



The economic role of horses in Austria

Executive Summary



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Executive Summary

This paper formulates a clear and concise question: "**What significance does the horse have for Austria's national economy?**" Nevertheless, or precisely for this reason, the present study takes a comprehensive approach. "The Horse - an Economic Factor in Austria" is not taken as an isolated association. Much rather, the issue is viewed from a practical perspective and associated with all equine activities in the context of the various ramifications in Austria's national economy.

The core message is:

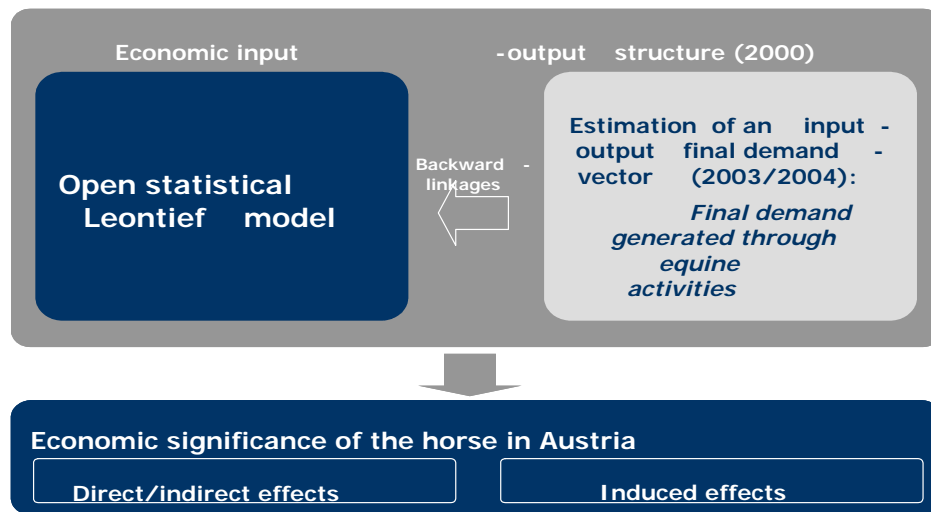
- The horse factor implicates a **complex and heterogeneous field of economic activities**. A broad spectrum of industries, ranging from the rubber and plastics industry to the insurance business, profits from these activities, sometimes as sub-contractor, sometimes as service providers for service providers ...
- As an economic factor, the horse generates a **production valued at between 1.19 to 1.26 billion euros** in Austria.
- **Value added of between 634 and 674 million euros** can be attributed to the horse.
- **Every additional horse contributes** – in terms of the national economy – an additional **production value of 12,000 to 14,800 euros** and an additional **value added of between 6.300 bis 7.900 EUR**.
- **23,000 to 24,300 jobs** are ensured, which equates to **14,500 to 15,400 full-time equivalents (FTEs)**.
- **Three to four horses create one job** in Austria's economy. About 6 horses create an additional full-time equivalent.
- Depending on the size of the business, the primary sector (horse breeding, horse yards, horseback riding farms, and the like, but also spendings of stable and horse owners) profits the most from the horse as an economic factor. The share fluctuates between 1.42% and 1.99%, i.e. up to **2% of the economic output** directly or indirectly depends on the horse factor.
- In absolute numbers, the greatest effect can be felt in the **tertiary sector** (event business, horseback riding clubs, horse racing tracks, horse breeding events, zoos, circuses, etc.). The **production** share attributed to horses peaks at **930 million euros**, while **added value amounts to 532 million euros** and attributable **employment is calculated at 11,700 jobs** (10,400 FTEs) in the services sector.
- Regional economies are also profiting: **Vienna** (given the direct effects in the services sector and tourism) as well as **Lower and Upper Austria** (the horse as an economic factor with its classical associations, such as "horseback riding as sports and recreational activity" and also the effects in the production industry) profit the most.

Analytical Framework of the Study

The analytical challenge of quantifying the significance of the horse as economic factor lies in the development of a realistic economic model, on the one hand, and finding answers to key questions relating to the data situation on the other. Both of these tasks were successfully completed of in the course of the study.

When constructing a so-called **open statistical Leontief model**, an economic input-output approach was adopted (using the input-output tables 2000 compiled by Statistik Austria). This warranted the quantification of the input directly associated with the horse (e.g. feed, leather saddles / straps, insurance benefits) as well as the inputs to these inputs, etc.¹ As no separate "horse industry" branch is declared in the input-output table, an empirically underpinned estimation of an **ÖNACE-compatible final demand vector** was performed as part of the project. The estimation starts out from the following presumption: "Final demand generated through equine activities".

Fig. ES1: Model concept "Horse as an economic factor", schematic overview



* Incl. production-related activities not directly/indirectly generated by horse activities n

Source: IWI

2003 served as **year of reference** (in some few cases 2004) and, notwithstanding other possibilities, multi-year average values.

Effects in terms of production, value added and employment – Results of the model calculations

The results of the analysis permit a quantification of the economic significance of horses. The statistically verified significance of the horse as a factor prompting **production, value added and employment**. Table ES1 offers a clear summary of the key results of the calculation, accumulated for all branches of industry in Austria's national economy.

¹ A backward linkage analysis is performed.

This *Executive Summary* presents upper and lower limits; to facilitate readability, and also in view of the partly conservative detailed estimation, the Summary highlights the upper regions of the calculated results.

Tab. ES1: Overview of effects of the horse as an economic factor on key economic indicators

	Production	Value added	Employment (empl. contracts)	Employment (FTE)
Overall effects (rounded)	1.19 to 1.26b EUR	634 to 674m EUR	23,000 to 24,300	14,500 to 15,400
Share in overall economy (pursuant to VGR 2003)	0.30% to 0.32%	0.31% to 0.33%	n.a.	0.42% to 0.44%
Multiplier (assumption: 85,000 horses)	14,000 EUR to 14,800 EUR	7,500 EUR to 7,900 EUR	0.27 to 0.29	0.17 to 0.18
Multiplier (assumption: 100,000 horses)	12,000 EUR to 12,600 EUR	6,300 EUR to 6,700 EUR	0.23 to 0.24	0.15 to 0.15

N.B.: Values relating to the overall economy are not indicated separately in the VGR 2003 report of Statistik Austria in terms of employment in employment contracts.

Source: IWI calculations (based on the IO tables of Statistik Austria, 2004)

Production

The model calculations show that production associated with the horse as an economic factor in Austria's economy peaks out at **1.26b EUR** (see tab. ES1). This makes the horse responsible for **0.32% of overall economic production** in 2003.² If we assume that horses numbered from between 85,000 to 100,000 animals,³ this means that every horse prompted production in the amount of approx. 12,600 EUR (assumption: 100,000) to 14,800 EUR (assumption: 85,000 horses).

Proportionally, the primary sector (agriculture, forestry, fisheries) profited most. Without horses, this sector would be producing 1,58% less (127.55m euros), whereas the share in overall production from indirect and induced effects on the overall output of the secondary sector (producing sector) amounts to a max. of 0.13% (203.65m EUR) and a max. of 0.41% (929.67m EURO) in the tertiary sector (services sector).

In **absolute numbers**, the ranking changes in view of the general structure and priorities of the Austrian economy. The distribution of these overall effects amounting to 1.26b EUR is at a proportion of 10.1% to 16.2% to 73.7% between the primary, secondary and **tertiary sectors**.

² The relational value is indicated in the overall economic calculation of Statistik Austria (VGR 2003).

³ There are no actual figures as livestock counts are outdated.

Value added⁴

With EUR **673.60 million of value added**, the horse as an economic factor is reaching its upper limit throughout the Austrian national economy. If horse production accounts for 0.32% of total economic output in Austria, then that EUR 673.60 million of value added corresponds to **0.33% of the total economic value added** in 2003.⁵ Assuming that there are currently 85,000 to 100,000 horses in Austria, this means that each horse generates a value added of somewhere between EUR 6,700 (assuming there are 100,000 horses) and EUR 7,900 Euro (assuming there are 85,000).

The primary sector derives the greatest relative benefits in terms of value added. Up to 1.51% (EUR 59.66 Million) of the value added in this sector is attributable to the horse as an economic factor.⁶ The shares of total direct, indirect and induced effects out of the overall effects amounts to a maximum of 0.13% (EUR 81.93 million) in the secondary sector and a maximum of 0.39% (EUR 532.01 million) in the tertiary sector. The total economic effect of EUR 675.60 is distributed among the sectors as follows: **primary 8.9%, secondary 12.2%, and tertiary 79.0%**.

Employment

The horse as an economic factor at its estimated upper limit will create some **24,300 jobs**.⁷ In terms of full-time equivalents (FTEs), this corresponds to **15,400 FTEs (0.44% of the total FTEs in Austria** in the year 2003).⁸ Calculations based on the model show that a demand valued at one million euros for horse-related services secures some 37 employment contracts (23 FTEs). Relative to the total horse population, each horse creates 0.24 employment contracts or 0.15 FTEs (assuming a population of 100,000 horses) or 0.29 employment contracts or 0.18 FTEs (assuming a population of 85,000) at the upper limit. In other words, three to five horses create one employment contract in the Austrian economy; **about six horses create one additional FTE**.

The **share of horse-generated FTEs out of the total number of FTEs in the Austrian national economy is as high as 0.44%**, which is a higher percentage than that achieved in horse-generated production or value added. The reason for this is that horse-related goods and services (especially agriculture) require relatively large numbers of staff.

In terms of percentage (up to 1.99% of 3,638.11 FTEs) and number of employment contracts generated, and almost in absolute terms (10,952 employment contracts),⁹ **the primary sector derives the most benefit from horses as a job-creating**

⁴ Production comprises both value added as well as the input for manufacturing processes. When the production of all goods in a national economy are aggregated, one and the same input is taken into account several times. Value added, however, indicates the value added for the respective manufacturing process.

⁵ Percentage recently stated in the overall economic analysis of Statistik Austria (VGR 2003).

⁶ The slightly lower share of agriculture relative to the effects of production is explained by lower per-capita income. Provision of services is usually linked with high intensity of labour and thus value added.

⁷ Unpaid workers are not taken into account.

⁸ For lack of available date, the shares per sector according to the VGR 2003 report can be stated in terms of FTEs only.

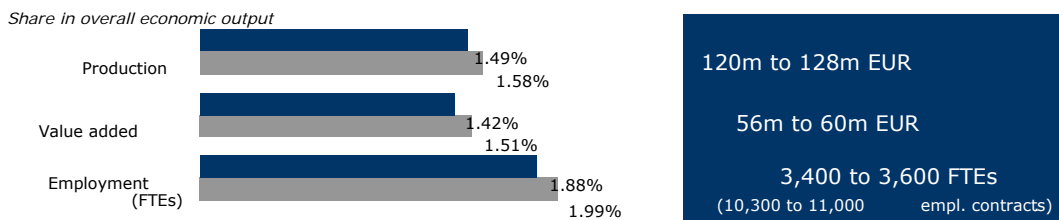
⁹ In agriculture, contract work is more common than FTEs in terms of number and percentage because agriculture has a relatively high number of part-time workers (e.g., part-time farmers).

factor in the economy. While the total shares of direct, indirect and induced effects on total employment in the secondary sector amount to a maximum of 0.15% (1,375.47 FTEs) in the secondary sector and a maximum of 0.44% (10,352.35 FTEs) in the tertiary sector.

A comprehensive overview is given by Figure ES2. In the full-length version of the study "Horses as an Economic Factor in Austria", industry-specific effects are also analysed.

Fig. ES2: Overview of the Effects of the Horse as an Economic Factor on national economic key indicators (by sector)

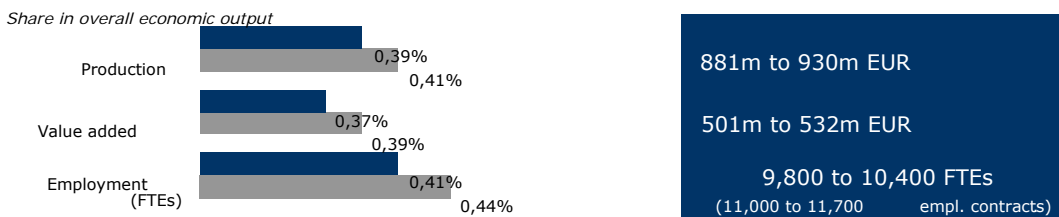
Agriculture and Forestry, fisheries (primary sector)



Production sector (secondary sector)



Services (tertiary sector)



Source: IWI calculations (based on the IO tables of Statistik Austria, 2004)

Regional Economic Analysis

A regional economic summary of the results is given by Table ES2, which shows the sector-aggregated figures with the estimated upper limits. With respect to aggregate production, value added and employment, the greatest effects in relative terms are on **Vienna**. A functional analysis reveals, however, that it is not stud farms, horse-breeders, feed producers or the relatively minor businesses in the production sector (e.g., leather production and processing) that put Vienna at the top of the list, but rather **enterprises in the tertiary sector** (insurance companies, event organisers, etc..). This factor is out of proportion with other federal provinces such as **Upper Austria, Lower Austria** and **Styria**, which derive the greatest benefit from **horses** as an economic factor **with the traditional associations** (riding as a sport and recreational activity).

Tab. ES2: Overview of effects of the horse as an economic factor on the national economy's key indicators (distributed over the Austrian federal provinces)

	Production (in million euros)	Value added (in million euros)	Employment (empl contracts)	Employment (FTEs)
Burgenland	29.27	15.64	655.42	414.47
Lower Austria	195.63	104.51	3,980.66	2,517.28
Vienna	347.53	185.,66	5,727.37	3,621.87
Carinthia	72.36	38.66	1,524.60	964.13
Styria	157.17	83.96	3,386.22	2,141.37
Upper Austria	202.07	107.95	4,141.14	2,618.77
Salzburg	89.,63	47.88	1,727.46	1,092.41
Tyrol	109.28	58.38	2,090.15	1,321.77
Vorarlberg	57.57	30.76	1,061.12	671.03
Austria	1,260.87	673.60	24,298.64	15,365.94

Source: IWI calculations (based on the IO tables of Statistik Austria, 2004)

The **economic structures in Austria's different federal provinces vary greatly**. The regional distribution with regard to the three key economic sectors (primary, secondary, tertiary) may therefore be just as diverse.

Comparison of horses as an economic factor versus hunting, etc.

For the sake of clarity and less elaborate **dimensioning of the key results**, other authors and research subjects have been included (e.g., dogs and hunting as economic factors) at the client's request in a comparison with the main results of our study.¹⁰ A comprehensive comparison is given at the end in Table ES3.

¹⁰ These studies rely on very different methods, however, and refer to different observation periods.

Tab. ES3: Comparison of key results from selected studies on horses, riding, dogs and hunting as economic factors

		Economic factor "Horse in Austria" (2005)	Economic factor "Horse/Riding in Lower Austria" (2000)	Economic factor "Horse in Germany" (2005)	Economic factor "Dog" (2004)	Economic factor "Hunting" (2005)
Key results	Production (production equivalent)	The horse as an economic factor generates production in Austria's national economy in the order of EUR 1.19 billion to EUR 1.26 billion . Each horse adds EUR 12,000 to EUR 14,800 of additional production value to the total economy.	Equestrian sports in Lower Austria create gross annual revenue of approx. EUR 154 million .	Riders, drivers, horseback acrobats, and breeders spend about EUR 2.6 billion annually on current expenses for equestrian sports and upkeep of the horses. The total sales revenue for the relevant industries is over EUR 5 billion .	The total annual sales revenue attributable to dogs as an economic factor is EUR 884,650 million	The annual average of all money spent in the context of hunting in Austria amounts to EUR 474.97 million
	Value added	EUR 634 M to 674 M of the Austrian value is attributable to horses. Each horse contributes EUR 6,300 to EUR 7,900 of added value to the national economy.	Riding in Lower Austria induces an additional value added throughout Austria of EUR 133 million ; about half of it benefits it the <i>Land</i> of Upper Austria.	-	-	-
	Employment	23,000 to 24.300 jobs are created by the horse as an economic factor. That amounts to 14,500 to 15.400 Full Time Equivalents (FTEs) .	Riding in Lower Austria creates about 5,900 jobs throughout Austria (about 3,450 jobs in Lower Austria).	-	-	-
	Multipliers (Horse: Employment)	3 to 4 horses create one workplace in Austria's national economy; approx. 6 horses create one additional FTE.	Keeping 3 horses induces half a job in Lower Austria and another half job in the rest of Austria	3 to 4 horses create one German job	-	-
Basic method		Input-Output-Analyse (open statistical Leontief model)	Primary survey plus overall economic analysis based on the principles of input-output-analysis.	Primary survey, calculation of indirect effects, when applicable	"Bottom-up" estimation (indirect effects are not taken into account)	"Bottom-up" estimation (indirect effects are not taken into account)
Data source		2003/2004 (IO Table 2000)	1997/1998 (IO Table 1990 (or 1995?))	Various (i.e., 2001 and 2004)	Various	1998 (extrapolation for 2005)
Geographic area of reference		Austria	Austrian <i>Bundesland</i> of Lower Austria (versus Total Austria)	Germany	Austria	Austria
Study implemented by		Institute for Industrial Research (IWI)	Vienna University of Technology, University of Vienna	IPSOS, German Riding Association (Deutsche Reiterliche Vereinigung)	KOTRSCHAL et al.	Niederösterreichischer Landesjagdverband (Lower Austrian Hunting Association)

Source: IWI

“The Horse as an Economic Factor in Austria”

Horses are used throughout the Austrian national economy. Because of the complex economic interconnections of the modern economy, the benefits filter down to groups of people who never make direct use of horses or even know anything about them.

A small circle of experts should not be the only ones able to see how important horses are, even in modern society. Horses are no longer the classic beast of burden or draft animal used to facilitate production processes. **Today, horses communicate our values to the whole world; they are important partners in how we organize our leisure time and help us to treat diseases.**

This study provides a solid scientific basis for further study. The authors quantify for the first time the importance of horses to the Austrian national economy. In the future, however, this analytic approach should not be limited to the set of issues examined in this study. Using the input-output models created in the course of the project, we observed only two approaches to more in-depth study with a focused analysis of individual sub-areas of the horse as an economic factor (“Horses and Tourism”, “Horses and Health”, etc.) or in the analysis of concrete investment projects (renovation program of the Spanish Riding School, investment in capital equipment by Magna Racino, renovation performed on Schloss Hof, etc.). Thanks to the **“Plattform PferdAustria”**, which was created last year, we finally have an opportunity to apply sound scientific methods to hitherto unexplored topics.