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Securitizations are Dead—Long Live Securitizations?

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After the financial markets slumped worldwide in 2008, securitizations were seen as a major cause of the conflagration. The securitization market dried up because this financial instrument was no longer trusted. At the time, no one thought securitizations had any future as a financial innovation. However, just three years after the financial meltdown, the securitization market in the US has made a recovery, despite its continued systemic risks. There is still no unified regulatory framework nor binding transparency. Hardly anything has been learnt from the financial crisis of 2008.

Securitizations are tradable financial products. They allow the risk to be diversified by pooling credit contracts.[1] The next step is to break down these credit pools accordingly into different liability tranches .[2] The different liabilities are related to respective risk categories in the case of credit defaults (box). In practice, a special-purpose vehicle (SPV) is created as an intermediary between creditors and debtors.[3] This is established by the investment bank (arranger) as a separate legal entity to manage the securitizated assets (Figure 1).[4]

The parent company's liability risks in respect of the SPV were not typically included in the bank's balance sheet as contigent claims. The extent of off-balance sheet activities was not limited by regulatory constraints and could exceed the bank's equity. This enabled the bank as parent company of the SPV to generate a larger volume of liabilities uncovered by their equity base and therefore achieve higher profitability but associated with higher risks.

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1 Coval, Joshua, Jakub Jurek, and Erik Stafford, "The Economics of Structured Finance," Journal of Economic Perspectives, vol. 23, no. 1 (2009): 3–25.

2 Individual debtors no longer have a direct debtor-creditor relationship with their respective creditor; rather, they are now part of the pool of debt obligations.

3 The SPV is a temporary legal entity whose sole purpose is to manage the creditor-debtor contractual relationships of the securitized assets. Once the last payments of securitized assets have taken place, the SPV is dissolved. In general, these SPVs have no equity but are secured by an open line of credit from the parent company, i.e. the investment bank, to supply liquidity and compensation in the event of unexpected losses. Report on Special Purpose Entities. Bank for International Settlements. Basel, BIZ, September 2009.

4 This also has the advantage for the investment bank that there are no capital requirements for the credit pools securing the SPV. As a result, this is known as an off-balance-sheet operation. The SPV is not included in the investment bank's balance sheet due to it having its own legal status. However, when needed, this only works if the investment bank has sufficient cash reserves or can obtain these from the money market. This was no longer the case in particular after the crash of Lehman Brothers and the collapse of the money market before the central banks intervened.

Box

Breakdown of Securitizations Into Different Risk Classes

Overall, risks present in the credit pool are structured in a securitization into different risk classes, i.e. tranches, (usually senior tranche–very low risk, mezzanine–intermediate risk and junior tranche–high risk). Accordingly, this is associated with different interest payments to the respective investors in such assets. Through this, the credit market can be supplied with different investment risks according to the risk preferences of investors.

By allocating different liabilities to different tranches of the securitization these trances obtain different credit ratings. Usually the senior tranche obtains the highest credit rating level. At Moody's this is Aaa. Mezzanine and Junior tranche obtain lower ratings due to their higher riskiness. From the arranger perspective, the securitization process produces an overall value that is higher than the sum of the single values of the individual contracts if they were treated separately. As a result, the investment bank can obtain higher profits through securitization compared to the single contracts.

Since only a limited percentage share of defaults is expected in the overall credit pool, based on model calculations and experience values, buyers of senior tranches could be totally exempted from the resulting potential losses. The two lower risk tranches (mezzanine and junior tranches) are liable for expected payment losses.

Rating classifications at Moody's
The rating codes used are:[1]

- Investment grade
  Aaa–reliable and stable debtors of the highest quality
  Aa–good debtors, slightly higher risk (especially in the long term)
  A–general economic situation should be monitored
  Baa–average quality debtors currently operating satisfactorily
  Not suitable for investment (junk bonds)
  Ba–very dependent on the overall economic situation
  B– financial situation is notoriously changeable
  Caa–speculative bonds, low debtor income
  Ca–usually has payment problems
  C–in default of payment
  NR–no rating

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1 Moody's, Rating Symbols and Definitions. New York: Moody's Investors Service.

Securitization Boom in the Shadow Banking System

Due to the decoupling of any legal obligations with the arrangers, SPVs became part of the shadow banking system.[5] Shadow banks did not have to deposit a certain percentage of their equity as collateral, like commercial banks with their on-balance sheet operations. It was this particular competitive advantage which resulted in the dynamic growth of securitizations before the financial crisis broke out.

Special-purpose vehicles located abroad can be difficult for supervisory authorities to control. Access to necessary information is usually only possible with the cooperation of supervisory authorities in offshore financial centers.[6] This was well known before the international financial crisis. Even if the national supervisory authorities and central banks were in the possession of information about such transactions,these transactions were, however, explicitly excluded from regulation and therefore not under the responsibility of financial supervisory authorities. This encouraged regulatory arbitrage. A uniform global regulatory framework, or even comprehensive mandatory transparency, is not currently on the horizon, making it even more difficult to enforce stricter regulations at national level.[7]

Risks in the Securitization Model were Underestimated

When debtors defaulted, the creditors could do little to assert their claims as owners of the securitizations. Alt-

5 "The emergence of a shadow banking system is not a new phenomenon. What was new over recent decades was the scale of its activities, which is closely related to the rapid expansion of securitization. The securitization of previously illiquid items in banks' balance sheets gave perhaps the strongest boost to the financial sector. Securitization allows traditional banking assets to be transformed into tradable instruments, thus creating tradable assets. It acts as a multiplier of negotiable financial claims or, more simply, a multiplier of finance." See Lorenzo Bini Smaghi, "Monetary policy transmission in a changing financial system: Lessons from the recent past, Thoughts about the future." Speech by Lorenzo Bini Smaghi, Member of the Executive Board of the ECB at the Barclays Global Inflation Conference, New York City, June 14, 2010.

6 Financial Stability Board: Financial Security Forum announces a new process to promote further improvements in offshore financial centers (OFCs). Financial Stability Board, Bank for International Settlements, Basel, March 11, 2005. IMF, Offshore Financial Centers The Assessment Program–A Progress Report. Washington DC, International Monetary Fund, February 25, 2005. The IMF has since then integrated this program into the Financial Sector Assessment Program (FSAP). Consequently, a separate survey of offshore financial centers is no longer available.

7 "Global finance cannot realistically be submitted to a single rulebook. The Basel Accord itself sets a minimum standard, not an optimum one. Several jurisdictions, from Switzerland to China, are considering higher requirements." Nicolas Veron, "After the G20: time for realism in global financial regulation," Brussels, Bruegel, November 2010. Since the Seoul Summit, the G20 is now committed to the gradual implementation of Basel III from 2013 to 2019.

hough they are able in principle to claim legaly a rescission of the contract against the arranger of the securitization, this fails de facto when the issuing investment bank is illiquid or insolvent. Since it was usually very large investment and commercial banks that were active as arrangers in the securitization business, it was generally expected that they would be able to provide compensation even for larger losses in single cases. Therefore, the risk was considered minimal and negligible.

An Unexpected Shock Destroys the Securitization Model Assumptions

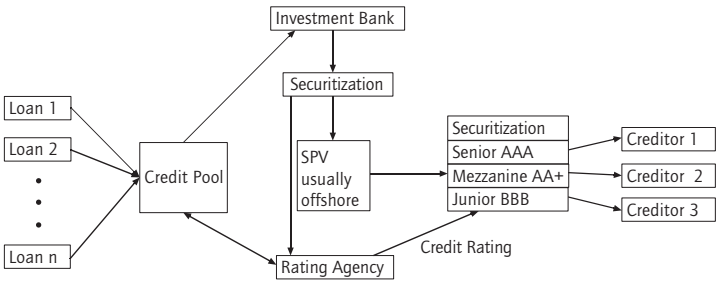
The largely unregulated SPVs got involved more and more in the risky US real estate market, in particular the subprime mortage market. These securitizations were implicitly linked to each other through joint market risks, i.e. a general decline in real estate prices and liquidity risks. In the course of the financial crisis, it was not only individual securities but the securitization model itself that was therefore called into question.[8] A broad mistrust of securitizations arose due to the lack of transparency for providers and even more so for buyers. At the same time, demand from large commercial banks active in the securitization market for additional liquidity to cover unexpected obligations soared in order for them to offer sufficient funds for potential claims. The interbank market for short-term liquidity, the centerpiece of the entire global financial system, was rapidly drying up because of this sudden excess liquidity demand.

The international liquidity crunch is reflected in the development of LIBOR.[9] The Libor is used as a benchmark interest rate for a number of medium to long-term credit agreements with a corresponding interest rate mark-up for longer maturities on variable-rate interest rate contracts. Usually, there is a very close relationship between the LIBOR rate and the discount rate of the central bank—in this case, the US Federal Reserve (Fed). However, this relationship collapsed completely for some time due to the serious malfunctions in the money markets (Figure 2). A collapse of global financial markets was only prevented through the intervention of the central banks in the US and Europe, which have since made available almost unlimited liquidity at interest rates close to zero.

This revealed the interdependence of accumulated risks in the large pool of securitized assets. This invalidated the securitization model's basic assumption—the non-existent or minimal correlation of the risks between single credit contracts—due to macroeconomic events such as the dramatic rise in mortgage interest rates and fal-

Figure 1

Securitization of Loans

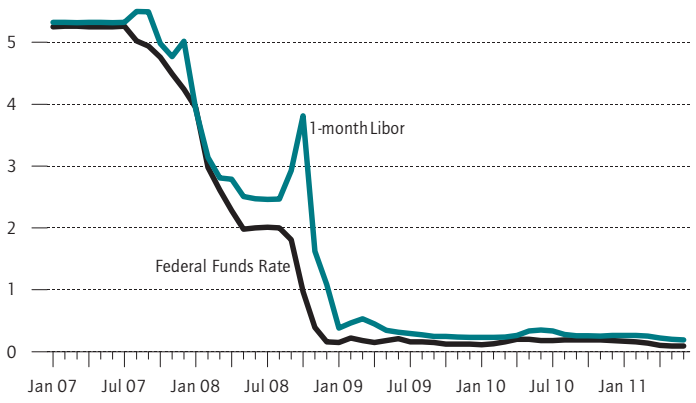


Source: chart by DIW Berlin.

With a securitization, the creditor no longer has a direct relationship with the debtor.

Figure 2

Development of LIBOR Interest Rate[1] and Federal Funds Rate
In percent



1 One-month term.

Source: British Bankers Association.

The close relationship between the central bank and interbank interest rates broke up during the financial market crisis.

8 The crisis was triggered by the closure of a hedge fund of the investment bank Bear Stearns in 2007 and this gave rise to further speculations about other problematic securitizations.

9 The London Interbank Offered Rate (LIBOR) is the daily reference interest rate for the interbank market which is fixed on each working day at 11.00 am London time. These are interest rates, determined by major international banks in the British Bankers' Association in London, at which they borrow money from other banks in the market.

Table 1

Securitizations Issued in Europe and the US[1]

	US[2]		Europe	
	in EUR billions	Change in percent	in EUR billions	Change in percent
2000	1 088.0	–	78.2	–
2001	2 308.4	112.2	152.6	95.1
2002	2 592.7	12.3	157.7	3.3
2003	2 914.5	12.4	217.3	37.8
2004	1 956.6	–32.9	243.5	12.1
2005	2 650.6	35.5	327.0	34.3
2006	2 455.8	–7.3	481.0	47.1
2007	2 404.9	–2.1	453.7	–5.7
2008	933.6	–61.2	711.1	56.7
2009	1 358.9	45.6	414.1	–41.8
2010	1 276.7	–6.0	382.9	–7.5
2011[3]	265.3	–	114.4	–

1 Based on quarterly surveys.
2 Converted using exchange rates at the end of each quarter.
3 1st quarter of 2011 only.

Sources: Bloomberg, Citigroup, Dealogic, Deutsche Bank, JP Morgan, Bank of America-Merrill Lynch, RBS, Thomson Reuters, Unicredit, AFME & SIFMA and calculations by DIW Berlin.

In the US, emissions fell sharply in 2008, but did not fall in Europe until 2009.

ling property prices.[10] Before tradable securitizations had become illiquid and by this toxic assets. Nobody could plausibly determine the actual value of a securitization with the previous now invalidated valuation rules.[11]

Development of Securitizations since the Outbreak of the Crisis

A recent report by the Association for Financial Markets in Europe (AFME) showed that in 2008, new issuances of securitizations in the US fell by 61.2 percent from EUR 2,404.9 billion to EUR 933.6 billion compared to the previous year.[12] Since then, values have gradually recovered to EUR 1,276.7 billion in 2010 (Table 1). As a result, the market volume of new issues is still only about half as large as before the bankruptcy of Lehman Brot-

10 David X. Li, "On Default Correlation: A Copula Function Approach," The Journal of Fixed Income, vol. 9, (March 2000): 43-54.

11 Georg Erber, "Verbriefungen: Eine Finanzinnovation und ihre fatalen Folgen," DIW Berlin Weekly Report no. 43/2008.

12 AFME, Securitization data report Q1: 2011. London, 2011.

Table 2

Outstanding Securitizations by Country
in EUR billion

	2007	2008	2009	2010	4th Quarter 2010	1st Quarter 2011	Share in percent	
							4th Quarter 2010	1st Quarter 2011
Austria	3.6	3.3	3.0	2.6	2.5	2.4	0.1	0.1
Belgium	8.6	50.5	61.9	69.5	76.4	75.1	3.6	3.6
Finland	0.0	7.7	6.4	5.0	4.6	4.3	0.2	0.2
France	26.4	32.0	34.0	33.9	34.6	38.7	1.7	1.9
Germany	93.8	133.8	125.7	97.0	93.3	87.4	4.5	4.2
Greece	9.9	20.7	37.5	38.2	35.1	31.9	1.7	1.5
Ireland	26.2	58.0	64.6	71.7	72.1	68.6	3.4	3.3
Italy	131.1	198.5	222.2	222.6	214.2	203.0	10.2	9.8
Netherlands	236.7	293.7	308.0	317.4	319.6	319.1	15.3	15.4
Portugal	32.2	41.4	48.5	50.1	57.3	60.1	2.7	2.9
Russia	4.2	4.4	4.5	4.4	4.3	4.1	0.2	0.2
Spain	231.9	294.9	306.5	291.1	297.4	301.1	14.2	14.5
Turkey	6.8	6.6	6.3	4.9	4.8	4.5	0.2	0.2
UK	549.9	693.5	681.1	647.8	622.1	625.0	29.7	30.1
Others	8.2	7.0	6.3	2.7	2.8	4.2	0.1	0.2
Pan-Europe	41.7	56.6	68.4	58.7	57.9	52.5	2.8	2.5
Multinational	206.2	232.4	226.9	205.5	193.5	194.2	9.2	9.4
Europe overall	**1 617.5**	**2 134.9**	**2 211.7**	**2 123.3**	**2 092.6**	**2 076.3**	100.0	100.0
US	–	**7 056.3**	**7 023.4**	**8 027.1**	**8 264.2**	**6 792.0**	–	–

Sources: Bloomberg (USA & Europe), Fannie Mae (USA), Freddie Mac (USA), Ginnie Mae (USA), Thomson Reuters (USA), SIFMA (USA & Europe) and calculations by DIW Berlin.

In 2011, securitization portfolios fell sharply in the US while the decline in Europe since 2009 has been moderate.

hers. But it has not resulted in the securitization market in the US drying up completely.

In Europe, the decline of new issueings of securitizations only occurred after a significant delay. In 2008, new issues reached an all-time high of EUR 711.1 billion. The first significant decline to EUR 414.1 billion took place in 2009. Since then, the volume of new issues continued to fall, but was still at quite a considerable level in 2010 at EUR 382.9 billion. When considering the results of the first quarter of 2011, it appears that this level might be reached again in 2011.

This development of the securitization before the Lehman bankruptcy is even more evident in the outstanding issuances of the securitizations. Apparently, not least because of the problems in dealing with toxic outstanding securitizations, the reduction of pre-crisis securitizations is very slow (Table 2). In 2008, the securitization portfolios in the US were at EUR 7,056 billion and as a result of continuing new issues, this figure was still rising even in the last quarter of 2010 to EUR 8,264 billion.[13] It is amazing that there are no significant reductions of outstanding issuances, instead there is again an increase in securitizations in the US. The securitization market is therefore obviously indispensable as a tool for sufficient liquidity supply to the US economy, despite the continuing systemic risks associated with securitization model. Only since the first quarter of 2011, a significant reduction of the volume to EUR 6,792 billion has occurred.

The trade-off between the economic consequences of a credit crunch due to stricter regulation of the financial markets and the consequences of another financial market crisis due to a lack of strict regulation prevails. Supporters of stricter regulation could not push through their demands for a comprehensive regulatory framework in particular for securitizations.[14] This would have led to a significant increase in equity requirement ratios in the financial sector, thereby reducing the capability to create sufficient credits, i.e. causing a credit crunch. Obviously, in the US and Europe it is hoped that there will be no recurrence of such a dramatic event as the bankruptcy of Lehman Brothers soon.[15] The financial industry has been granted long transition periods to meet the new regulatory obligations, particularly with regard to higher equity requirements.

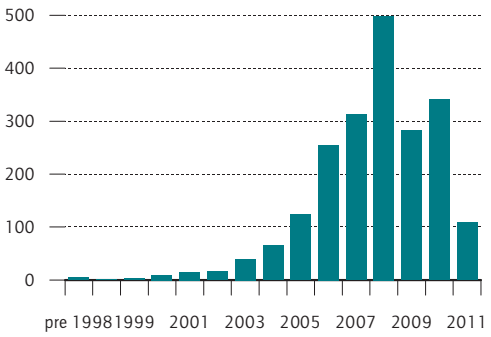
In Europe, however, the overall outstanding issuance of securitizations since 2008 has remained almost stable. In 2008, it had peaked at EUR 2135 billions, in the first quarter of 2011 it has again recovered to EUR 2,076 billion. Meanwhile, there have been no remarkable fluctuations in the outstanding issuances. However, it appears that single countries in Europe have responded differently. In Germany, the volume of outstanding issuances in 2008 was EUR 133.8 billion but this figure fell to EUR 87.4 billion in the first quarter of 2011. In the UK, there was only a slight decrease from EUR 693.6 billion in 2008 to EUR 625 billion in the first quarter of 2011. In contrast, volumes of outstanding issuances in Spain, the Netherlands, Italy, and Belgium have grown significantly. Crisis countries such as Ireland (2007: EUR 26.2 billion, first quarter 2011: EUR 68.6 billion), Portugal (2007: EUR 32.2 billion, first quarter 2011: EUR 60.1 billion) and Greece (2007: EUR

15 Nassim Nicholas Taleb, Black Swan: The Impact of the highly Improbable. London, 2007. In his book, the author argues that the financial crisis of 2008 was a once-in-a-century event that will not happen again soon. Consequently, there was no need to push forward more urgently a comprehensive regulation of the securitization markets. This view also seems to be held by Alan Greenspan. Alan Greenspan, "Der Fluch der vielen Sicherheitspuffer," Financial Times Deutschland, July 27, 2011.

Figure 3

Outstanding Securitizations in Europe by Year of Issue[1]

In EUR billion



1 In the first quarter of 2011. Based on rates at the time of issue. Subsequent restructuring does not affect securitizations in the year of issue.

Source: Sifma.

The largest share of the outstanding securitizations in Europe occur in the year 2008.

13 These figures are partially misleading due to exchange rate effects resulting from their conversion from US dollars into euros using current exchange rates.

14 Hyman P. Minsky, Stabilizing an unstable Economy. New York, 1986. Hyman P. Minsky: Can „It" Happen Again? Essays on Instability and Finance. New York, June 1982.

Table 3

Outstanding Securitizations in the US and Europe According to Moody's Rating Categories
In percent[1]

	2011	2010				2009				2008			
	1st Quarter	4th Quarter	3rd Quarter	2nd Quarter	1st Quarter	4th Quarter	3rd Quarter	2nd Quarter	1st Quarter	4th Quarter	3rd Quarter	2nd Quarter	1st Quarter
Europa													
Aaa/AAA	70.2	73.4	72.9	72.9	75.6	78.0	79.6	80.7	81.1	84.3	84.1	85.5	70.2
Aa/AA	11.5	10.6	10.3	11.0	9.8	8.7	8.1	6.9	6.5	5.4	5.8	5.2	11.5
A/A	7.5	5.8	6.5	6.1	5.9	5.0	4.4	4.7	5.6	4.9	4.8	4.4	7.5
Baa/BBB	5.8	5.5	5.3	5.3	3.8	3.6	3.5	4.0	4.2	3.6	3.6	3.9	5.8
Investment grade (Aaa to Baa)	**94.9**	**95.3**	**95.0**	**95.2**	**95.1**	**95.3**	**95.6**	**96.3**	**97.4**	**98.2**	**98.3**	**98.9**	**94.9**
Ba/BB	1.4	1.5	1.7	1.4	1.5	1.4	1.4	1.3	1.2	1.0	1.1	0.8	1.4
B/B	1.0	0.8	0.7	0.8	0.9	0.8	0.8	0.8	0.4	0.2	0.2	0.1	1.0
Caa/CCC	1.4	1.1	1.2	1.2	1.2	1.1	0.9	0.8	0.6	0.3	0.1	0.1	1.4
Ca/CC	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.2	0.1	0.1	0.0	0.8
C/C	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.2	0.2	0.2	0.1	0.1	0.4
Junk Bonds (Ba to C)	**5.1**	**4.7**	**5.0**	**4.8**	**4.9**	**4.7**	**4.4**	**3.7**	**2.6**	**1.8**	**1.7**	**1.1**	**5.1**
Total	100	100	100	100	100	100	100	100	100	100	100	100	100
USA													
Aaa/AAA	30.2	33.7	35.3	33.7	37.8	37.9	41.2	46.2	63.0	70.4	73.7	81.8	30.2
Aa/AA	9.4	9.8	10.3	9.8	10.4	10.1	8.1	7.5	8.7	8.3	7.3	5.4	9.4
A/A	5.7	6.1	6.7	6.1	7.6	7.8	6.9	6.2	6.8	6.6	5.7	3.9	5.7
Baa/BBB	5.7	5.4	6.3	5.4	7.3	7.5	7.6	8.0	7.6	5.1	4.7	4.8	5.7
Investment grade (Aaa to Baa)	**50.9**	**55.0**	**58.5**	**55.0**	**63.1**	**63.3**	**63.7**	**67.9**	**86.0**	**90.4**	**91.3**	**95.9**	**50.9**
Ba/BB	4.2	4.0	5.1	4.0	6.0	6.0	6.7	5.3	3.1	2.4	2.1	1.4	4.2
B/B	7.3	6.1	7.7	6.1	8.5	8.6	8.0	7.2	2.7	2.5	2.7	1.1	7.3
Caa/CCC	16.9	15.4	14.6	15.4	11.2	11.0	9.9	10.3	3.0	1.3	1.6	0.7	16.9
Ca/CC	9.9	9.4	7.3	9.4	5.6	5.6	5.9	4.9	2.6	2.2	1.3	0.5	9.9
C/C	10.7	10.1	6.7	10.1	5.6	5.5	5.8	4.4	2.7	1.3	1.0	0.5	10.7
Junk Bonds (Ba to C)	**49.1**	**45.0**	**41.5**	**45.0**	**36.9**	**36.7**	**36.3**	**32.1**	**14.0**	**9.6**	**8.7**	**4.1**	**49.1**
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

1 1 The distribution is based on current ratings and the original volume of securitizations issued. "Unrated" and "defaulted" securitizations are included. After the slash is the equivalent rating category from Standard & Poor's.

Source: Moody's Investors Service.

In Europe, only about five percent of securitizations are categorized as junk bonds. But in the US they make up almost half.

9.9 billion, first quarter 2011: EUR 31.9 billion), whose credit ratings have recently been downgraded to junk bond status because of high public debt, have actually registered a significant increase in securitizations since the outbreak of the crisis. Apparently, the risk of securitizations is assessed differently among the individual EU member countries.

The distribution of outstanding issuances of securitizations in Europe according to the year of issue shows that there is still a considerable legacy from the years before the Lehman collapse included (Figure 3). However, they diminish in importance in coming years, particularly due to new issuances.

Since the outbreak of the financial crisis, Moody's has not dramatically downgraded the credit rating of securitizations in Europe (Table 3). Considering the sum of all shares with investment grade credit ratings, there is a slight decline in shares from 98.9 percent in the first quarter of 2008 to 94.9 percent in the first quarter of 2011. However, this decline of four percentage points

is extremely moderate against the background of the financial crisis.

US: Significant Old Debt from the Pre-crisis Period

The picture is somewhat different in the US. Here, the proportion of outstanding securitizations with an investment grade rating was still a respectable 95.9 percent in the first quarter of 2001. However, since then this figure has fallen steadily to 50.9 percent in the first quarter of 2011. Looking at outstanding issuance figures for the US in the first quarter of 2011 shows that there is approximately EUR 3.335 trillion of junk bonds present in the US securitization market. This obviously cannot solely be an outcome of the subprime crisis in the securitization market for residential mortgage-backed securities (RMBS).[16] Unfortunately, there is no information about the maturity structure of outstanding securitizations in the US so the share of old debt from the period before the financial crisis cannot be separated from the new issuances afterwards. However, these results at least show that there is still a significant need for revaluations and write-downs in the US securitization market, especially with regard to RMBS.[17]

Evidently, ratings adjustment in both the US and in Europe have fallen significantly (Table 4). In 2008, Moody's made 49,565 downgrades and only 863 upgrades in the US, so after a peak in 2009 with 53,543 downgrades, there was a significant decline in 2010 to 26,483 downgrades. Apparently, however, the rating of securitizations in the US is still very error prone as compared to Europe where there are still too many positive ratings. It has apparently still not been possible to reduce the number of incorrect assessments of securitizations in the US to a comparatively low level as in Europe.[18] Obviously, still more risky papers in the US are securitized. Lower equity requirements and variable interest rates probably are important factors here.

Table 4

Upgrades and Downgrades [1] of Securitizations

	2008	2009	2010	1st Quarter 2011
Fitch				
France	0/14	0/40	1/6	1/8
Germany	17/36	17/404	23/124	11/27
Italy	14/30	14/47	7/41	2/9
Netherlands	27/18	2/28	6/16	1/9
Spain	16/41	6/269	15/141	1/77
UK	83/894	28/630	88/276	9/86
Multinational[2]	27/141	19/790	20/183	8/33
Europe overall	184/1 174	86/2 208	160/787	33/249
US[3]	718/27 675	198/44 183	269/15 753	68/3 882
Moody's				
France	0/2	1/1	0/1	0/0
Germany	2/43	10/59	10/23	0/4
Italy	0/15	2/25	3/7	0/1
Netherlands	0/5	4/42	4/20	1/0
Spain	1/54	2/134	0/53	1/44
UK	16/211	7/342	37/134	0/27
Multinational[4]	79/2 140	53/3 326	103/356	94/42
Europe overall	98/2 470	79/3 929	157/594	96/118
US	863/49 565	590/53 543	1759/26 483	696/8 448
Standard & Poor's				
France	2/18	2/28	2/3	0/2
Germany	18/63	2/206	24/139	11/8
Italy	27/15	20/26	6/40	0/7
Netherlands	6/5	27/32	2/22	0/13
Spain	6/65	15/192	4/135	0/52
UK	65/496	34/1.026	120/518	15/46
Multinational[4]	131/2 990	73/3 592	459/1 806	45/120
Europe overall	255/3 652	173/5 102	617/2 663	71/248
US	581/29 713	363/37 946	662/18 461	818/2 725

1 Upgrades/downgrades. The figures are not comparable due to differences in the rating methodologies of the three rating agencies.
2 Fitch's multinational classification contains Commercial Mortgage Backed Securities (CMBS) emissions in various legal systems, along with rating measures in EMEA countries, notably Austria, Belgium, Greece, Ireland, Portugal, and the Russian Federation. Fitch assigns CDOs to those countries where the majority of bonds originate.
3 Canadian securitizations are probably included here.
4 All emissions with collateral located in several countries, as well as all CDOs denominated in euros are contained in this category.

Sources: Fitch Ratings; Moody's Investors Service; Standard & Poor's.

The number of downgrades outnumbers upgrades many times over.

Europe: Stability Pact Offers Disincentives

In Europe, when the Stability and Growth Pact was introduced in the Eurozone it created incentives for countries with highly indebted national budgets, to use securitizations and other derivatives to reduce their debt and deficit levels due to accounting rules which kept these transactions off-balance from the statistics.

In 2001, Greece therefore set up a future-flow securitization of expected EU transfer payments from EU struc-

16 Robert J. Shiller, The Subprime Solution–How Today's Global Financial Crisis Happened, and What to Do about it. Princeton, 2008.

17 This ought to be the case in particular at now re-nationalized real estate financiers Freddie Mac, Fannie Mae, and Ginnie Mae, which dominate the market for financing residential properties in the US. Further information can be found in the AFME's Securitization Data Report Q1:2011. London, 2011.

18 But rating agency Fitch now expects greater numbers of payment defaults, especially among European commercial mortgage-backed securities (CMBS). Stefan Schaaf, "Fitch warnt vor neuer Verlustwelle – Ratingagentur sieht steigende Ausfallraten bei älteren forderungsbesicherten Wertpapieren," Financial Times Deutschland, August 5, 2011.

tural funds of two billion Euro under the SPV-name Atlas.[19] This securitization was arranged by the French bank BNP Paribas and Deutsche Bank. Its term was seven years, ending in 2008. Only this made it possible for Greece to meet the 3 percent deficit-to-GDP-ratio necessary to enter the Eurozone afterwards.

After these manipulations were disclosed, the rules for calculating public deficits according to the regulations of the Stability and Growth Pact were step by step modified so that such accounting tricks using special derivatives could not longer be used.[20] According to information from Eurostat, none of these financial engineering transactions performed by Greece has so far been fully disclosed to Eurostat.[21] Neither the EU Commission, nor Eurostat, nor participating countries, such as Italy, Greece, and Portugal have ever submitted an official detailed report on their respective activities. It has been the task of the international press and insiders in the financial scene to publish some details.

The focus of securitizations in Europe is underlying mortgage loans from the housing market (Table 5). In addition, collateralized debt obligations (CDOs) are of

19 Kerin Hope, "Banks Face Scrutiny for Greek Securitization," Financial Times, February 16, 2010.
"Greece's biggest securitization deal, through an SPV named Atlas, took place in 2001 when it raised €2bn backed by grants the finance ministry expected to receive from European Union structural funds over the following seven years."

20 European Commission/Eurostat, Eurostat Guidance on accounting rules from EDP–Financial Derivatives. Brussels–Luxembourg, March 13, 2008.

21 Eurostat, Supplementary tables on financial turmoil. Luxembourg, epp.eurostat.ec.europa.eu/portal/page/portal/government_finance_statistics/excessive_deficit/supplementary_tables_financial_turmoil.

Table 5

Securitization Holdings by Country and Collateral Types in Europe
in EUR billions

	4th Quarter 2010							1st Quarter 2011						
	ABS[1]	CDO[2]	CMBS	RMBS	SME[3]	WBS[4]	Total[5]	ABS[1]	CDO[2]	CMBS	RMBS	SME[3]	WBS[4]	Total[5]
Austria	0.2	–	0.2	2.1	–	–	2.5	0.0	–	0.2	2.1	–	–	2.4
Belgium	0.2	–	0.1	61.5	14.6	–	76.4	0.2	–	0.1	60.3	14.6	–	75.1
Finland	–	–	–	4.4	0.1	–	4.6	–	–	–	4.2	0.1	–	4.3
France	18.2	0.0	2.5	11.2	2.7	–	34.6	17.4	0.0	2.5	16.0	2.7	–	38.7
Germany	40.0	2.3	20.1	22.6	12.2	0.1	97.3	32.4	2.3	18.9	21.7	12.1	0.1	87.4
Greece	12.6	2.7	0.3	6.8	12.7	–	35.1	12.5	3.9	0.0	5.7	9.8	–	31.9
Ireland	–	2.8	0.4	68.9	–	–	72.1	–	2.7	0.4	65.5	–	–	68.6
Italy	50.2	5.2	10.3	142.7	4.5	1.4	214.2	49.3	4.9	10.2	132.9	4.3	1.4	203.0
Netherlands	6.7	0.6	8.2	289.0	15.1	–	319.6	6.6	0.5	8.1	289.0	14.9	–	319.1
Portugal	6.9	–	–	41.9	8.5	–	57.3	6.4	–	–	41.8	11.9	–	60.1
Russia	1.3	–	–	2.9	–	–	4.3	1.2	–	–	2.9	–	–	4.1
Spain	19.2	2.1	0.4	190.0	85.7	–	297.4	23.6	2.1	0.4	188.7	86.4	–	301.1
Turkey	4.8	–	–	–	–	–	4.8	4.5	–	–	–	–	–	4.5
UK	41.2	7.0	66.3	453.9	3.6	50.1	622.1	43.7	6.9	67.5	451.7	3.1	52.1	625.0
Others[6]	0.1	1.9	–	0.4	0.4	–	2.8	1.5	1.9	–	0.4	0.4	–	4.2
Pan-Europe[7]	1.0	20.6	32.0	0.2	4.0	0.1	57.9	1.0	19.0	28.2	0.2	4.0	0.1	52.5
Multinational[8]	2.2	185.7	2.6	0.2	1.9	0.9	193.5	1.8	187.4	2.5	0.2	1.4	0.9	194.2
Europe overall	**204.7**	**231.0**	**143.4**	**1 298.8**	**166.2**	**52.5**	**2 096.6**	**202.0**	**231.6**	**139.0**	**1 283.5**	**165.8**	**54.5**	**2 076.3**

1 European Asset Backed Securities (ABS), in particular consisting of credit purchases of automobiles, credit card debt, consumer credit and student loans.
2 Collateralized debt obligations (CDOs) denominated in euros regardless of which European country they come from.
3 CDOs of SMEs have been left out of the overall CDO category.
4 Whole Business Securitization (WBS). Here, the entire revenue streams of an enterprise or operational part are securitized as future income streams.
5 These figures may differ from previously published data due to new allocations, classification changes or additional information.
6 Others includes European countries with outstanding securitizations that are too small to be reported separately. These include for example Georgia, Iceland, Ukraine, Switzerland, and Hungary.
7 Pan-Europe was separated from the multinational category. It includes securitizations published for the whole of Europe.
8 Multinational includes all securitizations that do not originate only from a single law sector, such as a country. In particular, it records almost all Euro-denominated CDOs.

Sources: Bloomberg; AFME; SIFMA.

The majority of securitizations in Europe are on mortgages for private residential property. The main focus is the UK, followed by the Netherlands, Spain, and Italy.

significant importance. The latter cannot clearly be assigned to single countries as other asset classes. This creates a gray area with regard to country-specific risks of the CDO-market adding-up to EUR 187.4 billion in the first quarter of 2011. Such CDOs could e.g. refer to collateralized debt from outstanding tax liabilities which are expected to be paid in the future. CDOs could as well refer to collateral of future income streams (future-flow securitizations), as expected income streams from EU structural funds. It would therefore be highly desirable if the current statistics published by AFME would breakdown the CDOs to private and public securitizations and allocate these to the single EU countries.

Conclusion

As demonstrated by current statistical information on market developments in securitizations in the US and Europe, the market has not declined initially as expected. Although there was a temporary marked decline, the market underwent a remarkable recovery especially in the US afterwards. Furthermore, the transparency of securitizations in terms of creditor and debtor structures has not significantly improved. While we know much more—but still not enough—about the supply side, there is still no sufficient information at all about risks on the buyer side .

The statistical data base still urgently needs a significant improvement. Robust and transparent statistics regarding the financial risk exposure of commercial banks as well a state finances are still unavailable. This may again reinforce the currently worsening situation on the international financial markets.

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SIX QUESTIONS TO GEORG ERBER

»After the Crisis is before the Crisis«

1. The aftereffects of the international financial crisis are still being felt, particularly in the financial sector itself. Securitizations (mortgage debt which is consolidated and then resold) were a primary culprit in precipitating the crisis. Dr. Erber, are these securitizations a thing of the past?
   Far from it! Initially, we actually did believe that this business model would collapse with the US subprime mortgage crisis, but recent figures show a definite recovery of the securitizations market. We saw no significant correction of European portfolios, even after the crisis. This continues to be an attractive business model, particularly for investment banks.

2. In this case, would you say that we have failed to learn lessons from the past?
   That much is quite clear. There has been barely any regulation of the securitizations market. Instead, we have simply relied on the crisis not repeating itself soon. It was assumed that there would be plenty of time for corrections later, which proved to be a misconception.

3. Is there an explanation for this resurgence of securitizations?
   Securitizations offer investment bankers and borrowers the opportunity to refinance more cheaply than with conventional methods. At the same time, creditors, such as large pension funds, also have a great need to regularly include large volumes of high-quality papers in their portfolios.

4. Is there perhaps then the risk of a new real estate bubble or even another financial crisis?
   Yes, there are definitely massive problems in the commercial real estate sector at the moment. Even the rating agencies have started to scrutinize their valuation models. They are obviously concerned about recourse claims against them. As a result, a lot of investment banks, and also German commercial banks, had to withdraw securitizations from the market, which is certainly an unusual step.

5. One of the problems in the past was the opaque nature of securitizations. Has this situation changed?
   Only to a very limited extent. There are no reliable statistics. It is often unclear who actually even holds this paper. It is, after all, tradable and can be resold. Furthermore, the majority of transactions take place within the shadow banking system where special-purpose vehicles, hedge funds, and private equity firms are particularly active. This is evidence that the problem of market transparency remains unresolved.

6. What is the risk if that doesn't happen?
   The crisis could reoccur at any time. It wouldn't have to be triggered by problems in the residential real estate sector as it was the first time round in the USA. The crisis could be repeated in the commercial real estate sector. There are also those governments that have made use of securitizations and then ended up in difficulty. This applies, for example, to European countries in economic crisis such as Greece.

Interview by Karsten Zummack.

Ongoing Change in the Structure of Part-Time Employment

by Karl Brenke

The prominence of part-time employment has dramatically increased both in Germany and across Europe. Germany has experienced above-average growth and currently the prevalence of part-time employment there also exceeds the EU average. Evidently, this involves fundamental structural change as part-time employment has increased regardless of economic trends. Although part-time positions often still entail predominantly low-skilled work, the number of medium-skilled or highly qualified employees working shorter hours has also increased. Part-time employment has expanded into an increasing number of professions and occupations. The fact that the number of men in part-time work has increased particularly dramatically is further evidence of structural change.

Nonetheless, reduced working hours remain unequivocally a woman's domain across the whole of Europe. Although the ratio of men to women in part-time employment in Germany has converged somewhat, the gender gap is still significantly larger than in most other European countries. Significant gender differences are also evident when we examine the reasons for part-time employment, both in Germany and in the EU as a whole: Women's motives are predominantly family-related, whereas men's motives are mainly linked to further vocational training and particularly the shortage of full-time positions. For many women, too, the lack of available jobs is a reason for working part-time as well. In spite of the fact that the employment situation in Germany has improved over the past few years, the number of employed people for whom a part-time job only represents a stopgap solution has leveled off at a substantial two million.

Employment levels in Germany have recently reached new record highs. According to data from the German Microcensus (a regular population survey), employment was 39.7 million in August 2011. This is the highest level ever to be recorded by this survey. Other sources also indicate that employment in Germany is higher than it has ever been.[1] The volume of work, however, has not increased. Last year, for example, although the actual number of jobs was higher than before the most recent crisis, the number of hours worked was, according to data from the national accounts,[2] slightly lower. Also from a longitudinal perspective, there was a downward trend in the number of hours worked: In 2010, this figure was 1.4 percent lower than in 2000, which was a year with an equally strong economy—and actually five percent lower than in 1991. The number of hours worked by each employed person must, therefore, have fallen.

This cannot be the result of collectively agreed cuts in working hours as such cuts have not been made for some time. The introduction of the 35-hour week in some manufacturing sectors was finalized in the mid-'90s. Cuts in working hours in the retail sector ended several years earlier. Rather than a collectively negotiated reduction, the last decade has seen more of a trend

1 Official statistics regularly show two divergent total employment figures drawn from different sources. First, monthly data is published that is taken from official employment statistics from the national accounts. These are based on an aggregate of 48 individual statistics and are partly estimates. The second source of employment statistics is the Microcensus. This is a population survey which captures one percent of all inhabitants. Employment was 39.7 million according to the Microcensus and significantly higher at 41.1 million (resident concept) according to official employment statistics. It is unclear which of these two figures is closer to reality.

2 Working hours used in the national accounts are calculated by the Institute for Employment Research (IAB).

towards an increase in weekly working hours.[3] This is particularly true in the public service sector. The drop in the number of hours per capita can, therefore, only be explained by a growing share of the labor force working part-time.

This paper will outline the development of reduced working hours and describe the structure of part-time employment in more detail.[4] As there are no reliable monthly or quarterly figures differentiating between the full and part-time labor force, annual figures are used that provide only a crude outline of employment trends. The data source for Germany in this case is the Microcensus which has the advantage of providing information on the entire population in part-time employment. As the Microcensus is also part of the European Labour Force Survey, it uses a unified survey program, which means that the information it provides can also be used in international comparisons. This makes it possible to place the development and structure of part-time employment in Germany in a European framework. The study first draws on the EUROSTAT database, which contains Labour Force Survey information (including the Microcensus) for all EU member states as well as for a number of other European countries. Second, it uses the most recent individual data available from the 2008 Microcensus. This data is recent enough to be used for a structural analysis as employment structures do not change fundamentally in the short-term.

There are different legal forms of part-time employment. It can involve self-employment or dependent employment. The latter may include a position in the civil service, regular employment subject to mandatory social security contributions, midi-jobs (part-time position with a salary of over 400 euros subject to mandatory social security contributions) or mini-jobs (salary of less than 400 euros with no social security contributions). The differences between these forms of employment will remain peripheral to this study in order to stay within the scope of the analysis. Any further subclassification also comes up against data problems.

Part-Time Employment on the Rise

In the last decade, employment continued to fall up until 2004 due to the cyclical economic trend (Figure 1). According to the annual figures used here, employment then dramatically increased up until 2008 and then remained static. Employment decreased until the middle of the last decade but only for full-time positions: After a short-lived upturn during a major increase in production, figures have been back on a downward trend since 2008. However, economic conditions do not appear to have had an impact on the development of part-time employment. Constant growth has been observed since 2000—2004 to 2007 saw a rapid increase which was then followed by more gentle growth. The last decade of growth in employment was exclusively the result of a significant expansion in part-time employment—the number of people working part-time increased by a substantial three million to over ten million. Conversely, the number in full-time employment fell by 700,000 in the same period.[5]

The growth in part-time employment is predominantly down to women. However, starting at a very low level in 2000, the number of men in part-time employment increased at a significantly more rapid pace (Figu-

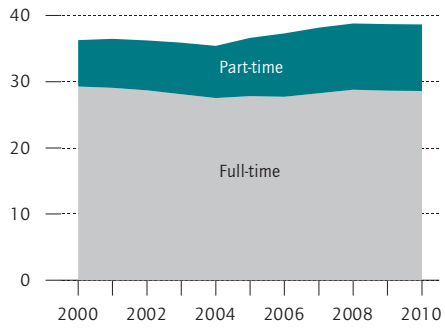
3 In eastern Germany, a number of sectors adjusted to the shorter working week in the western German states. The macroeconomic impact of this was, however, probably marginal. The number of hours worked by those in full-time employment may also have been cut on an individual level but this was probably also of marginal significance.

4 This study only takes the primary occupation into consideration. Part-time employment as a second or additional paid position is ignored.

5 The trend towards part-time employment is also continuing with the current upswing: Although the number of mini-jobs is only increasing slowly, the rate of increase in part-time positions subject to mandatory social security contributions is double that of full-time positions of the same type.

Figure 1

Employment in Germany
In millions

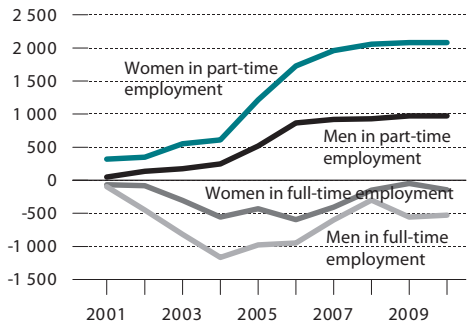


Source: Eurostat

The labor market upswing is the result of an increase in part-time employment.

Figure 2

Employment in Germany by Gender and Working Hours
Change since 2000 in 1,000 people



Source: Eurostat; calculations by DIW Berlin.

The number of men in part-time employment is also on the increase.

re 2). The development of full-time employment among men and women ran largely in parallel; here, women also performed better than men overall, or at least not quite as poorly.

Growth in Part-Time Employment in Germany Exceeds European Average

The trend towards shorter working hours is not an exclusively German phenomenon but can be observed across Europe as a whole. In most countries, the number of persons employed part-time increased much more rapidly than the number of those employed full-time. In some countries, including Germany, full-time employment fell in the period between 2000 and 2010 while part-time employment grew (Table 1). Poland and Romania are exceptions to this development, as well as several small countries. Although the number of people in part-time employment was and continued to be generally much lower than the number in full-time work, approximately half of the growth in overall employment in the EU since 2000 has been down to part-time employment. Also on a pan-European level, growth in part-time employment was predominantly the result of an increase in the number of working women. Beginning at a lower level, the number of men in part-time employment, however, generally increased much more rapidly.

Growth in part-time employment in Germany between 2000 and 2010 was significantly above the international average; this applies to both men and women. The number of men in part-time work in Germany even doubled during this period. Only a small number of other countries, such as Austria or Hungary, experienced similarly dynamic growth.

Table 1

Development of Employment in European Countries from 2000 to 2010
Change from 2000 to 2010 in percent

	Entire labor force			Women			Men		
	Total	Full-time	Part-time	Total	Full-time	Part-time	Total	Full-time	Part-time
Austria	11	0	64	17	–2	55	6	1	118
Belgium	9	4	26	17	12	23	3	0	54
Bulgaria	6	–	–	5	–	–	8	–	–
Cyprus	31	30	39	43	45	28	22	20	61
Czech Republic	4	4	13	2	1	6	7	6	36
Denmark	0	–6	22	2	–4	14	–2	–7	50
Estonia	0	–4	61	5	–1	60	–4	–7	63
Finland	3	1	24	6	2	23	1	–1	27
France	11	10	17	17	19	14	6	5	31
Germany	**7**	**–2**	**43**	**12**	**–1**	**35**	**2**	**–3**	**96**
Greece	7	5	48	16	13	52	2	1	40
Hungary	–1	–3	61	3	0	56	–3	–5	83
Ireland	10	3	47	26	19	42	–1	–5	63
Italy	9	2	86	20	3	101	3	1	46
Latvia	0	1	–11	7	7	1	–6	–4	–25
Lithuania	–5	–4	–16	–2	–1	–10	–8	–7	–23
Luxembourg	22	13	92	34	16	85	13	11	145
Malta	15	7	120	29	12	136	8	6	85
Netherlands	6	–7	26	14	–9	24	1	–7	32
Poland	10	13	–13	10	12	–3	10	13	–26
Portugal	–1	–1	3	3	5	–6	–4	–6	25
Romania	–13	–8	–39	–17	–11	–47	–9	–6	–29
Slovakia	11	9	132	8	5	104	14	12	219
Slovenia	8	2	104	7	–1	109	9	4	96
Spain	20	13	96	44	33	96	5	3	98
Sweden	10	5	28	8	1	21	12	8	46
UK	6	4	13	8	10	5	5	1	46
EU-27	**7**	**4**	**26**	**12**	**8**	**23**	**3**	**1**	**36**
Norway	10	7	20	11	12	11	9	4	50
Switzerland	10	3	28	15	2	25	7	3	42
Schweiz	10	2	27	15	1	24	7	3	42

Sources: Eurostat; calculations by DIW Berlin.

Stronger growth in part-time employment than in full-time employment.

Part-Time Work Remains the Preserve of Women

Nevertheless, part-time employment remains very much the preserve of women. In all European countries, part-time employment is more common among women than

men. In the EU in 2010, almost one in three women were in a part-time job (Table 2). In Germany, part-time employment rates among women are far higher (45 percent) with only the Netherlands and Switzerland having a higher share of women in part-time work. The situation is different for men: With just ten percent of all employed men working part-time, Germany is just slightly above the EU average. Although the disparity between the part-time employment rates of men and women in Germany has shrunk considerably, even recently the gap was larger than in almost any other country. In 2010, the part-time employment rate was 4.7 times greater among women (2000: 7.6 times) than among men; as a weighted average of EU member states, this figure was 3.7 (2000: 4.4). Only in Italy, Austria, and Luxembourg is the gender gap greater and in Belgium it is the same. Conversely, in the former Eastern bloc countries where part-time employment is generally not widespread and women have traditionally worked full-time, the gender gap is marginal.

Table 2

Part-Time Employment in European Countries
Percentage of total employment

	Total		Women		Men		Percentage of total employment	
	2000	2010	2000	2010	2000	2010	2000	2010
Netherlands	41	49	71	77	19	25	3.7	3.0
Switzerland	31	35	56	61	11	14	5.1	4.3
Norway	26	28	43	43	11	15	3.9	2.8
UK	25	27	44	43	9	13	4.9	3.4
Denmark	22	27	35	39	10	15	3.5	2.6
Sweden	23	26	36	40	11	14	3.4	2.9
Germany	**19**	**26**	**38**	**45**	**5**	**10**	**7.6**	**4.6**
Austria	17	25	33	44	4	9	7.7	4.9
Belgium	21	24	40	42	6	9	6.8	4.7
Iceland	28	23	47	35	12	12	3.9	2.9
Ireland	17	22	31	35	7	12	4.3	2.9
EU-27	**16**	**19**	**29**	**32**	**7**	**9**	**4.4**	**3.7**
Luxembourg	11	18	26	36	2	4	14.4	9.0
France	17	18	31	30	5	7	5.7	4.5
Italy	9	15	17	29	4	6	4.5	5.3
Finland	12	15	17	20	8	10	2.1	2.0
Spain	8	13	17	23	3	5	5.9	4.3
Malta	7	13	14	25	3	6	4.0	4.2
Turkey	–	12	–	24	–	7	–	3.4
Portugal	11	12	17	16	6	8	2.7	1.9
Slovenia	6	11	8	15	5	9	1.6	1.7
Estonia	7	11	10	15	4	7	2.3	2.0
Romania	16	11	19	11	14	11	1.3	1.1
Latvia	11	10	12	11	10	8	1.3	1.5
Croatia	–	10	–	13	–	7	–	1.7
Cyprus	8	9	14	13	5	7	3.1	2.0
Poland	11	8	13	12	8	6	1.6	2.0
Lithuania	9	8	10	9	8	7	1.3	1.4
Greece	5	6	8	10	3	4	3.0	2.8
Czech Republic	5	6	10	10	2	3	4.3	3.4
Macedonia	–	6	–	7	–	5	–	1.5
Hungary	4	6	5	8	2	4	2.5	2.1
Slovakia	2	4	3	5	1	3	2.9	1.9
Bulgaria	–	2	–	3	–	2	–	1.2

Sources: Eurostat; calculations by DIW Berlin.

Women continue to dominate part-time work.

Higher Incidence of Part-Time Employment among Older Workers

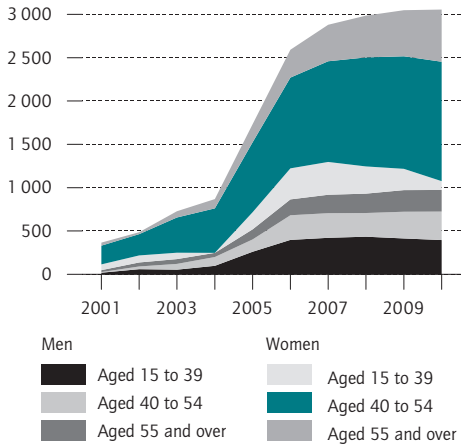
Alongside gender, age also plays a decisive role. Part-time employment is particularly common among those over the age of 55: A seventh of all men and half of all women in this age group work part-time (Table 3). Among middle-aged women (aged 40 to 54), part-time employment rates are barely any lower but only a small minority of men in this age group hold part-time positions. The incidence of part-time employment is lowest among women under the age of 40, whereas it is more common for young men from this age group to work part-time than middle-aged men. A similar pattern can be observed across the EU.

Overall, part-time employment has increased in all age groups, albeit to differing extents among women and men. The number of men in all age groups working reduced hours has increased since 2000 (Figure 3)—and, in fact, growth has been more rapid than among women in each case. Significant increases were only observed among women in the over 40 age group. From 2000 to 2010, younger women barely contributed to the growth in part-time employment. In this process, the change in the age structure of the labor force (a shift to middle-aged and older workers) should be taken into consideration. There has also been an overall increase in employment in both these groups. In contrast, there has been a drop in employment in the under-40 age group. However, there was an increase in part-time employment among men in this group due to the dramatic overall increase in the part-time employment rate. Among women under the age of 40, however, the increase in the part-time employment rate was just about sufficient to compensate for the drop in overall employment which resulted in the number of persons in part-time employment remaining more or less stable.

Thus, in the last decade, Germany experienced a change in the structure of part-time employment: Women clearly continue to dominate but the share of men increased from a seventh to a fifth (Figure 4). There was also a clear decline in the significance of younger people. The same structural changes were observed across the

Figure 3

Part-Time Employment in Germany by Gender and Age Group
Change since 2000 in 1,000 people

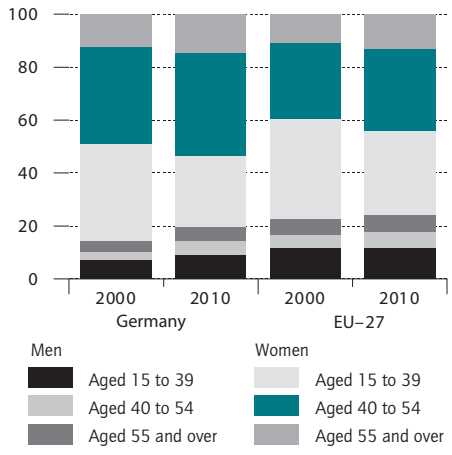


Sources: Eurostat; calculations by DIW Berlin.

Only younger women do not contribute to the growth in part-time employment.

Figure 4

Structure of Part-Time Employment in Germany and in the EU Overall
Share in percent



Sources: Eurostat; calculations by DIW Berlin.

The structure of part-time employment has shifted somewhat towards men and older employees.

Table 3

Part-Time Employment in Germany and in the EU Overall by Gender and Age
Percentage of total employment

	Part-time employment rate			Age structure of total working population		
	2000	2005	2010	2000	2005	2010
Germany						
Men						
Aged 15 to 39	5	9	11	50	46	41
Aged 40 to 54	3	4	6	36	40	42
Aged 55 and over	10	14	15	14	14	17
Total	**5**	**8**	**10**	**100**	**100**	**100**
Women						
Aged 15 to 39	32	36	36	52	46	41
Aged 40 to 54	43	49	52	38	42	43
Aged 55 and over	50	53	53	11	12	16
Total	**38**	**43**	**45**	**100**	**100**	**100**
EU-27						
Men						
Aged 15 to 39	7	8	9	51	49	46
Aged 40 to 54	4	4	5	37	37	39
Aged 55 and over	14	14	15	12	13	15
Total	**7**	**7**	**9**	**100**	**100**	**100**
Women						
Aged 15 to 39	27	29	29	52	49	46
Aged 40 to 54	29	31	32	38	39	40
Aged 55 and over	41	40	40	10	12	14
Total	**29**	**31**	**32**	**100**	**100**	**100**

Sources: Eurostat; calculations by DIW Berlin.

Part-time employment is particularly common among those over the age of 55.

EU as a whole although the changes in other countries were less pronounced than in Germany.

Those in Part-Time Employment Comparatively Less Qualified

There is an above-average incidence of low-skilled jobs requiring only a low level of qualifications in the part-time labor market. This applies not only to Germany but to Europe as a whole. Classification according to ISCED 1997 (International Standard Classification of Education) is normally used for international comparisons of the qualification of employees. ISCED levels 5 and 6 include those who have successfully completed a doctorate, university studies, master craftsman training, or a tertiary-level technical vocational course. ISCED 3 and 4 encompass those who have obtained another vocational qualification, or general or specialized university entrance qualification; those in the levels below have no qualifications of this kind. In almost all countries—with the exception of Switzerland—the lower the level

of qualification, the higher the incidence of part-time employment (Table 4). This applies to women and men alike. In Germany, a third of all those with a lower level of education (up to ISCED 2) who were in employment had a part-time job in 2010, while for those with a higher level of education (ISCED 5 and 6) the share was just under a fifth. Over half of the women with lower qualifications worked part-time, while this was the case for a good third of women with higher qualifications. Because of the lower rate of part-time employment, the corresponding shares for men are much lower; highly qualified men rarely work part-time.

In the last decade, part-time employment grew in Germany and in the EU as a whole at all levels of qualification (Table 5). Consequently, part-time work gained in importance for all professions. Among persons in part-time employment, the emphasis has shifted towards those with an intermediate or higher education. However, this is not because the rate of part-time employment for persons with an intermediate or higher education increased more dramatically than for those with lower qualifications. Indeed, this is not in fact the case; in Germany part-time employment showed particularly strong growth among those with lower qualifications. Rather, it has become apparent that there has been a general increase in the level of qualification: The number of people with ISCED level 3 or above has risen and, conversely, the group of employed people without qualifications has shrunk. This applies to Europe as a whole, including Germany.

Further information is provided by the individual data from the German Microcensus for 2008. According to this, almost half of those without professional qualifications who were in employment in Germany were employed part-time; for those with a university degree, this figure was one fifth (Table 6). Accordingly, low-skilled jobs, particularly non-manual, i.e., menial service sector jobs, are more likely to be part-time positions. Of the

Table 4

Part-Time Employment in European Countries by Education 2010
Percentage of total employment

	Total			Women			Men		
	low[1]	interme-diate[2]	high[3]	low[1]	interme-diate[2]	high[3]	low[1]	interme-diate[2]	high[3]
Austria	29	25	21	45	46	35	12	8	10
Belgium	30	25	20	56	49	32	14	8	7
Bulgaria	6	2	1	7	3	1	5	2	–
Cyprus	**13**	**8**	**7**	**18**	**13**	**9**	**9**	**5**	**4**
Czech Republic	10	5	7	13	9	11	6	2	4
Denmark	40	24	19	54	39	28	28	12	9
Estonia	14	11	11	–	16	12	–	6	8
Finland	25	15	11	34	22	13	18	9	7
France	23	17	15	39	31	24	8	6	6
Germany	33	28	19	52	48	35	15	9	8
Greece	8	6	4	15	10	6	5	4	2
Hungary	10	6	4	12	8	6	8	4	3
Ireland	31	26	15	58	42	23	17	13	7
Italy	15	16	13	36	29	19	5	5	6
Latvia	14	10	8	18	12	10	12	8	6
Lithuania	20	9	5	27	11	6	16	7	4
Luxembourg	24	20	13	45	41	25	5	3	4
Malta	13	12	9	31	26	14	6	–	–
Netherlands	54	50	42	85	80	65	32	23	23
Poland	19	8	6	26	12	7	15	5	4
Portugal	13	5	7	20	6	7	8	4	6
Romania	26	7	1	28	7	–	25	7	1
Slovakia	26	3	2	29	5	3	23	2	2
Slovenia	21	11	7	26	15	9	16	8	5
Spain	15	14	11	31	24	17	5	6	5
Sweden	36	25	24	54	43	32	21	12	14
UK	33	28	22	54	47	34	14	13	11
EU-27	**23**	**19**	**16**	**40**	**33**	**24**	**11**	**8**	**8**
Iceland	29	22	17	42	40	24	17	9	8
Norway	39	29	22	57	49	30	23	14	12
Switzerland	31	39	32	50	65	59	10	13	16
Croatia	27	6	3	35	8	3	19	5	3
Macedonia	11	4	4	17	5	3	8	4	4
Turkey	15	5	5	32	10	8	8	3	4

1 Level of education according to ISCED: 0 to 2.
2 Level of education according to ISCED: 3 to 4.
3 Level of education according to ISCED: 5 to 6.

Sources: Eurostat; calculations by DIW Berlin.

The part-time employment rate is higher among occupational groups with lower qualifications.

Table 5

Part-Time Quotas and Structure of Part-Time Employment According to Education
In percent

	Germany		EU-27	
	2000	2010	2000	2010
Share of part-time employment in total employment				
Low level of education[1]	22	33	19	23
Intermediate level of education[2]	21	28	15	19
High level of education[3]	14	19	13	16
Share of all part-time employment				
Low level of education[1]	20	17	36	27
Intermediate level of education[2]	62	62	46	49
High level of education[3]	18	20	18	24

1 ISCED levels 0 to 2.
2 ISCED levels 3 to 4.
3 ISCED levels 5 to 6.

Sources: Eurostat; calculations by DIW Berlin.

The part-time rate is growing in all professional groups.

part-time jobs, in addition to low-skilled work, many are also positions in the service sector requiring a medium level of skills. It is predominantly women who hold these service sector positions. Conversely, skilled manual work normally carried out by qualified workers and highly skilled jobs account for only a small share of part-time employment.

Part-time Work Often in Form of Mini-Jobs

Types of employment can be further categorized according to their legal status. On the basis of the Microcensus, it is possible to distinguish persons with a mini-job from those in part-time employment with a different status—that is, the self-employed, civil servants, or employees paying mandatory social security contributions (including those with a midi-job). There are also those in part-time employment with a One-Euro Job (paying one to two euros per hour without affecting entitlement to social security benefits).[6] Their share of all part-time workers is well below one percent, however, and therefore relatively insignificant.

A good third of all those employed part-time in 2008 held a mini-job. Men, people in low-skilled jobs, and those without vocational training make up a particularly large share of mini-jobbers. In all these groups, mini-jobbers make up around half of all those in part-time employment.

Moreover, people with a mini-job are particularly common among those in part-time employment who were unemployed[7] prior to taking this position, or not at all present on the labor market (for example, because they had taken a career break, or this was their first job). Many people in this group and those who were previously unemployed tend to hold part-time positions in general and not necessarily mini-jobs in particular. It is clear that entry into the labor market is frequently via part-time work. Nevertheless, the vast majority of part-time employees have moved into their current positions from another job, i.e., they were already gainfully employed previously.

It is not only employees who work on a part-time basis, but also the self-employed and relatives helping with a family business. One in five of these have a part-time position as their main job; as regards the self-employed without any employees, it is as many as one in four. This share is barely lower than for part-time workers among employees.

Table 6

Part-Time Rates, Structure of Part-Time Employment and Share of Mini-Jobbers[1] in Germany 2008
Shares in percent

	Persons in part-time employment	Structure of part-time employment	Mini-jobbers[2]
Gender			
Men	11	21	47
Women	48	79	32
Employment status			
Self-employed or helping with the family business	22	10	–
Employees	29	90	–
Occupation			
Low-skilled manual work	31	21	55
Skilled manual work	12	8	41
Low-skilled non-manual work	48	22	44
Skilled non-manual work	31	43	22
Professions, engineers, managers	15	6	15
Education			
Without vocational training	46	25	52
Apprenticeship, technical college	26	62	32
University of applied sciences or other university	20	13	18
Previous employment status			
Employed	25	82	29
Unemployed	54	5	58
Not in the labor market	75	13	62
Total	**28**	**100**	**35**

1 Not including trainees or those carrying out alternative civilian service or military service.
2 In relation to all those in part-time employment.

Sources: Microcensus 2008, calculations by DIW Berlin.

Those with low-skilled jobs in the service sector are more likely to work part-time.

Part-Time Work Mainly for Personal Reasons But Often Also Due to Lack of Full-Time Positions

There are various reasons why people might work part-time instead of full-time. Personal motives or family circumstances may play a crucial role. However, the decisive factor may also be the situation on the labor market, something the individual has no control over. Overall, personal and family reasons are at the forefront. Almost one quarter of people in part-time employment in Germany indicate that they work part-time to allow them to look after children or adult dependents in need of care.

6 One-Euro Jobs are a measure to activate unemployed and to integrate them in the labour market.

7 It is entirely possible that even those who are registered unemployed have a part-time job. Although the Microcensus does not provide data on this group, their number is likely to be significant.

Table 7

Motives for Working Part-Time in European Countries in 2010

Percentage of all those in part-time employment in the respective countries

	Unable to find a full-time position	Illness, disability	Caring for children or other dependents	Other family reasons	Education, vocational training	Other reasons
Total working population						
EU-27	27	4	23	14	10	22
including:						
Austria	12	3	33	17	11	25
Belgium	11	5	16	32	3	34
Czech Republic	**16**	**18**	**20**	**9**	**14**	**23**
Denmark	15	9	3	31	37	5
France	32	6	29	15	1	17
Germany	22	3	24	20	10	22
Hungary	35	19	9	2	5	30
Italy	50	2	22	6	4	16
Netherlands	6	4	32	4	22	31
Poland	22	8	8	4	11	48
Portugal	43	9	4	24	5	15
Spain	49	2	15	7	8	19
Sweden	28	11	18	15	12	16
UK	16	2	34	19	14	16
Norway	18	14	14	11	25	18
Switzerland	7	4	19	28	10	32
Turkey	9	3	5	4	5	75
Women						
EU-27	24	3	28	16	7	21
including:						
Austria	10	2	39	18	8	23
Belgium	11	4	18	33	2	32
Czech Republic	**17**	**14**	**26**	**10**	**10**	**22**
Denmark	16	8	4	37	31	5
France	31	5	34	16	1	14
Germany	19	2	28	23	7	22
Hungary	33	17	14	3	4	29
Italy	47	1	28	7	3	14
Netherlands	5	3	40	6	16	30
Poland	22	5	11	4	9	49
Portugal	45	7	5	26	4	13
Spain	48	1	18	9	6	18
Sweden	27	10	22	16	10	15
UK	12	1	42	19	10	17
Norway	19	14	18	13	20	17
Switzerland	7	3	23	32	7	30
Turkey	5	2	9	5	3	76
Men						
EU-27	36	7	4	7	20	25
including:						
Austria	18	5	5	13	28	32
Belgium	15	7	4	26	7	40
Czech Republic	**11**	**30**	**1**	**5**	**26**	**25**
Denmark	15	11	0	16	52	7
France	36	10	6	12	3	33
Germany	38	7	4	4	27	20
Hungary	39	22	-	-	7	30
Italy	65	3	1	2	7	22
Netherlands	8	6	10	1	42	33
Poland	23	13	1	2	16	46
Portugal	40	13	1	20	8	19
Spain	55	2	1	1	18	23
Sweden	29	14	7	13	18	19
UK	32	4	7	17	27	14
Norway	13	17	2	6	41	21
Switzerland	10	8	6	13	23	41
Turkey	14	3	0	2	8	73

Sources: Eurostat; calculations by DIW Berlin.

People choose to work part-time mainly for personal reasons.

One tenth cite education and one fifth other personal reasons (Table 7). Nevertheless, around 20 percent of those in part-time employment work part-time because they are unable to find a full-time position.

In the whole of the EU, the reasons for working part-time follow similar distribution patterns. However, there are significant differences between the different countries. For instance, in the Netherlands, Austria, or the United Kingdom, childcare is a more prominent motive than in Germany, while in other countries—Scandinavia as well as the Netherlands—further vocational training plays a more important role. A poor employment situation often forces people to resign themselves to a part-time job, particularly in Southern European countries. There is a significant gender gap when it comes to reasons for working part-time. Throughout Europe, women work part-time for family reasons much more frequently than men. Conversely, men far more frequently work shorter hours because of training courses or a lack of jobs. Particularly in Southern Europe, the shortage of full-time jobs has also forced many women to take on part-time jobs.

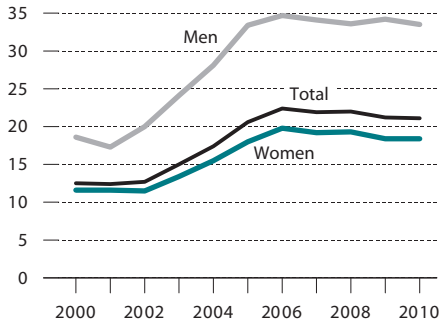
In Germany, the share of persons who are only working reduced hours because they cannot find a full-time position is no higher than the European average but by no means insignificant. Nevertheless, this was the case in 2010 for over two million people in part-time employment. Involuntary part-time work became more widespread from 2001 to 2006—that is, at a time when full-time work declined for economic reasons, or at best stagnated (Figure 5). Another factor was that the mini-job reform took place during this period, making this type of employment contract more attractive for employers. Consequently, more of these employment contracts were also offered. It cannot be ruled out that full-time positions were also replaced by mini-jobs. Remarkably, the number of people taking involuntary part-time employment for labor market reasons has remained virtually unchanged since 2006 and the absolute number has even risen. This is because the situation on the labor market improved considerably after 2006, and up until the most recent crisis the number of full-time positions also increased.

This cannot be explained by formal qualifications alone because the differences between well qualified and less qualified with respect to involuntary part-time work are negligible (Table 8). A more important role is played by the specific profession. This is indicated by the fact that above all people with both low-skilled and skilled manual work are affected. In addition, three quarters of them have (partly academic) vocational training. They may find it difficult to find a full-time job using their relevant professional skills.

Figure 5

Part-Time Workers Who Have Not Found Full-Time Employment (Germany)

Share of all part-time workers in percent



Source: Eurostat.

One part-time worker in five would rather work full-time.

Table 8

Persons[1] Unable to Find a Full-Time Job (Germany, 2008)

Share of all part-time workers in percent

Occupation	
Low-skilled manual work	29
Skilled manual work	27
Low-skilled non-manual work	25
Skilled non-manual work	16
Professions, engineers, managers	12
Education	
Without vocational training	21
Apprenticeship, technical college	22
University of applied sciences or other university	18
Form of part-time work	
Not mini-job	20
Mini-job	23
Total	**21**

1 Not including trainees or those carrying out alternative civilian service or military service.
Sources: 2008 German Microcensus; calculations by DIW Berlin.

Involuntary part-time work is not dependent on professional qualifications.

Table 9

Part-Time Workers[1] in 2008 Who Would Prefer to Work Longer or Shorter Hours

	Share of all those in part-time employment	Standard weekly working hours to date	Preferred weekly working hours
	In percent	No. of hours	
Part-time workers who would like to extend their working hours			
Persons without a mini-job	26	21.2	34.9
Mini-jobbers[2]	32	13.1	31.3
Total part-time employees	28	18.1	33.6
Part-time workers who would like to reduce their working hours			
Persons without a mini-job	2	23.3	15.9
Mini-jobbers[2]	1	20.8	13.2
Total part-time employees	1	22.8	15.3

1 Not including trainees or those carrying out alternative civilian service or military service.
2 Not including those with Oone-Eeuro jobs.

Sources: 2008 German Microcensus; calculations by DIW Berlin.

Part-time workers want to work longer rather than shorter hours.

Not only those in part-time employment who would like a full-time position would prefer to work longer hours. Some part-time workers are considering working just a few more hours. Overall, a good quarter of those in part-time employment in 2008 wanted to work longer hours; among mini-jobbers, the share was almost a third (Table 9). On average, people's preferred working hours are considerably longer than the actual ones. This is primarily because they often have their sights set on a full-time job. Only a very small share of those in part-time employment wants to work fewer hours.

Conclusion

Part-time employment is becoming ever more widespread—this applies not only to Germany but to all European countries. In Germany, however, growth was particularly strong in the last decade, although growth in employment overall was below the European average. It is also striking that in Germany the development of part-time work—unlike that of full-time work—does not appear to be influenced to any large extent by economic trends. This suggests a robust structural change on the labor market. This is also evidenced by the fact that part-time work is increasingly being carried out by medium-skilled or highly qualified employees. Moreover, growth in part-time employment for men is above average. All these factors are indicators that part-time employment is becoming increasingly prevalent across various professions and occupations. Undoubtedly, the sectoral transition to the service industry has contributed considerably to the rise in part-time employment—to what extent this is true could be the subject of further analysis in the light of most recent developments.

Nevertheless, part-time work continues to be carried out essentially by women. Although the gender gap regarding the incidence of part-time employment has shrunk in Germany, it still exceeds the European average. Because of changes in the age structure of the labor force, part-time employment has shifted towards older employees. However, this only applies to women. There is a big gender gap when it comes to the reasons behind taking part-time employment. Throughout Europe, women work reduced hours for family reasons. In contrast, men's reasons are mainly linked to further vocational training, and sometimes also health restrictions. Frequently, a part-time job is also only taken because of a lack of available full-time positions. In the EU as a whole, as in Germany, this is the motive for over a third of men who are working reduced hours. For women, too, this is often the reason behind part-time employment.

Therefore, the rise in part-time work does not meet the needs of a considerable share of those in employment. This applies to a total of two million employees in Germany. This problem is generally connected with economic trends and labor demand. It is not the only explanation, however, at times when employment as a whole expanded in Germany, the number of people working part-time involuntarily for labor market reasons did not fall. Consequently, there must be a mismatch between labor supply and demand with regard to various factors—for instance, vocational qualifications and indeed also working hours. A discrepancy between the actual and preferred working hours can also be observed among those in full-time employment, but it is much rarer than among part-time workers.[8]

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8 According to the findings of the 2008 German Microcensus, only five percent of full-time employees wanted to reduce their working hours, while a somewhat greater share wanted to work longer hours.

Social and Economic Characteristics of Financial and Blood Donors in Germany

by Eckhard Priller and Jürgen Schupp

Surveys of the German Socio-Economic Panel Study (SOEP) have shown that Germans donated around 5.3 billion euros in 2009—right in the middle of the financial and economic crisis. The type and amount of donations made is well documented in Germany. However, until recently, there was very little information available on the identity of Germans who share their income with people in need. A new survey in the long-term SOEP study has now made it possible to collect this information systematically for the first time and to investigate questions such as: Which social groups do people who make donations belong to? Does a high income increase the willingness to donate money? Do education and age play a role? Do people who are happy donate more? Do the same motives apply for giving money as, for example, giving blood? In order to find answers to these questions, existing data sources on the Germans' willingness to give were analyzed, verified and matched with SOEP data for the first time. The results are conclusive: Women donate more than men, older people more than younger people. This only applies to donating money, however. As regards giving blood, social and financial differences are of much less importance. Here almost all social groups and classes donate as much—albeit much less frequently. While almost 40 percent of all Germans donated money in 2009, only seven percent gave blood.

Donating as a Form of Prosocial Action

A donation is a voluntary and unremunerated transfer of money, services or other things for charitable purposes. Since the donor does not receive anything equivalent in return for this action, donating is normally referred to in the social sciences as a specific form of prosocial action as opposed to purely selfish actions.[1] In economic theory, the prevalent belief for many years was that human beings are only interested in their own well-being and always behave selfishly. In this simple economic textbook model, prosocial behavior seems to be irrational.[2]

Several surveys, studies and experiments[3] have now proven, however, that the majority of the population is prepared to take colleagues and other people into consideration, to offer them support and to help them. A growing number of studies also show that prosocial behavior has greater benefits not only for the individual[4] but also for general social development.[5]

1 For an overview, see Jörg Rössel, "Spenden und prosoziales Handel," Adloff, Frank et al., eds., Prosoziales Verhalten—Spenden in interdisziplinärer Perspektive. (Stuttgart: Lucius & Lucius, 2010), 213-224.

2 However, economists have also been dealing increasingly systematically with the "economy of giving" and the "market of donations" for some time now. See James Andreoni, "Philanthropy," Serge-Christophe Kolm and Jean Mercier Ythier, eds., Handbook of the Economics of Giving, Altruism and Reciprocity, Vol. 2, (Amsterdam: Elsevier, 2006), 1202-1269 and John A. List,: "The Market for Charitable Giving," Journal of Economic Perspectives, 25(2), (2011): 157-180.

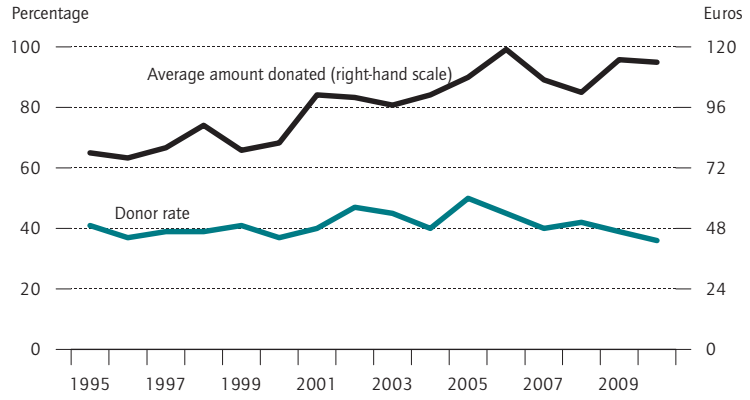
3 See Ernst Fehr and Urs Fischbacher "The Nature of Human Altruism," Nature, Vol. 425, (2003): 785-791.

4 Psychologists in particular focus on the question whether helping and donating ultimately frequently results from selfish motives; for an overview, see Kai J. Jonas, "Psychologische Determinanten des Spendenverhaltens," Adloff, Frank et al., eds., Prosoziales Verhalten—Spenden in interdisziplinärer Perspektive (Stuttgart: Lucius & Lucius, 2010), 193-212.

5 See Martin A. Nowak, "Five Rules for the Evolution of Cooperation," Science, Vol. 314, (2006): 1560-1563.

Figure 1

Change in the Donor Rate and the Amount Donated in Germany



Database: Emnid-Spendenmonitor 1995 to 2010.

Willingness to donate is consistently high in Germany.

Table 1

Donor Rates, Average Amounts and Volume of Donations in Germany, 2009

	Donation rate	No. of donors	Amount donated	Volume of donations
	In percent	In 1,000s of persons	In euros per donor	In billion euros
Total	39.6	26555	201	5.3
Lower estimate[1]	38.0	25223	178	4.5
Higher estimate[1]	41.0	27215	224	6.1

1 With a statistical error of one percent probability of error.
Source: SOEP V27 (in advance).

Almost 40 percent of adults donated a total of over five billion euros in 2009.

Donations in Germany—Data Availability

Various surveys on the subject of donating have been carried out in Germany. They vary with respect to availability, significance and reliability, as well as quality of data.[6] Due to the different types of surveys and classifications, however, many data sets from survey research are only comparable to a very limited extent.[7]

What most surveys have in common is that they concentrate on recording financial donations for charitable organizations, taking into consideration individual donation activities and amount donated but very few social characteristics of the donor. Sometimes, in addition to financial donations, material and other types of donations are also surveyed.[8] Although the databases of the German Central Institute for Social Issues (DZI)[9] allow us to carry out a variety of analyses on the amounts donated to recognized organizations bearing the institute's label, it is virtually impossible to draw any conclusions about the donors and their social structure on this basis.

Donation Survey in the SOEP

In the long-term SOEP study, with data collected by DIW Berlin in cooperation with the social research institute TNS Infratest Sozialforschung, 40 percent of German citizens stated that they had donated money in 2009. This is almost identical to the donation monitor Emnid-Spendenmonitor[10] recording the average of the past 15 years[11] (see Fig. 1). Exceptions in the Emnid-Monitor are the years 2002/2003 and 2005/2006, when the willingness among the population to donate was higher because of the Elbe flooding and the tsunami catastrophe, respectively.

Taking the per capita donations of 200 euros per year observed in the SOEP as a basis for a realistic average value for an extrapolation, the total population gave a total volume of donations of around 5.3 billion euros[12] for 2009 (see Table 1). Hence, the SOEP results show that the amount donated and national volumes of donations are considerably higher than the figures given by the Emnid-Spendenmonitor. The latter indicates an

6 See Eckhard Priller and Jana Sommerfeld "Spenden und ihre Erfassung in Deutschland," Eckhard Priller and Jana Sommerfeld, eds., Spenden in Deutschland. Analysen, Konzepte, Perspektiven. (Berlin: LIT Verlag, 2010), 5-74.

7 For more details, see Eckhard Priller and Jürgen Schupp: "Empirische Sondierung," Frank Adloff et al., eds., Prosoziales Verhalten—Spenden in interdisziplinärer Perspektive. (Stuttgart: Lucius & Lucius, 2010), 41-63.

8 Such as the subject of organ donation, which it was not possible to consider in the main 2010 SOEP survey due to time constraints; see also Mohn, Carel und Jürgen Schupp "Organspenden—ökonomisch betrachtet," Der Tagesspiegel, August 29, 2010.

9 This organization also publishes information on around 250 organizations that bear the DZI label.

10 See http://www.tns-infratest.com/branchen_und_maerkte/socialmarketing.asp for information on the donation monitor.

11 See Priller and Schupp, "Empirische Sondierung."

12 The lower estimate is 4.5 billion euros due to statistical random errors in the SOEP sample and the upper estimated value 6.1 billion euros.

Box

On Measuring Donations in the SOEP

Within the framework of the long-term German Socio-Economic Panel Study (SOEP), data on the social and economic situation of private households in Germany have been collected since 1984 for West Germany and since 1990 for the former East Germany. The survey is conducted annually by the survey institute TNS Infratest Sozialforschung in Munich on behalf of DIW Berlin.[1]

In the survey year 2010, following extensive preliminary studies,[2] a focus on consumer and saving behavior was introduced. This module also includes questions about donating money and giving blood in the SOEP for the first time.[3]

This allows us, inter alia, to make differentiated observations according to earnings and demographic factors, which has only been possible to a certain extent with other studies on the subject of donating.[4] Including data on blood donation behavior means the evaluation is not only restricted to financial donations. It makes it possible to investigate whether there is a general distinction between donation behavior in an area other than that of monetary donations. The contribution focuses on the indicators willingness to donate, financial amount donated per donor and their correlation to socio-structural characteristics of the donors. The analyses included data on 16,963 adults from 9,600 households, surveyed in spring 2010.[5] They were asked: *And now a question about your donations. We understand donations here as giving money for social, church, cultural, community, and charitable aims, without receiving any direct compensation in return. These donations can be large sums of money but also smaller sums, for example, the change one puts into a collection box. We also count church offerings. Did you donate money last year, in 2009 – not counting membership fees?*

The possible responses are Yes or No.

Those who responded Yes were asked a supplementary question: *How high was the total sum of money that you donated last year?*

Then, two questions about giving blood were asked: *There are also donations of a non-financial nature, for example, blood donations. Have you donated blood in the last 10 years?*

The possible responses are Yes or No.

Those who responded Yes were asked a supplementary question: *Did you donate blood at least once last year, that is, in 2009?*

As regards the multivariate analyses, the simultaneous estimation of various factors impacting on donation behavior was carried out using logistic regression models. Robust standard error estimates were calculated (according to Huber-White) with households as clusters. The influence of the explanatory variables is reflected in the coefficients presented as marginal effects.[6] These can be interpreted as changes in percentage points. For example, the gender effect of –0.025 indicates that, controlling for all other influences, willingness to donate among men is around two percentage points lower than for women (the relevant reference group is in brackets). However, the age effect of 0.006 is to be interpreted as meaning that willingness to donate increases by 0.6 percentage points with each additional (marginal) year.

1 The SOEP is part of the research infrastructure in Germany and is funded at national and regional level under the auspices of the Leibniz Association (WGL). See Gert G. Wagner, Joachim R. Frick, and Jürgen Schupp, "The German Socio-Economic Panel Study (SOEP) – Scope, Evolution and Enhancement," Schmollers Jahrbuch, Vol. 127(1), (2007), 139-169.

2 See also Simon Huber, Nico A. Siegel and Andreas Stocker, SOEP Testerhebung 2009: Methodenbericht (Munich: 2010).

3 See questions 120 and 121 in the individual questionnaire: www.diw.de/documents/dokumentenarchiv/17/diw_01.c.369781.de/soepfrabo_personen_2010.pdf.

4 For more details, see Eckhard Priller and Jürgen Schupp, "Empirische Sondierung," Frank Adloff et al. eds., Prosoziales Verhalten – Spenden in interdisziplinärer Perspektive (Stuttgart: 2010), 41–63.

5 For details about the field work, see Simon Huber, Agnes Jänsch, and Nico A. Siegel, SOEP 2010. Methodenbericht zum Befragungsjahr 2010 (Munich: 2011).

6 For the statistical basis of marginal probability effects, see Scott J. Long and Jeremy Freese, Regression Model for Categorial Dependent Variables Using Stata (Texas: 2006).

average value of 115 euros for 2009, and a total volume of donations for Germany of 2.6 billion euros.

On the basis of the continuous household budget surveys of the official statistics, however, a national total volume of donations of between 3.3 and 4.5 billion euros[13] was established for the years from 1999 to 2007.

13 For the continuous household budget surveys, see Federal Statistical Office 2011: Series 15, (Issue) No. 1.

Table 2

Money and Blood Donations in Germany in 2009 According to Socio-Economic Characteristics

	Donor rate	Donor rate	Gave blood	Gave blood in the few years before 2009
	In percent	In euros per donor	In percent	
Total	39,6	201	6,7	6,7
Western Germany	41,3	213	6,3	6,3
Eastern Germany	32,4	136	8,4	8,2
Men	38,2	245	7,0	6,8
Women	40,9	162	6,4	6,5
German nationality	40,1	202	6,9	6,7
Non-German nationality	28,1	179	2,3	6,1
Aged 18 to 34	25,0	98	11,7	10,3
Aged 35 to 49	39,0	197	7,8	8,8
Aged 50 to 64	42,4	194	6,0	4,7
Aged 65 to 79	51,5	255	1,6	3,2
Aged 80 or over	50,5	266	0,0	0,6
No school-leaving certificate	33,8	144	4,4	4,6
Other qualification	35,8	146	7,3	6,9
Abitur	42,4	161	14,7	12,0
Degree	57,6	347	6,5	8,0
In full-time employment	38,2	215	9,3	8,8
Employed part-time, low level of pay	43,3	144	8,2	7,6
Not in employment	43,1	219	3,4	4,1
Registered unemployed	16,0	85	5,5	5,6
Donated blood in 2009	46,2	134	100	–
Donated blood in the last ten years	42,5	143	–	100
Donated money in 2009	100	201	7,8	7,2

Source: SOEP V27 (in advance).

Willingness of pensioners or graduates to donate money is over 50 percent. Willingness to give blood is much lower.

The data from the income tax statistics summarize all assessed donations and tax deductible membership fees in Germany. For the period 2001–2007, an average value of 155 euros per year and tax-paying donor was recorded.[14] The volume of donations and contributions offset against tax in the same period amounted to 3.4 to 4.5 billion euros. Therefore, the estimate of the overall volume of donations on the basis of the SOEP is comparatively close to the figure from the tax statistics.

Nevertheless, the results of the EMNID-Spendenmonitor, the continuous household budget surveys, and the annual income tax statistics only provide information about individual parts of the overall range of donations. Income tax statistics in particular cannot record certain types of donations and donors, for instance, because not all donors pay income tax or because the donations offset against tax are definitely lower than the actual donations made. Some of the voluntary contributions are made without donation receipts (for example, money given to beggars or cash donations made on the street), while others are probably not claimed against tax. The SOEP, on the other hand, covers the full spectrum of the population and types of donations.

Who gives what? Donors According to Region, Gender, Age, and Education

Overall, according to the SOEP survey, a significant proportion of the population of Germany make donations. There are, however, regional differences: While around 41 percent of West Germans gave 213 euros on average in 2009, only a third of East Germans donated money. On average, the amount donated in the East was also considerably lower at 136 euros. As far as giving blood is concerned, on the other hand, the East Germans are better represented: here, eight percent are donors, whereas in the West the figure is six percent (see Table 2). One reason for this may be the former practice in the GDR, where giving blood was an integral part of occupational health, and is therefore more of a matter of course than in West Germany.

There are also considerable differences in the donation behavior of men and women: The SOEP study shows that a slightly higher proportion of women in Germany give money. While 41 percent of women made financial donations, only 38 percent of men indicated having done so. This distribution between the two sexes is of-

14 For details on the different data sources, see Jana Sommerfeld und Rolf Sommerfeld "Spendenanalysen," German Central Institute for Social Issues, ed., Spendenbericht Deutschland 2010. Daten und Analysen zum Spendenverhalten in Deutschland. (Berlin: DZI, 2010), 23–92.

ten attributed to the longer average life expectancy of women, since older people give to charity more frequently than younger people.

As far as giving blood is concerned, however, no striking gender-specific differences were observed. Seven percent of men and women alike indicated they had given blood either in the previous year or in the past ten years.

Both the proportion of people donating to charity and the amount donated increase with age, while the willingness to give blood decreases with age. It is particularly rare for people between the ages of 18 and 34 to donate money. Only one in four people in this age group donate and the average amount donated is a comparatively low 100 euros. Many people apparently only begin to give money to charity in middle age. The willingness to donate then increases to over 50 percent in age groups over 65 years.

The reasons for the significant effect of age on donation behavior have not been examined closely to date. Some explanations in generation research are based on the assumption that people of the same age tend towards similar behavior since they have gone through the same or similar experiences in childhood (e.g., war, solidarity experienced in the event of poverty and disasters).[15] Older people's greater willingness to donate is instead frequently attributed to their higher level of assets and hence overall positive economic situation, as well as a higher level of satisfaction with their own income.

As regards giving blood, the donation trend is reversed: Younger people demonstrate this prosocial behavior most frequently, while there is a dramatic decline in the proportion of donors from the age of 50, which can also be attributed to the growing health restrictions preventing them from being able to give blood.

Academics Give More Money But Not More Blood

The higher the level of education, the more frequently money is donated. The most generous are those with a university or vocational degree. Almost 60 percent of respondents in this group make financial donations. For persons with no or only basic qualifications, the donor rate is much lower: At around a third, the proportion of donors is only almost half as high. As regards giving blood, however, there is no academic effect. Here, academics only account for the average donor rate of 7 percent.

Unemployed People Give Blood, But Less Money

Whether or not people have a job is another factor that influences their willingness to donate. Unemployed people donate money less frequently than persons in employment. There is no evidence to date that the result is affected by the amount of unemployment benefit received: Overall, only 16 percent of unemployed people donate money. The donor rate for this group is therefore significantly lower than for the total population, which is at around 40 percent.

Conversely, other people who are not gainfully employed, including in particular those who have reached retirement age, not only have the highest donor rate at 43 percent, but with average donations of 219 euros, they also donate the highest amounts.

As regards giving blood, the unemployed showed no significantly different behavior: With an average donor rate of six percent (both for 2009 and for the past ten years), they donated approximately as frequently as the total population.

A Third of the Volume of Money Given to Charity in 2009 is Donated by the Top Ten Percent of Income Earners

As expected, income has a long-term impact on donation behavior. A higher level of prosperity should make it possible for someone to give a greater share of his or her income and assets to other people or projects, without having to go without or having financial difficulties. Consequently, it is easier for those with a high income to provide financial support to charity, and, accordingly, the level of generosity increases in line with a stronger economic position.[16] Furthermore, progressive taxation means higher incentives for donation activities for those with a higher income. All available empirical surveys confirm that, as expected, the proportion of donors rises with increasing income[17] and the SOEP data also support this finding. Thus, data from the SOEP

15 See Judith Nichols, Global Demographics. Fund-Raising for a New World (Chicago: Bonus Books, 1995)

16 See also Christopher Jencks, "Who Gives What?" Walter W. Powell, ed., The Nonprofit Sector—A Research Handbook (New Haven: Yale University Press, 1987), 321–339.

17 See, for example, Willy Schneider, Die Akquisition von Spenden als eine Herausforderung für das Marketing. (Berlin: Duncker & Humblot, 1996), 109ff.

Table 3

Indicators on Donating Money According to Income Structure[1]

	Donor rate	Amount donated per donor[2]	Donation volume	Proportion of income donated
	In percent	In euros	In million euros	In percent
Top decile	60.5	456	1 940	0.57
9th decile	49.7	211	731	0.35
8th decile	46.7	197	616	0.36
7th decile	44.7	152	453	0.31
6th decile	42.5	112	307	0.23
5th decile	37.6	135	332	0.28
4th decile	32.6	188	402	0.38
3rd decile	31.8	117	233	0.25
2nd decile	26.2	101	159	0.20
Bottom decile	20.4	71	94	0.13
Total	**39.6**	**201**	**5 265**	**0.36**

1 Decentiles of the equivalence-weighted monthly household net income in 2010.
2 Average sum of money donated in 2009.
Source: SOEP V27 (in advance).

The top ten percent of income earners contribute over a third of the total volume of donations.

confirm the statement already made elsewhere[18] that lower income groups donate a lower percentage of their income than those in upper income groups.

Empirical studies in the US have found that there is a U-shaped curve showing the correlation between income and amount contributed:[19] With increasing income, the percentage of money donated drops. Only when people jump to a significantly higher income bracket does it increase again. The situation is different in Germany[20] where, according to the SOEP data, those in the lowest income decile donate proportionally the least in this income group, 0.13 percent of their average annual income, while the volume of donations increases to 0.20 percent of net annual income in the second lowest income decile. After a further rise in the two following income deciles, the proportion of donations falls in the fifth and sixth income deciles but increases again after the seventh decile. The upper income decile has by far the highest share at 0.57 percent. The volume of donations made by this income group amounts to approximately 2 billion euros—around a third of the total volume of money donated in 2009. Further analyses would be required in order to establish what separate role the comparatively high tax incentives for donations has to play in this.

The Combined Effect of the Various Factors

So as to obtain a better picture of which population groups actually give money or blood, and what factors interact, the influence of several factors on donation behavior is examined (see the multivariate analyses in the box for details). The results illustrate (Table 4) that all factors included in the model have proven to be significant for donating money, but that giving money may be determined by social characteristics to a greater extent than is the case with giving blood.

The average probability of adults donating money rises by 0.6 percentage points per year of their life, while for giving blood it falls by around the same percentage. For adults from West Germany, it is almost 10 percentage points higher than for persons from East Germany, while the probability of donating blood in the last ten years is around 4 percentage points lower for West Germans than for East Germans. However, foreign nationals donate both money and blood significantly less frequently.

For academics, the average probability of donating money is around 12 percentage points higher than for the reference group of people with a basic school-leaving certificate. On the other hand, we identify no academic effect with regard to the probability of giving blood.

With regard to position in the income structure, the differences shown in Table 3 are also confirmed through multivariate testing. Thus, in the lowest income decile, the average probability of giving blood is around 11 percentage points lower than in the reference group of the middle income deciles. In this lowest income decile, a tendency to donate blood significantly less frequently is observed as well. While in the upper income decile the probability of donating money is significantly higher, by almost 10 percentage points, than for the middle income level, we did not establish this for blood donors, however.

18 See Helmut K. Anheier, "Ehrenamtlichkeit und Spendenverhalten in Deutschland, Frankreich und den USA," Helmut K. Anheier et al., eds., Der Dritte Sektor in Deutschland. Organisationen zwischen Staat und Markt im gesellschaftlichen Wandel (Berlin: Edition Sigma, 1997), 197-209.

19 See Anheier "Ehrenamtlichkeit und Spendenverhalten," 207.

20 It must of course be noted for international comparisons that church tax is not normally included in the volume of donations in Germany. List, "Market for Charitable Giving," 167 states that particularly in the lower income groups in the US, donations for churches dominate.

Blood Donors Also Give Money More Often

Finally, it was examined whether there is a direct correlation between giving blood and money.[21] The investigation resulted in a positive correlation in both estimation models. Blood donors give money 9 percent more frequently and financial donors give blood around 5 percent more frequently.

Personality Traits and Happiness Also Correlate with Donations

Finally, it was also investigated in the SOEP whether people donate in order to pass on their own experiences. Here, positive reciprocity denotes a tendency to reciprocate enjoyable experiences in a positive way. Negative reciprocity, on the other hand, indicates a tendency to reciprocate negative experiences.[22] The multivariate estimation results show that willingness to donate falls with increasing negative reciprocity. The higher the positive reciprocity, however, the higher the willingness to donate money.

Positive reciprocity also increases willingness to give blood by a few percentage points, whereas, surprisingly, no significant correlation between negative reciprocity and donating blood is observed. Apparently, the tendency to retaliate against negative experiences is not expressed through a deliberate refusal to give blood.

As demonstrated above, income has an important effect on donation behavior. The decisive factor here is not only absolute income but personal satisfaction with it. If income satisfaction increases by one unit, the tendency to give money also increases by two percentage points.

As a final indicator, the perception of happiness was also included in the model:[23] People who "felt happy" in the

Table 4

Determinants of Donation Behavior

	Donated money[1] in 2009	Gave blood[2] in the past ten years
Sex (women)	–0.025***	0.006
Age (in years)	0.006***	–0.004***
Nationality (German)	–0.092***	–0.066***
Region (Eastern Germany)	0.084***	–0.039***
Education (other school)		
Junior high school	–0.073***	–0.003
Abitur	0.051***	0.057***
Degree	0.121***	0.008
Employment status (not employed)		
Employed full-time	0.005	0.047***
Employed part-time, low level of pay	0.058***	0.057***
Registered unemployed	–0.058***	0.045**
Position in income structure (5th and 6th deciles)		
Bottom decile	–0.114***	–0.034**
2nd decile	–0.062***	–0.013
3rd decile	–0.036**	–0.005
4th decile	–0.024*	–0.028*
7th decile	0.042**	–0.005
8th decile	0.042***	0.010
9th decile	0.042***	0.001
Top decile	0.090***	–0.003
Gave blood (did not give blood in the past ten years)	0.086***	–
Donated money (did not donate any money)	–	0.051***
Negative reciprocity	–0.043***	0.004
Positive reciprocity	0.032***	0.009***
Satisfaction with personal income	0.017***	0.001
Frequency of "feeling happy" in the last four weeks	0.013***	0.017***
Observations	16 225	16 225
Log pseudolikelihood	–9 741	–6 068
Wald chi²	1 951	854
Pseudo R²	0.119	0.074

*Marginal probability effects with robust standard errors (Households 2010). Results of a logit estimation with 0/1 dummies. * p<0.05; ** p<0.01; *** p<0.001.*
1 Dependent variable: donated money in 2009 (yes/no)
2 Dependent variable: donated blood in the last ten years (yes/no).
Source: SOEP V27 (in advance).

A degree and high income increase the probability of donating money to the largest extent. Income has virtually no influence on giving blood.

21 The SOEP data do not allow us to see the time line showing which of the two donation activities was performed first or second.

22 On this concept, see Jürgen Schupp and Gert G. Wagner, "Ein Vierteljahrhundert Sozio-oekonomisches Panel (SOEP): Die Bedeutung der Verhaltenswissenschaften für eine sozial- und wirtschaftswissenschaftliche Längsschnittstudie," B. Mayer and H.-J. Kornadt, eds., Soziokulturelle und interdisziplinäre Perspektiven der Psychologie (Wiesbaden: VS Verlag für Sozialwissenschaften, 2010), 239-272 and on use in economic models, Thomas Dohmen, Armin Falk, David Huffman, and Uwe Sunde. "Homo Reciprocans: Survey Evidence on Behavioural Outcomes," The Economic Journal, Vol. 119 (2009) (536), 592-612.

23 A global survey (Gallup World Poll) showed that a positive correlation between donating money to charity and general satisfaction was identified in 122 of 136 countries; see Lara B. Aknin, Gillian M. Sandstrom, Elizabeth W. Dunn, and Michael I. Norton, "Investing in Others: Prosocial Spending for (Pro) Social Change," Robert Biswas-Diener, ed., Positive Psychology as Social Change (Dordrecht: Springer, 2011), 222.

past four weeks gave both money and blood between one and two percentage points more frequently.

This proves impressively that donations are by no means solely motivated by material concerns but are also shaped by various value decisions and subjective dispositions.[24]

Conclusion

The inclusion of donation-related issues as part of the topic "Consumption and Saving" in the 2010 SOEP study means that there is now, for the first time, a broad potential for analysis to investigate donation behavior in Germany. Data on multi-layered social and economic characteristics in particular, collected at the individual and household levels, provide the opportunity to fundamentally expand the potential to analyze the subject of donations and gain valuable insights into social mechanisms at work on donation behavior, also from the perspective of non-profit organizations.

The initial results impressively confirm that available income determines both willingness to give money and the amount donated. Income does not play any role as far as giving blood is concerned, however.

For the first time, there is documentary evidence to show that personality traits and positive emotions (happiness) are also significant in terms of willingness to donate money. As regards giving blood, on the other hand, no striking income or education effects were proven.

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JEL: D31, D64, Z13
Keywords: donations, income, altruistic, SOEP

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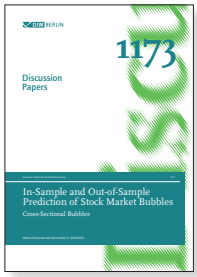
24 Further in-depth analyses would be required to establish whether, for example, indicators on frequency of going to church and religion used in earlier survey waves but not included in this report also provide a significant explanation.

Discussion Papers Nr. 1173/2011
Helmut Herwartz, Konstantin A. Kholodilin



In-Sample and Out-of-Sample Prediction of Stock Market Bubbles: Cross-Sectional Evidence

We evaluate the informational content of ex post and ex ante predictors of periods of excess stock (market) valuation. For a cross section comprising 10 OECD economies and a time span of at most 40 years alternative binary chronologies of price bubble periods are determined. Using these chronologies as dependent processes and a set of macroeconomic and financial variables as explanatory variables, logit regressions are carried out. With model estimates at hand, both in-sample and out-of-sample forecasts are made. Overall, the degree of ex ante predictability is limited if an analyst targets the detection of particular turning points of market valuation. The set of 13 potential predictors is classified in measures of macroeconomic or monetary performance, stock market characteristics, and descriptors of capital valuation. The latter turn out to have strongest in-sample and out-of-sample explanatory content for the emergence of price bubbles. In particular, the price to book ratio is fruitful to improve the ex-ante signalling of stock price bubbles.

JEL-Classification: G01, G17, E27
Keywords: Stock market bubbles, out-of-sample forecasting, financial ratios, OECD countries
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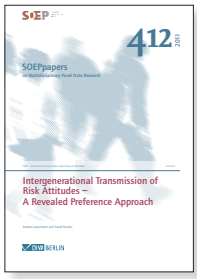
SOEPpapers 4012/2011
Andrea Leuermann, Sarah Necker

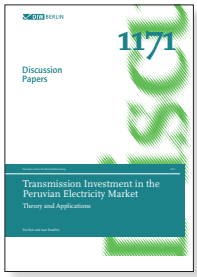


Intergenerational Transmission of Risk Attitudes: A Revealed Preference Approach

This study investigates whether the willingness to take income risks revealed by occupational choice is transmitted from parents to their children. Using data from the German Socio-Economic Panel (SOEP), we find that fathers' riskiness of job is a significant determinant of children's occupational risk, in particular sons' (excluding parent-child pairs with identical occupations). This is the first piece of evidence for intergenerational transmission of risk attitudes relying on real world behavior. It shows that not only individuals' own assessments of their risk attitudes correlate (found by previous studies) but also risk preferences shown in exactly the same situation.

JEL-Classification: D12, D81, J24
Keywords: Risk preferences, intergenerational transmission, occupational choice
www.diw.de/publikationen/soeppapers

Discussion Papers Nr. 1171/2011
Erix Ruiz, Juan Rosellón



Transmission Investment in the Peruvian Electricity Market: Theory and Applications

This research presents an application of the Hogan, Rosellón and Vogelsang (2010) (HRV) mechanism to promote electricity transmission network expansion in the Peruvian electricity transmission system known as SEIN (Sistema Eléctrico Interconectado Nacional). The HRV mechanism combines the merchant and regulatory approaches to promote investment into transmission grids. This mechanism gives incentives for efficient investment in expansion of the network by the rebalancing over time of the fixed and variable charges of a two-part tariff in the framework of a wholesale electricity market with locational pricing. The expansion of the network is carried out through the sale of Financial Transmission Rights (FTR's) for the congested lines. The mechanism is applied for 103 nodes of the SEIN using detailed characteristics of generators, nodes and transmission lines. Under Laspeyres weights and linear cost of expansion of transmission capacity, it is shown that prices converge to lower levels as a result of increased transmission capacity.

JEL-Classification: L51, L91, L94, Q40
Keywords: Electricity transmission expansion, incentive regulation, Peru, congestion management
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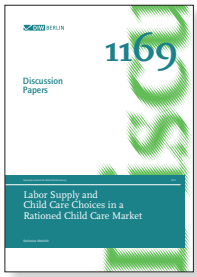

Labor Supply and Child Care Choices in a Rationed Child Care Market

This paper presents an empirical framework for the analysis of mothers' labor supply and child care choices, explicitly taking into account access restrictions to subsidized child care. This is particularly important for countries such as Germany, where subsidized child care is rationed and private child care is only available at considerably higher cost. I use a discrete choice panel data model controlling for unobserved heterogeneity to simultaneously estimate labor supply and the demand for child care of German mothers with at least one child under the age of seven years. The model can be used to evaluate different kinds of policy reforms, such as changes in the availability or costs of child care. Results from the illustrating policy simulations show that targeting public expenditures at an extension of child care slots has greater effects on maternal employment than a reduction of parents' fees to existing slots.

JEL-Classification: J22, J13, C35
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