

January 2007

**Economic Development of the
German Coin-Operated Gaming and
Amusement Machine Industry
2006 and Outlook for 2007**

**Study Commissioned by the Working
Committee of Coin-operated Machines**

Hans-Günther Vieweg



Institute for
Economic Research
at the University of Munich

Department: Industry Branch Research

TABLE OF CONTENTS

1. ECONOMIC ENVIRONMENT IN GERMANY	1
2. THE GERMAN JUKEBOX, SPORT GAMES AND AMUSEMENT MACHINE INDUSTRY	3
2.1. Market for Jukeboxes, Sport and Amusement Machines.....	7
2.2. Number of Installed Machines in Germany.....	10
2.3. Turnover of the Amusement Machine Industry.....	12

1. Economic Environment in Germany

In 2006 the world economy again expanded at an above-average pace with a rate of around 5%. To a large extent this is the result of the integration into the world economy of rapidly growing newly industrialised countries such as China, India, Russia and the Eastern European states. The Ifo Global Business Climate Index declined slightly during the second half of the year, although still remaining well above the long-term average. The decrease only came about as a result of the less optimistic expectations for the coming six months. Assessments of the current economic situation improved for the fifth time in succession, reaching a six-year high. This result indicates that although global growth will decelerate, only a moderate and temporary cooling is expected.

The German economy experienced a “classical” downturn in the first years of this decade, which was accompanied by a decline in the trend growth rate. The lower turning point was reached in the winter half year 2004/05 for aggregate economic output. Since then the German economy has been experiencing an economic upswing, which intensified at the beginning of 2006.

As 2006 came to an end, the German economy continued to enjoy a strong economic expansion. The driving force remained foreign demand, which expanded robustly as a result of the buoyant world economy, despite the strong revaluation of the euro vis-à-vis the US dollar. Export growth in 2006 was around 10.5%, the largest increase since 2000. But unlike 2005, domestic economic activity was also buoyant. Investments in buildings and equipment expanded robustly. Private consumption, which at a share of 59% of nominal GDP is the most important component on the expenditure side, expanded for the first time since 2001. All in all, total economic output in 2006 grew by 2.5%, after 0.9% in the previous year.

A turnaround on the labour market also occurred in 2006. The number of the seasonal- and calendar-adjusted hours worked increased strongly in the second and third quarters. In the wake of higher capacity utilisation, about 350,000 additional jobs (seasonally

adjusted) were created since the beginning of last year. The number of employees subject to social insurance contributions rose, seasonally adjusted, since the turning point in February by around 320,000 up to September 2006. The upswing also led to a clear drop in unemployment. On average for 2006, the number of unemployed persons fell by approximately 360,000.

In 2007 a massive increase in taxes and fiscal charges is putting a considerable burden on economic activity, but the endogenous propelling forces are resilient and they are accompanied by growing exports. These stimuli will be strong enough in 2007 to prevent the upswing from coming to a halt.

For this reason, the growth in investments in plant and equipment and in commercial construction will remain quite robust in 2007. Also the total number of hours worked will continue to rise. In addition, the negative effect of the increase in VAT on consumption will not be so great that there will be an absolute decline in consumer spending over the year as a whole. In light of high government deficits, many consumers had expected an increase in taxes, which contributed to the weakness in consumption and the rise in the savings rate in recent years. Private consumption is expected to grow slightly by 0.5% despite the increase in VAT and other measures for improving government revenue. All in all, real GDP will expand by 1.9% in 2007, or, after calendar adjustments, by 2.0%. The situation on the labour market will continue to improve. In the course of 2007, a decrease in unemployment of 200,000 is expected, which corresponds to a decline of average annual unemployment of 380,000. At 2.3% the inflation rate 2007 will be clearly higher than the preceding year (+1.7%).

In 2007 the primary income of private households will grow by 2.3%. Gross wages and salaries will grow by 2.5% (2006: 1.2%). The acceleration is above all due to a higher level of employment. Per capita gross wages and salaries will only grow by 1.6% (2006: 0.6%), but the reduction of duties will have a positive impact on net income. Total net wages and salaries will grow 2007 by 3.2% and per capita by 2.2%. In 2006 they grew by a meagre 0.3% and per capita by -0.3%.

Disposable income in 2007 will increase by 2.6% (2006: 2.0%) and stimulate the expansion of private households' consumption by 2.7% in 2007 (2006: 2.4%). Much of this growth in nominal terms will be absorbed by the higher value-added tax and the insurance tax by 3 percentage points, the abolition of the private home and commuter allowances, some other cuts in welfare expenditures and the newly introduced tax for high income households. Altogether these effects will dampen the growth of the real private consumption which will only reach 0.5% (2006: 1.1%).

2. The German Jukebox, Sport Games and Amusement Machine Industry

The German Gambling and Gaming market achieved €8.7 million gross revenues in 2003. This represents a share of 17% of the EU-25 market (Table 1). As compared to the purchasing power of private households, German consumers were less inclined to use gambling and gaming services than the European Union average. Only 0.7% of private consumption was spent on gambling and gaming services; for the EU-25 the share amounted to 0.9%.

Table 1: The gambling and gaming market in the EU-25 in 2003

Revenue	Total	Lottery	Casino	Gaming Machines	Betting	Bingo
	EU-25					
In millions of €	51 411	22 479	8 151	9 429	8 898	2 453
Shares	100.0%	43.7%	15.9%	18.3%	17.3%	4.8%
	Germany					
In millions of €	8 700	4 976	1 238	2 350	136	0
Shares	100.0%	57.4%	14.2%	26.8%	1.6%	0.0%

Source: Swiss Institute of Comparative Law; Calculations by Ifo.

The gaming market is of significant importance for the jukebox, sport-games and amusement machine industry. In 2003 the gross revenues of amusement machines with

prices (AWPs) reached 73% of the total turnover of operators (enterprises and entrepreneurs who run jukeboxes, sport and amusement machines with and without prices). In 2006 their share leapfrogged to 80% of the total turnover of millions of € 2,970. The shift towards AWP was induced by the new Gaming Ordinance (Spielverordnung; SpielV) which came into effect on 1 January 2006.

The initiative for an improved legislation for the gaming industry was already launched in 2000 by the Federal Ministry of Economics and Technology. It acknowledged the necessity to provide the industry with opportunities to successfully compete with the public and publicly-licensed gambling and the growing supply of internet providers. Indeed the gambling and gaming market in Germany grew by an average annual growth rate between 1995 and 2005 of 2%, whereas the gross revenues of the gaming operators stagnated during that period. Their share of the gambling and gaming market shrank by around 3 percentage points.

The hopes of the industry have been focused on the Gaming Ordinance, which took force on 1 January 2006. It led, however, to a further reduction in the capacities amongst operators. This is due to the prohibition, introduced at the beginning of 2006, of so-called fun games. Up to the end of 2005 there was an average of between 8 and 9 fun games in operation per amusement arcade.¹ Fun games with replay tokens and return payment on stakes have been prohibited without a transitional arrangement. This means that the majority of these machines had to be de-installed immediately (see: Box 1).

¹ Jürgen Trümper, Christiane Heimann, Angebotsstruktur der Spielhallen und Unterhaltungsautomaten mit Geldgewinnmöglichkeit in der Bundesrepublik Deutschland, status 1.1.2004, Unna 2005, p. 28.

Box 1

The most important changes in the Gaming Ordinance that went in force on 1 January 2006 are:

- Installation of up to three amusement machines with prizes in bars and restaurants (previously 2 machines). If three machines are installed, an additional technical device for the machines is required to ensure that the youth protection law is obeyed.
- Installation of at most 12 amusement machines with prizes in amusement arcades, each machine requiring 12 m², set up in groups of two (previously 10 machines of 15 m² each).
- Article 6a of the Gaming Ordinance prohibits the installation and the operation of fun games with replay tokens, return payment on the stakes and other possibilities for winning. Free games are only allowed if they are played immediately after games that were paid for. No more than six free games are possible.
- Jackpots are prohibited according to Article 9 Section 2 of the Gaming Ordinance.
- In Article 12 of the Gaming Ordinance it is stipulated that the maximum average loss per hour cannot be more than €33 (previously €28.96). In this section of the Gaming Ordinance the principle of chance is defined.
- The sum of the maximum possible loss per hour is €80 (previously €60).
- The sum of the maximum possible win per hour amounts to €500 (previously €600).
- The minimum playing time is five seconds (previously 12 seconds) with a stake of €0.20 per game. For games that last longer a digressive increase in the stakes and winning possibilities is required.
- To protect the players from playing too long, amusement machines with prizes are required to have an automatically controlled five-minute break after being operated without interruption for one hour.
- According to Article 12 and Article 13 of the Gaming Ordinance, stakes, wins and payouts are to be documented.
- Previously the operation of amusement machines with prizes was limited to four years. This regulation was justified primarily as a result of the wear and tear these machines are subject to and because the basic requirements for the games with prizes could no longer be guaranteed. This argument is only partially applicable to the electronically driven machines produced today. The new Gaming Ordinance takes this fact into account and requires that after 24 months machines are monitored by an independent expert to ensure correct functionality. A general time limit for the use of amusement machines with prizes based on the Gaming Ordinance as of 1 January 2006 is no longer valid.

The situation was made worse by two factors. Firstly the draft for the Gaming Ordinance was fundamentally modified in the course of the political decision-making process. The maximum number of amusement machines with prizes (AWPs) per amusement arcade, which originally was meant, among other things, to compensate for the loss of capacity with respect to fun games, was drastically reduced.² In contrast to the old regulation, it is now permitted to install only two additional amusement machines with prizes (AWPs), which is not sufficient to make up for the loss of capacity with fun games. Secondly, as a result of the drawn-out decision-making process,³ there were no AWP based on the new Gaming Ordinance in the market until early summer 2006.

As a result the turnover of the operators of fun games collapsed in 2006, and the gross revenues from AWP only soared in the latter half of the year and they were not able to compensate for the losses. Their total turnover shrank by 7% in 2006. It is expected that in 2007 the operators will be able to expand their turnover by around 10% and surpass the level of 2005 by 2.8%. Compared to the consumption of private households – which is an initial assumption for how the operators’ business will expand – the growth of their turnover has not matched that of consumer markets. This indicates that the industry has not yet been able to fully exploit its growth potential.

² In the drafts of the Gaming Law discussed in 2004 und 2005 it was originally planned that up to 15 AWP could be installed in amusement arcades. Additionally two multi-user AWP with six places each were also to be permitted. This total of 27 playing places was introduced, among other reasons, as compensation for the fun games prohibited in the first draft of the Gaming Law. In the course of the political decision-making process, the multi-user amusement machines were deleted and reduced by the Federal Assembly (Bundesrat) to an upper limit of 12 AWP, which is an increase of only two machines with prizes vis-à-vis the old Gaming Law, i.e., from 10 to 12.

³ The new Gaming Law was only approved by the Federal Assembly (Bundesrat) after significant changes were made in mid-October 2005. Furthermore, EU regulations also require a notification procedure to be submitted to the European Commission so that it was not certain until mid-December 2005 that the new Gaming Law would take effect on 1 January 2006. The final version that was passed was not signed until 17 December 2005 by the Minister of Economics and Technology and published in the Federal Law Gazette on 23 December 2005.

The new Gaming Ordinance has not fulfilled all of the expectations of the industry, but the new regulation for the AWP is a success. It has provided the engineers with a lot of new opportunities for the design of AWP. Quicker games and a variety of games can be designed, and they were introduced to the market in 2006. Already last year this new supply managed to attract clients. In particular the reduction of the minimum run-time from 12 to 5 seconds has met with clients' interest, which was decisive for the high interest in the now banned fun games.

It cannot yet be concluded whether the objectives driving the amendment of the Gaming Ordinance to strengthen the performance in competition with public and publicly-licensed enterprises and internet providers have been reached. It has to be seen whether the lacking fun games (8 to 9 fun games per amusement arcade) can be compensated by an increase of the maximum allowed number of AWP from 10 to 12 units. Moreover the effects of the ban of jackpots that were used by operators only for advertising purposes and were not linked to AWP and other services have not yet been finally assessed.

2.1. Market for Jukeboxes, Sport and Amusement Machines

Coin-operated amusement machines is a very heterogeneous group of machines that does not offer prizes – touch-screen devices, video display games, pinball machines, etc. Until 31 December 2006 this group also contained fun games. But the commercial supply of these widely applied machines has been prohibited by the new German Gaming Ordinance which was put into effect on 1 January 2006. A second group is made up of commercial amusement machines with prizes that are subject to comprehensive federal regulation. A third group includes sport games machines, such as billiards, darts, table soccer, etc. A further group of machines that gives the player the possibility to use his skills to influence the outcome of the game is subsumed under the term “other games”. The Federal Criminal Investigation Agency (Bundeskriminalamt) handles the licensing process for these machines in such a restrictive manner, though, that in general the legal regulations have little impact. There are only a very few devices of this sort on the market.

In 2006 a total of 96,105 **jukeboxes, sport and amusement machines with and without prizes** were introduced on the market, 14.2% more than in the previous year. The market share of the members of the VDAI, the industry's association, averaged about 90% for all machine groups (Table 2).

For the most important product group, **amusement machines with prizes (AWPs)**, the National Metrology Institute (PTB) recorded 94,955 new licences in 2006. Not all of the approved licences led to sales, which means that the actual market volume is less. The number of sold, rented and leased gaming machines with prizes, which were not only used for tests purposes but have been installed on a long-term basis, was around 90,200 in 2006, amounting to an increase of 28.3%. The soaring sales were induced by the new Gaming Ordinance. On the one hand, it has provided opportunities for the design of more attractive games and a broader variety. On the other hand, the new Gaming Ordinance has made it possible to install a higher number of AWPs by operators. In amusement arcades the maximum number has been increased from 10 to 12 and in the bar/restaurant sector from 2 to 3. The statistics of the PTB show that most of the investment in new AWPs was carried out in the second half of 2006.

A time-series analysis of the market for AWPs reveals that 2006 marks the end of a persistently difficult situation for the manufacturers. After the German unification boom in the early 1990s, market volume shrank for around a decade. From 1999 to 2004 demand stagnated and average sales remained low. In 2005 the market environment improved, and in 2006 the effects of the new Gaming Ordinance pushed demand. A turnaround has taken place and further growth is expected for 2007.

In the long-term the manufacturers of **amusement machines without prizes** experienced a similar development. They experienced strong demand driven by good investment propensity on the part of operators during the early 1990s. Between 1996 and 2005 the market declined and was nearly halved. Most of the product groups were affected by this strong shrinkage. In 2006 the market performed even worse. Demand

fell by a further 70%, induced by the ban of fun games. The situation was worsened by the operators' limited investment budgets, which was spent above all on the procurement of AWP designed in line with the new Gaming Ordinance.

Table 2: Market for jukeboxes, sport and amusement machines with and without prizes

Type of machine	Market volume		
	2005 Units	2006 ^{a)} Units	2006/2005 ^{a)} Change in%
Amusement machines	12,554	3,715	-70.3
Pinball	189	195	3.7
Score games ^{b)}	12,150	3,295	-72.8
Video games	215	225	4.7
Amusement machines with prizes (AWP) ^{c)}	70,300	90,200	28.3
Sport games machines	1,350	2,190	62.2
Soccer	305	475	56.8
Billiards	180	100	-43.5
Darts	865	1,615	86.2
Total ^{d)}	84,204	96,105	14.2

a) Extrapolation of the market volume based on the sales of the members of the industry's association VDAI^{d)}. For AWP machines the figures are based on the newly granted licences of the PTB for the total year.

b) The figures comprise not only touch-screen machines, but also juke boxes and other amusement machines. The figures for 2005 contain sales of fun-game machines which have been prohibited since 1 January 2007.

c) The newly granted licences by the PTB are used for the estimation of the market volume, reduced by a share of 5% (long-term average of licences not used for the permanent installation of AWP).

d) The market share of the members of the VDAI is at around 90%; with AWP at around 95% (nearly the same amount of jukeboxes, sport and amusement machines are purchased by the operators as are rented and leased).

Source: PTB; VDAI; calculations of the Ifo Institute.

2.2. Number of Installed Machines in Germany

The associations of the German amusement machine industry maintain records of the amusement machines installed every year. The machines recorded are not only those supplied by member businesses but also those from other manufacturers, distributors and direct imports. According to these statistics the number of installed jukeboxes, sports and amusement machines with and without prizes continued to decline as in previous years and fell between 2001 and 2005 by 51,000 units to 363,500 machines, amounting to a cutback of 17% of the installed capacities (Table 3).

In 2006 the slump was bigger than in any of the preceding years since the figures were first recorded: The industry suffered a cutback of 42,000 units. This massive downsizing was enforced by the ban on commercially running fun games from 1 January 2006 onward, the day when the new Gaming Ordinance was put into force. The fun games had to be removed without delay. It was not possible to immediately replace them by AWP's designed under the rules of the new Gaming Ordinance, because these new and more attractive machines had become available only in early summer. Moreover a full compensation for the de-installed fun-games has not been possible, because the maximum number of AWP's to be run in an amusement arcade has only been expanded from 10 to 12 machines. These additional two AWP's do not offset the dismantling of 8 to 9 fun games per amusement arcade.

As a consequence of the new Gaming Ordinance not only the total number of commercially run jukeboxes, sport and amusement machines with and without prizes was drastically reduced in 2006 but also the structure of the installed machines changed markedly. The number of installed AWP's was expanded by 17,000 in 2006, the first year for more than a decade with a higher capacity than the preceding year. 200,000 AWP's were running on 31 December 2006. In contrast the product group of score games, which include the fun games, suffered a reduction of 70% in the number of installed machines.

Other groups performed somewhat better. Pinball machines that have not undergone product innovations have disappeared from amusement arcades, restaurants and bars to a large extent during the past few decades. But recently newly designed electronic machines have aroused some interest in operators, and more machines have been installed. The sale of sport-games machines soared with a double-digit growth rate. The World Cup soccer championship provided a clear stimulus, but to a large extent these purchases were driven by replacement. For more than a decade this market segment was marked by the operators' reluctance to invest.

Table 3: Installed amusement machines and sport games machines

Type of machine	Number of machines ^{a), b)}					
	2001	2002	2003	2004	2005	2006
Amusement machines without prizes	147,500	140,000	133,500	128,500	125,500	66,000
Pinball machines	28,500	27,000	25,500	25,500	25,500	25,700
Score games, etc. ^{c)}	99,000	95,000	92,000	89,000	87,000	27,000
Touch-screen	20,000	18,000	16,000	14,000	13,000	13,300
With prizes	197,000	192,000	187,000	184,000	183,000	200,000
Sport games machines ^{d)}	70,000	65,000	60,000	57,000	55,000	55,500
Total	414,500	397,000	380,500	369,500	363,500	321,500
<p>a) The estimated number of all machines as of 31 December is based on surveys for the entire market.</p> <p>b) The figures include machines of non-VDAI members (estimated) and all those sold, rented and leased.</p> <p>c) Including touch-screen machines and juke boxes. As of 1 January 2006 fun games are no longer installed.</p> <p>d) Billiard, dart, table soccer, skittle alleys, air hockey etc.</p> <p><u>Note:</u> The system for determining the number of amusement machines operated by operators has changed. Since the figures for previous years have been revised, these statistics are no longer comparable with those of the time series in previous publications.</p>						

Source: VDAI; calculations of the Ifo Institute.

2.3. Turnover of the Amusement Machine Industry

The amusement machines industry is divided into three sectors: the machine manufacturers, wholesalers and operators. The turnover of these three sectors amounted to a total of €3.74 billion in 2006. Despite the positive investment climate for operators, the results fell short of those of the previous year by almost 3.4%. The turnover of manufacturers resulting from sales, renting and leasing of amusement machines increased by nearly 16% compared to the previous year. Wholesalers were also able to raise their turnover by a good 13%. (Table 4)

From 1996 to 2005 the gross revenues of operators have stagnated, despite an intermittently strong economy.⁴ Neither the increase in federal taxes, the rise of VAT from 15 to 16%, the drastic increase in the amusement tax rates, nor the general upward trend in costs could be sufficiently compensated for.

The year 2006 was marked by the taking effect of the new Gaming Ordinance. The operators had to disinvest all their fun games, around 60,000 machines. The opportunities for compensation were deficient. Only in early summer were manufacturers and wholesalers able to make AWP available that were designed in line with the new regulation. As a result the operators' turnover plunged. Only in late summer were they able to expand their business considerably, but, on average for 2006, they were not able to make up all of their previous losses. Total turnover 2006 fell short of that of the preceding year by 7%. With AWP, operators enjoyed a gain of 17%, but with other amusement machines they suffered a setback of 75%.

⁴ Nominal German GDP grew by 2% p.a. during this period.

Investments have grown substantially during the past two years. The investment intensity is still at a low level in view of the value of the machines procured by wholesalers and by the industry in relation to the operators' turnover. The investment quota defined in this way bottomed out in 2003; it was then only 18.2%. The following years it grew and in 2006 reached 26%. This figure is much lower than the investment quota for 1996 with 30%. This leads to the assumption that the currently improved investment propensity will not be sufficient to meet the future challenges in the gaming and gambling market.

The past year was extremely difficult for operators, because they were forced to reduce capacities in an environment of very strong competition. The enforced dismantling of fun games without any transition period and the non-existing supply of AWP's designed in line with the new Gaming Ordinance made it difficult for operators to stabilize customer retention. It was reported that clients were lost to sport betting competitors in particular.

In 2007 operators are adjusting their capacities to the opportunities provided by the new Gaming Ordinance. Above all a sufficient number of AWP's has been installed for the entire year. This will enable the operators to strongly increase their turnover. Starting from the low level of the preceding year, a double digit growth is expected. A growth rate of 10% would mean that just the level of 2005 will be reached.

It will be necessary to wait and see if the operators are successful in their efforts to regain the customers that have migrated to other providers in the gaming and gambling market. Likewise the question has not yet been answered of whether the industry will be able to adequately compensate for the dismantling of, on average, 8.3 fun games per amusement arcade by installing an additional 2 AWP's to a maximum number of 12 units as is allowed under the new Gaming Ordinance. Will the supply of more absorbing and diversified games be sufficient to offset the reduction in capacities by the sheer number of installed machines?

Table 4: Turnover of the amusement machine industry

Branch	In millions. € ^{a), b)}			
	2003	2004	2005	2006
Total (not consolidated)	3,870	3,820	3,870	3,740
Industry (manufacture and import)	280	285	310	360
Wholesale	330	335	360	410
Operators^{c)}	3,360	3,200	3,200	2,970
Amusement machines with prizes ^{d), e)}	2,350	2,330	2,350	2,750
Amusement machines without prizes Sport games machines	910	870	850	220
<p>a) Also includes turnover from exports and from rented and leased machines. b) Also includes estimates of imports from non-members of the VDAI. c) Income of operators = cash payments including innkeeper's share and VAT, amusement tax, etc. d) The numbers are not comparable with the turnover statistics for 2001 as the turnover includes an amount estimated at €25 million per year for payment of jackpots not connected with amusement machines with prizes. This amount must be subtracted to determine the actual turnover of the operators. e) Players' stakes ca. €5,500 billion (2005) minus approx. 60% of the players' winnings.</p>				

Source: VDAI; calculations of the Ifo Institute.