subsequent questions were about the date (month and year) that the respondent had arrived in Namibia, and about the number of non-hunting relatives and friends who had accompanied the hunter. The fifth question asked the visitor to estimate other, non-hunting-related expenditure incurred by him/her or those that had accompanied the hunter during their stay in the country. The last two questions used for this study involved the type of hunting destination, the type of hunting guide used, and the length of the hunt in days. The remaining questions in the original questionnaire, which were not used in this study, asked respondents about the species that had been included in the hunting packages, and about the hunter's willingness to pay for slightly different versions of such packages.

The low number of responses makes it difficult to draw statistical inferences based on the responses, as there is considerable risk of an avidity bias, i.e. it is likely that the people responding to the survey are those who are the keenest on hunting. This means that estimates of the willingness to pay for various hunting packages may become skewed because they are based on information from hunters who show the highest willingness to pay. In this study, however, the focus is on the multiplier effects of hunters' actual spending, not on hypothetical additional amounts that they would have been willing to spend. Thus, although the reader should bear in mind that the figures presented here are point estimates – based on small numbers of respondents – there is no obvious reason why they should be skewed between different subsets of the hunting population.

4. DESCRIPTIVE STATISTICS AND DATA ADJUSTMENTS

The hunters who responded to the survey spent an average of 14 days hunting in Namibia, ranging from four days for the shortest hunt to over three months for the longest. Not surprisingly, a large majority (over 80%) had hunted only on private land, the main destination for hunting. Approximately 5% had hunted only in communal conservancies, with the remaining 15% hunting on combined hunting trips that included hunts on private land as well as in communal conservancies and/or concession areas. In order to provide for comparisons between the expenditure related to hunting on commercial land and that related to hunting in communal conservancies, expenditure related to hunts that took place in both types of destination was subdivided between the two, based on the number of days spent in each type of destination.

All the price information provided in the questionnaires was recalculated into Namibia Dollars, using the exchange rates prevailing at the time of the visit, and inflated (or deflated) into constant 2002 Dollars. When respondents only provided the year but not the month of their visit, an average exchange rate and price level for the entire year was used; and when they did not provide any date at all, an average exchange rate and price level for the entire five-year period was used.

Where hunters were asked to specify hunting-related expenditure that was paid separately, i.e. not as part of the hunting package, there were predefined categories that corresponded to the most common types of expenditure, as well as an open category. For each type of hunting destination, averages were calculated for each category. Those hunters who did not know what type of destination they had visited were assumed to have visited private farms, since this is the largest category. Average values for the different categories in the questionnaire are reported in Table 2.

Table 2. Hunting-related expenditure in 2002 Namibia Dollars by an average hunter visiting the two types of destination

Type of hunting-related expenditure	Communal conservancies and concession areas (N$)		Private farms (N$)	
	Per hunter	**Per hunting day**	**Per hunter**	**Per hunting day**
Net revenue to the hunting establishment	20,654	1,675	15,172	1,104
Guide	7,451	604	6,178	450
Transportation within Namibia	1,589	82	2,701	266
Taxidermy and trophy preparation	9,836	798	3,825	278
Additional hunting equipment	12	1	213	15
Other	1,151	93	581	42
Total	**40,694**	**3,254**	**28,669**	**2,156**

Note: Due to rounding, totals may not correspond exactly to the sums of individual entries

The category "Net revenue to the hunting establishment" was worked out as follows:

- The stated cost of the package
- *Less* the estimated cost of transportation to and from the country (if this was included in the package)
- *Less* the estimated cost of transportation within the country (if this was included in the package)
- *Less* the estimated cost of the hunting guide (if this was included, which was almost always the case)
- *Plus* whatever extra expenditure hunters reported for accommodation, meals, drinks and on-site transportation during a hunt.

For the few hunters who had transportation to and from the country included as part of the price of their package, the cost was estimated using prices of economy class flights from the recipient's country to Namibia and back, for the year in which the hunt had taken place. For those who had transportation within the country included in their hunting package, the costs were estimated using the figures for those who had reported these items separately. The cost of the hunting guide was estimated using the number of hunting days and the type of hunting guide used.

Hunting in communal conservancies and concession areas occasionally includes extremely high-value animals such as elephant or lion, which are not available on private hunting farms. However, very few of the respondents to the survey reported having hunted such animals. As a result, the overall figures are largely similar for conservancy visitors and for visitors to private farms; therefore, the figures may well understate the economic impacts being generated by communal area big game concessions. Nonetheless, the reported average expenditure by conservancy hunters responding to the survey is somewhat higher than that for hunters on private land, both in terms of overall expenditure per hunter as well as in terms of expenditure per day.

The conservancy hunts primarily use the professional and big game hunting guides – the most qualified and expensive in the profession. Therefore, the average cost per guide is higher – both per hunter and per hunting day – for the conservancy hunts than it is for hunts on private farms. The average expenditure on trophy preparation is more than twice as high after a conservancy hunt than after a hunt on private land. Looking at the "Additional hunting equipment" category, hunting tourists clearly come well prepared: there is little extra expenditure on hunting equipment while people are in the country.

In the multiplier analysis, the net revenue to the hunting establishment was assumed to accrue to the farm or conservancy hosting the hunt. This revenue was subdivided into different expenditure and income categories for the two types of destination, based on surveys of the expenditure patterns of communal conservancies and commercial hunting farms (Cartwright & Lange 2005, and unpublished data from the same study).

Transportation costs to and from the country were not included in the multiplier analysis. This slightly understates the economic importance of hunting to Namibia, since some hunters presumably use Air Namibia for part of their trip; however, a large part of these costs go to non-Namibian transportation companies in any case.

Costs of transportation within the country were assumed to go to the "Transportation services" product account. The cost of the hunting guide was classified as income to the skilled labour category. Costs of taxidermists and other trophy preparation were classified as part of the "Light manufacturing" product account, as were the costs of additional hunting equipment. Finally, other hunting-related expenditure was classified as accruing to the "Domestic purchases by non-residents" account, a catch-all account in the social accounting matrix which is specifically designed to capture the effects of unclassified tourist spending in the country.

Average expenditure was also calculated for other non-hunting-related expenditure that the hunter and his/her companions incurred in Namibia. These averages are reported in Table 3.

Table 3. Non-hunting-related expenditure in 2002 Namibia Dollars by an average hunter visiting the two types of destination

Type of non-hunting-related expenditure	Communal conservancies and concession areas (N$)	Private farms (N$)
Accommodation	3,292	1,426
Meals and drinks	3,036	1,185
Transportation	7,262	1,316
Tour operators/guides	0	252
Handicrafts	3,393	1,204
Other shopping	2,818	1,620
Other expenditure	2,457	280
Total non-hunting expenditure	**22,257**	**7,281**

Note: Due to rounding, totals may not correspond exactly to the sums of individual entries

Visitors to communal conservancies incurred substantially higher additional expenditure than visitors to private hunting farms did. Bringing non-hunting family or friends along appears to be more common among hunters who travel to communal conservancies, and it also appears that expenditure on non-hunting-related tourism is more important for these hunters. Non-hunting expenditure is over a third of the overall expenditure for conservancy hunters, but only about one-fifth of the overall expenditure for hunters visiting private farms. Thus, the share of non-hunting expenditure is higher for conservancy hunters, despite the fact that their expenditure on actual hunting is higher than for hunters on private land. Conservancy hunters spent more on all the different types of additional tourism expenditure included in the questionnaire, except the "Payments to tour operators/guides" category. The average expenditure on this item was remarkably small for both groups; it appears that when hunting tourists do engage in additional tourism, they mostly arrange their tourist activities directly rather than through tour operators.

In a multiplier analysis of non-hunting-related expenditure, expenditure on accommodation and on meals and drinks is classified as revenue to the "Hotels and restaurants" product account. Expenditure on transportation is classified as revenue to the "Transportation services" account. Payments to tour operators and guides are recorded as revenue to the "Other private services" account, while handicraft purchases are classified as revenue to the "Other manufacturing" product account. Finally, unspecified shopping expenditure and other unspecified expenditure is classified as revenue to the "Direct purchases by non-residents" product account, analogously to the way that unspecified hunting-related expenditure is treated.

5. MULTIPLIER ANALYSIS

Table 4 reports on the multiplier effects generated by hunting for different types of economic activity in the country. The activities that benefit the most from both types of hunting are "**Trade and repairs**" and "**Transportation services**". These two categories account for approximately a quarter of the total revenue generated by hunting in communal conservancies, and an even larger share of the revenue generated by hunting on private land. Apart from these two sectors, the "**Hotels and restaurants**" sector benefits from hunters' expenditure on additional tourism, and the generic "**Foreign tourism**" sector benefits not only from hunting expenditure but also from expenditure generated by other types of tourism. Together, these four sectors account for approximately half of the total revenue generated by hunting tourism for different economic sectors in the country.

The overall revenue generated by all economic activities related to hunting in communal conservancies on the one hand and private land on the other is almost identical, but the revenue generated by additional, non-hunting, tourism is substantially greater for conservancy hunters than it is for hunters on private farms. Nonetheless, the revenue generated for the country's economic activities does not, in itself, show who the beneficiaries of hunting tourism are, since part of the economic activity thus generated will be lost to imported production inputs. In order to explore who the beneficiaries of hunting tourism are, it is necessary to examine where the additional income generated by hunting tourism goes.

Table 4. Revenue generated for different economic activities by the expenditure of an average hunter visiting the two types of destination, in 2002 Namibia Dollars

Economic activity	Communal conservancies and concession areas			Private farms		
	Impact of hunting (N$)	Impact of other tourism (N$)	Total (N$)	Impact of hunting (N$)	Impact of other tourism (N$)	Total (N$)
Commercial cereal production	90	44	134	52	15	66
Other commercial crop production	204	191	396	131	70	200
Commercial animal products	1,158	1,058	2,216	771	384	1,155
Traditional agriculture	651	192	844	237	59	296
Fishing	104	104	208	65	37	102
Mining	191	133	324	174	38	212
Meat processing	878	825	1,703	602	298	899
Fish processing	55	55	110	34	20	54
Grain milling	1,071	499	1,570	573	168	740
Beverages and other food processing	3,777	2,138	5,915	2,803	751	3,554
Textiles	201	86	287	140	27	167
Light manufacturing	3,007	1,328	4,335	1,840	434	2,274
Heavy manufacturing	529	348	876	559	101	660
Electricity	588	629	1,216	495	197	693
Water	326	349	675	264	114	377
Construction	243	263	505	264	70	334
Trade and repairs	6,514	6,018	12,532	10,077	1,590	11,667
Hotels and restaurants	1,344	7,919	9,263	925	3,109	4,035
Transportation services	4,610	10,901	15,511	5,525	2,455	7,980
Communication	1,835	1,381	3,216	1,810	401	2,211
Finance and insurance	3,086	2,056	5,142	3,382	563	3,944
Real estate, own	2,095	859	2,954	1,651	269	1,921
Market real estate and business services	3,337	1,429	4,766	2,753	430	3,183
Other private services	3,961	544	4,505	822	432	1,255
Government services	546	252	798	452	76	528
Foreign tourism	1,163	5,274	6,437	793	1,900	2,693
Total impact on economic activities	**41,563**	**44,875**	**86,438**	**37,194**	**14,006**	**51,200**

Note: Due to rounding, totals may not correspond exactly to the sums of individual entries

Table 5 reports the effects an average hunter has on factor income for the different economic factors of production in the country. The main difference between the two types of destination, not surprisingly, is that conservancy hunting generates considerable income for the "Mixed income to traditional agriculture" category, whereas hunting on private land generates income for the "Mixed income to commercial agriculture" category. Both types of hunting tourism generate factor income for skilled as well as unskilled labour, and also to non-farm capital owners through the impacts on manufacturing and service production. The income to capital owners outside the agricultural sector is, in fact, substantially higher for both types of hunting destination than the income generated for the mixed income agricultural categories.

Table 5. Impacts on different types of factor income caused by the expenditure of an average hunter visiting the two types of destination, in 2002 Namibia Dollars

Type of factor income	Communal conservancies and concession areas			Private farms		
	Impact of hunting (N$)	Impact of other tourism (N$)	Total (N$)	Impact of hunting (N$)	Impact of other tourism (N$)	Total (N$)
Labour income to –						
• skilled labour	14,541	2,792	17,333	9,967	885	10,852
• unskilled labour	4,327	4,240	8,567	4,322	1,257	5,579
Mixed income to –						
• commercial agriculture	707	628	1,336	3,762	228	3,990
• traditional agriculture	5,308	165	5,473	203	51	254
Net capital income to –						
• capital owners in non-agricultural sectors	9,970	8,343	18,313	9,662	2,707	12,368
Total impact on factor income	**34,853**	**16,169**	**51,022**	**27,916**	**5,127**	**33,043**

Note: Due to rounding, totals may not correspond exactly to the sums of individual entries

Table 6 shows the revenue generated for "Institutions" – firms, non-profit organisations, government, and different household categories – in the economy. Ignoring the income to enterprises (which is redistributed to capital owners in the other categories anyway), the main category of beneficiaries for both types of hunting destination is, in fact, urban wage earners. This somewhat surprising result is caused by the fact that many of the hunting guides live in urban areas. Most household groups gain more from conservancy hunting than from hunting on commercial farms. The fact that households with traditional agriculture as their main source of income gain more from conservancy hunting than from hunting on private land is not particularly surprising. More surprising, perhaps, is the result that the rural wage earners also earn more from conservancy hunting than they do from hunting on private land. Commercial game farming is known (Barnes & De Jager 1996) to be substantially more labour-intensive, and thus generates more income for rural wage earners than other

commercial agriculture; clearly, however, conservancy hunting generates even larger incomes for rural wage earners. Government gains substantial amounts from hunting tourism, partly through indirect taxes on the affected activities and partly through increased income tax receipts from households that receive increased income.

Table 6. Impacts on the income to different types of institution caused by the expenditure of an average hunter visiting the two types of destination, in 2002 Namibia Dollars

Type of institution	Communal conservancies and concession areas			Private farms		
	Impact of hunting (N$)	Impact of other tourism (N$)	Total (N$)	Impact of hunting (N$)	Impact of other tourism (N$)	Total (N$)
Enterprises	8,829	7,388	16,217	8,556	2,397	10,953
Urban households with main income from –						
• wages	15,073	5,504	20,577	11,408	1,710	13,118
• business activities including commercial agriculture	1,293	1,012	2,305	1,730	332	2,062
• other sources	531	485	1,015	527	148	675
Rural households with main income from –						
• wages	3,894	1,707	5,601	3,074	536	3,610
• business activities including commercial agriculture	1,120	853	1,973	3,601	297	3,898
• other sources including traditional agriculture	7,558	2,133	9,692	2,461	653	3,114
Non-profit institutions serving households	407	315	721	383	102	485
Government	8,217	5,442	13,660	6,625	1,798	8,423
Total impact on institutions' income	**46,922**	**24,840**	**71,762**	**38,365**	**7,972**	**46,337**

Note: Due to rounding, totals may not correspond exactly to the sums of individual entries

Households owning businesses including commercial farms gain much more income from visitors that hunt on private lands (which they may own) than they do from those that hunt in communal conservancies (where such households, at most, supply some of the inputs). However, these households are normally fairly well off and save a large portion of the additional income, so this income does not generate much in the way of additional multiplier effects.

Rural households gaining income from conservancy hunts, on the other hand, are normally poor and tend to spend a large share of the additional income. Thus, even though the overall income from a conservancy hunt is greater than that from a hunt on private land, the overall increase in savings is less for the conservancy hunt. Most of the extra income is spent on additional consumption, generating additional economic activity. The overall effect on gross

domestic product (GDP) of a hunt in a communal conservancy, therefore, is considerably larger than the effect of a hunt in the commercial areas (Table 7). If effects on government revenue from indirect taxes and effects of non-hunting tourism are included, an average conservancy hunter has an overall impact on GDP which is almost twice as large as the impact of an average hunter on private land.

Table 7. Impacts on selected macro-economic indicators caused by the expenditure of an average hunter visiting the two types of destination, in 2002 Namibia Dollars

Macro-economic indicator	Communal conservancies and concession areas			Private farms		
	Impact of hunting (N$)	Impact of other tourism (N$)	Total (N$)	Impact of hunting (N$)	Impact of other tourism (N$)	Total (N$)
Increase in GDP at factor cost	34,853	16,169	51,022	27,916	5,127	33,043
Increase in indirect government tax revenue	5,117	3,047	8,164	1,792	1,037	2,828
Increase in GDP at market prices	39,970	19,215	59,185	29,708	6,164	35,871
Increase in savings	8,003	6,342	14,345	8,294	1,953	10,247
Increase in imports	23,816	15,878	39,695	18,608	4,633	23,241

Note: Due to rounding, row totals may not correspond exactly to the sums of individual entries

6. CONCLUSIONS

The low response rate to the survey meant that very few of the high-value animals hunted in communal conservancies had been hunted by any of the hunters responding to the survey. There is, therefore, a risk that the expenditure figures reported here substantially understate the average expenditure by hunters hunting in communal conservancies. Despite this, however, the results indicate that an average conservancy hunter has a larger overall impact on the Namibian economy than an average hunter on private land has. Hunters in communal conservancies spend more money on their hunts than hunters on commercial lands do, and the poor who benefit from the income from hunts in communal conservancies are also more likely to spend the extra income, generating additional multiplier effects for the people and firms supplying the extra goods and services purchased. Conservancy hunters also appear to be more likely to engage in other tourism activities. That poor people spend a larger share of an income increase than richer people do is a common finding in multiplier analyses and is not surprising, therefore, although it is encouraging to see that the extra income from hunting tourism does have this effect. More surprising is the fact that conservancy hunters spend more money and time on other tourism activities than hunters on private land do.

It is not entirely clear why the hunting tourists visiting communal conservancies are more likely to spend time and money on additional tourism activities than other hunting tourists. This may be influenced by the way in which the different types of hunting destination are marketed. If hunting tourists going to communal conservancies generally do so as part of a

larger tourist trip, this could mean that communal conservancies are more sensitive to changes in the overall tourism sector in the country, so that improvement or deterioration in other Namibian tourist destinations might have a greater impact on conservancy hunting than on the hunting on private land. However, for conservancy hunters, the hunting expenditure accounts for almost two-thirds of the overall expenditure, and it is clear that the hunt is the main reason for the trip; so any such impact on the conservancies is likely to be small. Nonetheless, this is an issue that needs to be explored further because it means that tourism policy in other parts of the tourism sector may have side-effects on hunting tourism as well.

Another aspect that deserves further study is the geographic distribution of the economic impacts generated by hunting, both locally and in the country's 13 Regions. In this study, the multiplier effects of hunting tourism were calculated using a social accounting matrix (SAM) for the entire Namibian economy rather than using matrices that were disaggregated by Region; even this national SAM was only a draft version, because problems with the country's economic data have made it difficult to compile such a matrix until now. If better economic data become available in future, either as a result of an overall improvement in the collection and quality of economic data in general or as a result of income and expenditure surveys targeting each of the 13 Regions, it may become possible to construct Regional SAMs. These could then be used to explore whether people spend the extra income from hunting tourism on goods and services produced within their Region, or whether the goods and services are supplied from other Regions. If the extra income is mostly spent on locally produced items, the additional multiplier effects generated in rural areas by hunting tourism may be even greater than that suggested by the analysis in this study.

References

Ashley, C & Barnes, J. 1996. Wildlife use for economic gain: The potential for wildlife to contribute to development in Namibia. *Directorate of Environmental Affairs Research Discussion Paper* 12. Windhoek: Ministry of Environment and Tourism.

Barnes, JI & De Jager, JLV. 1996. Economic and financial incentives for wildlife use on private land in Namibia and the implications for policy. *Southern African Journal of Wildlife Research*, 26(2):37–46.

Barnes, JI, MacGregor, J & Weaver, C. 2002. Economic efficiency and incentives for change within Namibia's community wildlife use initiatives. *World Development*, 30(4):667–681.

Cartwright, A & Lange, G-M. 2005. How important is LIFE to the Namibian economy? A review of the financial, economic and GDP impacts of the Living in a Finite Environment Program. Mimeo. Windhoek: World Wide Fund for Nature Namibia.

Hartmann, PW. 1986. The role of mining in the economy of South West Africa/Namibia – 1950 to 1985. Unpublished MSc thesis, University of Stellenbosch, South Africa.

Humavindu, MN & Barnes, JI. 2003. Trophy hunting in the Namibian economy: An assessment. *Southern African Journal of Wildlife Research*, 33(2):65–70.

Lange, G-M, Schade, K, Ashipala, J & Haimbodi, N. 2004. A social accounting matrix for Namibia, 2002: A tool for analysing economic growth, income distribution and poverty. *NEPRU Working Paper* 97. Windhoek: Namibia Economic Policy Research Unit.

Mendelsohn, J, Jarvis, A, Roberts, C & Robertson, T. 2002. *Atlas of Namibia*. Cape Town: David Phillip Publisher.

Radder, L, Van Niekerk, P & Nagel, A. 2000. Matching the hunting experience staged by selected farmers in the Eastern Cape to the value expectations of hunters. Unpublished research report, Port Elizabeth Technikon, Port Elizabeth.

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