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The 82nd Annual Conference of the Agricultural Economics Society

Royal Agricultural College

31st March to 2nd April 2008

The Market for Payment Entitlements in Germany

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In 2005, Germany implemented CAP decoupled payments. Direct payments were converted into tradable, production decoupled, single farm payments (SFP) by a hybrid model. From 2010 - 2013, there will be a gradual transition to a regional model. The following paper shows the results of an analysis of the market for payment entitlements in Germany between 2005 and June 2007. Data are derived from the German Central IACS database (ZID). In this period 1.2 of the 17 million payment entitlements changed their owner. A closer look at the figures reveals that despite a large difference in the face value of the entitlements, the entitlements are rarely traded in order to optimize farm budget. In most cases, trade of entitlements is directly linked to farm or land transfer. As a consequence, the overwhelming majority of trade takes place on the local level with very little redistribution of direct payments on a regional level being observed. Differences between the thirteen German trading regions with respect to observed trade patterns are quite small.

Keywords: Fischler Reform, SFP, Decoupling

JEL Codes: Q180

1 Introduction

In 2003, the European Union (EU) enacted the single payment scheme (SPS), which induced a system change in agricultural transfer policy. Production distorting direct payments, implemented by the MacSharry reform in 1992, had to be replaced by production decoupled payments. Only the evidence of eligible land should be necessary to get 1st pillar payments. Member states had three model options to choose from to implement the SPS: the historical model, the regional model and the hybrid model. In the case of the historical model, the face value of the single farm payments (SFP) is based on the historical situation of a farm (e.g. France). In contrast, by choosing the regional model, every farmer in a defined region gets the same SFP per ha (i.e. new member states). The hybrid model is a combination of the historical and the regional model (implemented in Germany and England). Member states had the alternatives to implement fully decoupled payments (Germany) or to couple payments in a defined degree on production (France). The EU Commission gives an overview of the implementation patterns of decoupled payments in EU member states (2007).

Up to until now, there have been no empirical ex post analysis of the impact of CAP decoupled payments. There is, however, ex ante analysis in form of computer simulation (i.a. Chakir et al., 2006; OECD, 2001) and modelling (i.a. Guyomard et al., 2004). There are also further analysis of similar decoupling programs elsewhere. A prominent example is the Production Flexibility Contract Payments (PFCP) of the Federal Agricultural Improvement and Reform (FAIR) Act of the USA (overviews in OECD, 2005; OECD, 2007).

The objective of this paper is to provide the first presentation of descriptive results of the market of SFP in Germany. First we briefly describe the utilized databases, followed by an overview of the implementation of the Fischler Reform in Germany. Section 4 illustrates the spatial distribution of SFP in Germany and concludes with an outlook to 2013 when the regional model will be implemented. We present details to observed market price, trade volume and trade pattern in section 5. The paper concludes with a discussion of the results.

2 Material and Methods

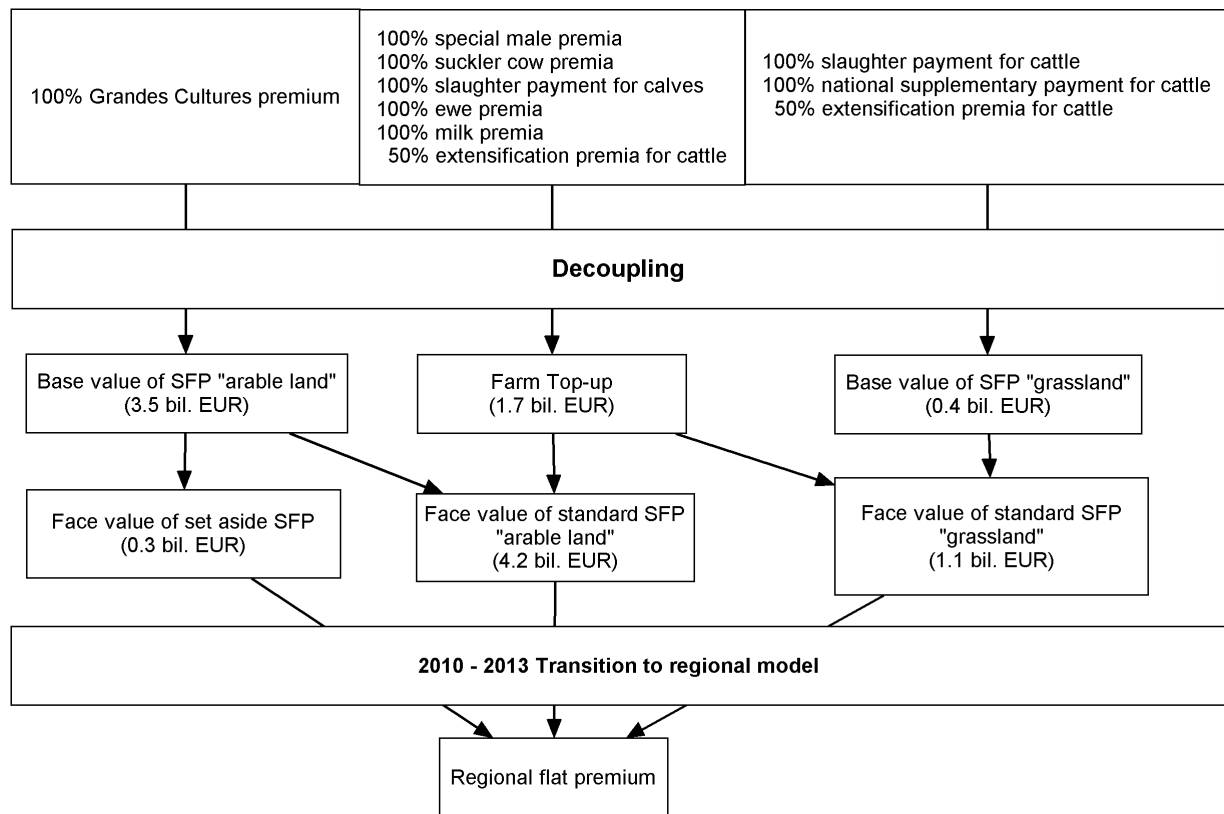
This article describes the market for payment entitlements in Germany. It is based on an analysis of the central IACS database (ZID). In order to spatially analyse the regional effects of the trade with SFP and the implementation of a regional model, the GIS software

ArcMap© 9.2 was used. The farms are spatially allocated using ZIP codes and municipality of the farms' mailing address. The administration structure of the municipalities reflects the situation as of 01.01.2007. Market prices of SFP are based on a farm and an expert survey, both carried out in autumn 2007. For the farm survey, farmers in five agriculturally characteristic regions in Germany were questioned to their handling of SFP. To enlarge the results to other Federal states we also questioned experts for prices in their administration districts. Together, the results cover well over half the area of Germany.

3 Implementation of the Fischler Reform in Germany

Like the UK, Ireland, Greece, Italy and Luxembourg, Germany opted for a full decoupling of the most important premiums (COM, 2006). Germany, like England and Finland, will move from a hybrid model to full regional model in 2013. Figure 1 provides a simplified overview of the implementation of the Fischler Reform in Germany. In a first step, the payments are divided among the Federal states and distributed such that 35 % of the German Plafond was attributed to the Federal states based on their respective utilized agricultural area (UAA) and 65 % based on their historic payment level (BMVEL, 2006). This necessitated some regional redistribution from Federal states where agriculture is generally more intensive to those with lower agriculture intensity.

Figure 1: Simplified overview of the implementation of the Fischler Reform in Germany



Source: Own analysis of the ZID (as at 20.07.2007); BMELV (2006)

The payments of the farmers were decoupled in a multi-step procedure. Step one involves splitting up the coupled premiums of the Agenda 2000 into three pools. The first aggregates the payments from which the base value for arable land will be derived, the second cumulates the payments for delimiting the base value for grassland, while the third includes all the payments which will be transferred into the farm specific Top-up. While the base values are the same within one trading region¹, the Top-up reflects the historic situation. A farmer's Top-up is equally allocated to all of his standard SFP. As a result of this procedure, the standard SFP have different face values. Since the historic part of the payment is more important in grazing livestock farms, these farms show great differences with respect to their standard SFP face value.

Regarding the base value, the Federal states had some freedom to reallocate funds between the base payments for arable land and for grassland. Beginning in 2010, the current hybrid model will be successively transferred into a full regional model, which means equal face values for all SFP in a given region.

¹ A trading region is a federal state including the adjacent city state

There are thirteen trading regions which differ significantly in their size and the average base value of the SFP (Table 1). In all trading regions the base value of a standard SFP derived from grassland is significantly lower than the standard SFP derived from arable land. The inclusion of the Top-ups shows that arable land derived SFP are on average 40 % higher. Despite having different origin and face value, all SFP annually payments call for the fulfilment of the same requirements (cross-compliance).

Table 1: Characteristics of the German trade regions

Trade region	SFP (in 1'000 ha)		Base value (in EUR / ha)	
	Standard	Set aside	“arable land” ¹⁾	“grassland”
Baden-Wurttemberg (BW)	1'355	57	304	72
Bavaria (BY)	3'110	119	298	88
Berlin & Brandenburg (BE & BB)	1'235	89	270	68
Hesse (HE)	758	34	300	62
Lower Saxony & Bremen (NS & HB)	2'501	120	255	100
Mecklenburg-West Pomerania (MVP)	1'256	96	309	60
North Rhine Westphalia (NRW)	1'482	70	268	105
Rhineland Palatinate (RLP)	620	26	277	48
Saarland (SL)	77	3	281	54
Saxony (SN)	853	59	310	111
Saxony Anhalt (SA)	1'082	88	317	98
Schleswig-Holstein & Hamburg (SH & HH)	998	52	305	80
Thuringia (TH)	738	54	322	81

Source: Own analysis of the ZID (as at 20.07.2007); BMELV (2006)

1) including set aside

4 Distribution of SFP in Germany

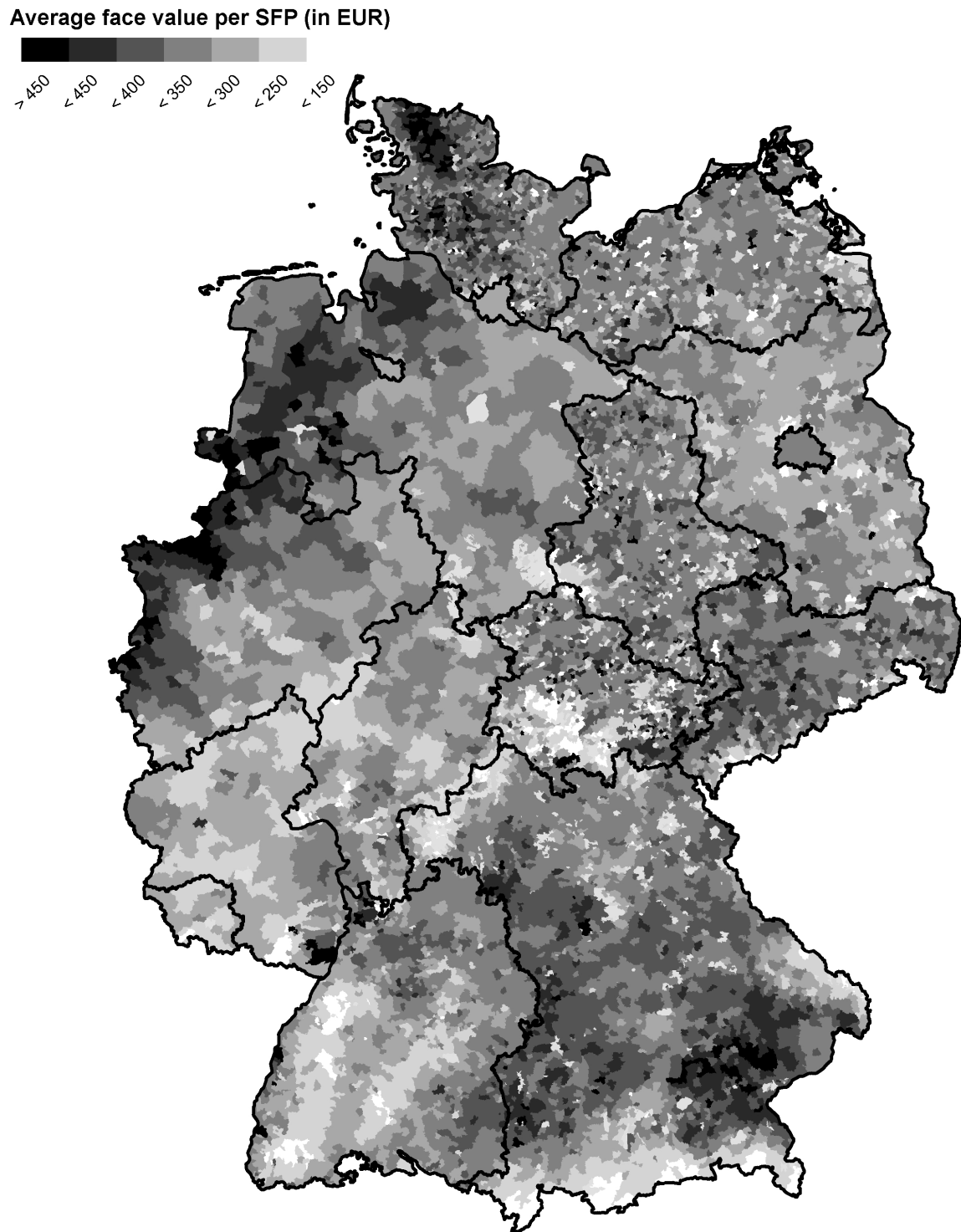
The direct payments which were introduced in 1992 (MacSharry-Reform) and modified in the Agenda 2000, are the historic reference of the decoupled payments. Notwithstanding the fact that funds were reallocated between federal states and farm types at the launch of the SFP scheme in Germany, the value of the SFP is strongly correlated to the amount of transfer payments before decoupling. The transition to the regional model will adjust the value of the SFP and thus will lead to significant changes in the absolute amount of payments the farms receive. As the payments are fully decoupled in Germany, changes in production with regard to a higher market orientation are expected at the operational level. For an overview see GOHIN (2006).

The distribution of the face value allows one to derive to the different farm structures and production focuses in the trade regions. In addition, it allows for an assessment of the SFP trading potential and for an estimation of the consequences of the transition to the regional model.

4.1 Spatial distribution of SFP in 2005 at municipality level

In 2005, every farmer could claim SFP for his UAA. The aggregated face value of his SFP depended strongly on the land use at the reference date (arable land or grassland), the level of the regional base payments and the farming activities in from 2000 to 2002. The regulations for sugar and milk are an exception to these general rules. The reference dates are 31.03.2005 for milk and the fiscal year 2006/07 for sugar. In Germany, the current distribution of the average face values widely reflects the historic allocation of the production linked direct payments before the Fischler reform and the relative importance of arable land. Figure 2 depicts the municipality average of the SFP face value. In 2007 the average of the municipality averages was 316 EUR per ha. For 85 % of the municipalities the respective average face value lies between 200 and 400 EUR per ha. The largest differences on the municipality level can be found in the trade regions Rhineland Palatinate (RLP) and Baden-Wurttemberg (BW). Here the standard deviations are 58 and 59 EUR per ha, respectively. On a regional scale, the SFP are the most evenly distributed in Saarland (SL) and Berlin & Brandenburg (BE & BB). Here the std. dev. is only 31 EUR per ha. In the low mountain areas the average face value of the SFP is comparatively low, whereas the highest face values can be found in areas where intensive arable forage cropping plays a significant role. The spatial autocorrelation analysis shows that the average value of SFP at municipality is strongly clustered (Global Moran's I Index = 0.076; Z Score = 272; $p < 0.01$).

Figure 2: Average face value of the SFP per municipality



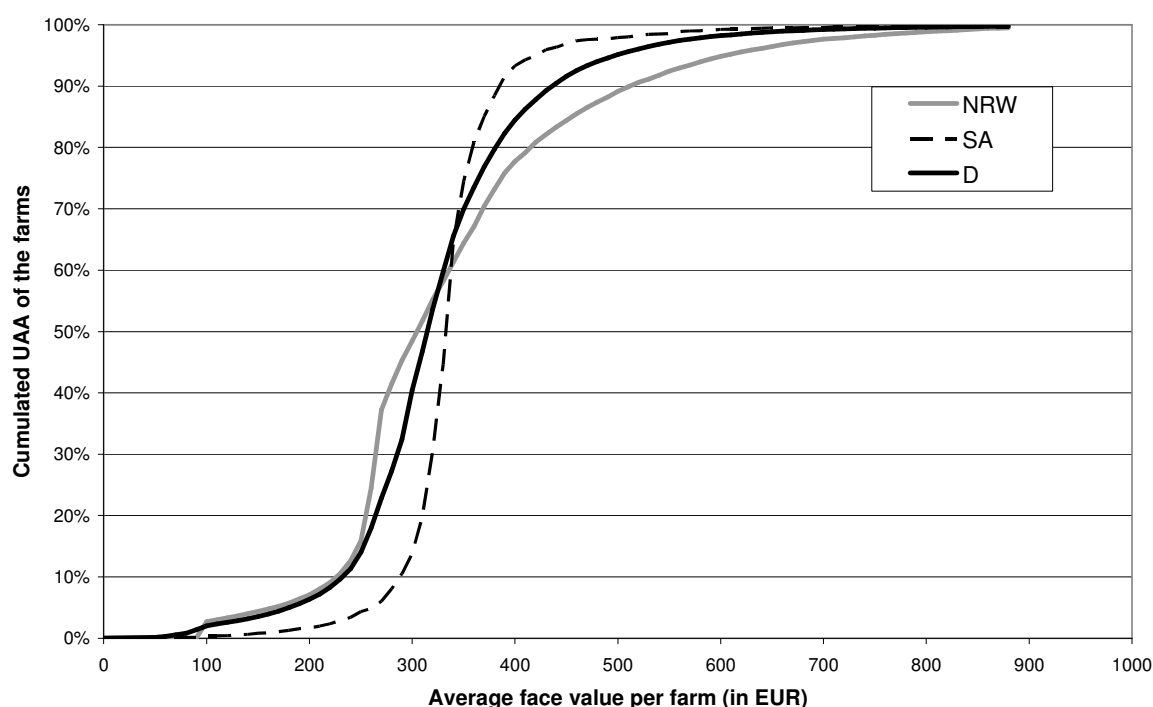
Source: Own analysis of the ZID (as at 20.07.2007)

4.2 *Spatial distribution of SFP in 2005 at farm level*

Since the face value of the SFP is correlated to historic payment level, the face values are more heterogeneously distributed in regions with a more diversified agricultural structure.

Figure 3 depicts the distribution of the face values of the SFP, based on farm averages, in relation to the cumulated UAA of these farms. The variation is generally smaller in Eastern than in Western Germany. In Saxony Anhalt (SA) only 10 % of the SFP are owned by farmers, whose SFP are on average worth less than 280 EUR, where another 10 % are owned by farmers whose average SFP exceeds 390 EUR per ha. North Rhine Westphalia (NRW) shows for this indicator the largest level of diversity. For this trade region the respective threshold values are 220 and 510 EUR per ha.

Figure 3: Distribution of the SFP according to their face value (based on the farm's average face value)



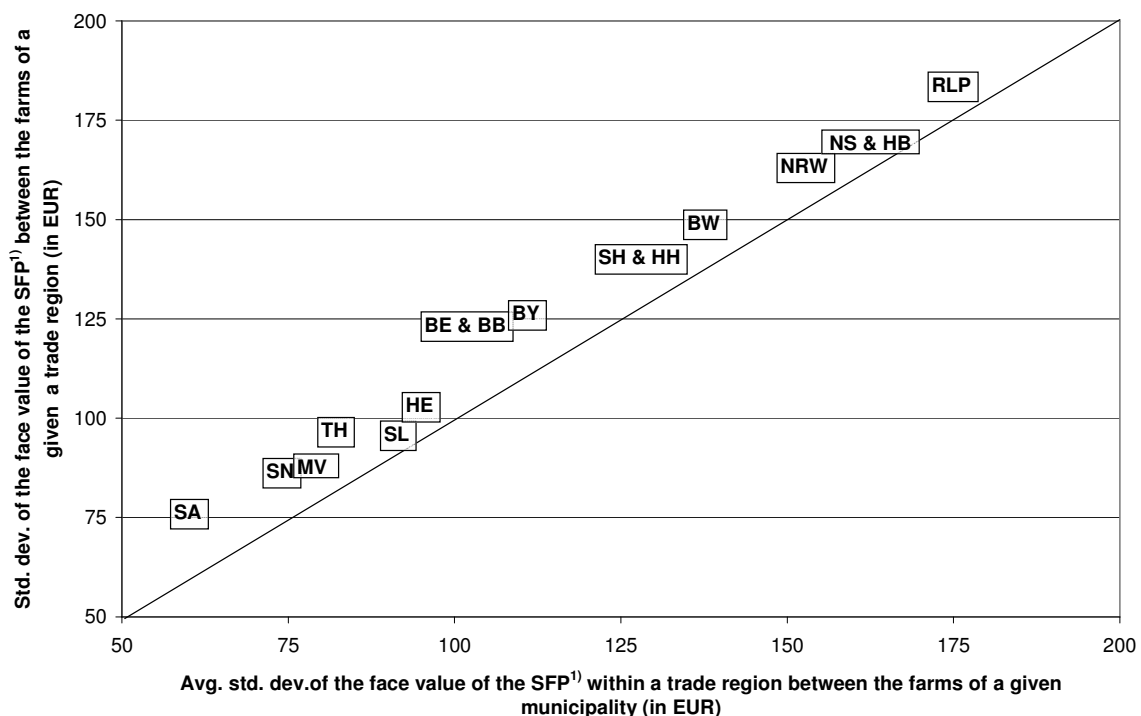
Source: Own analysis of the ZID (as at 20.07.2007)

In all thirteen trading regions, the largest variation regarding the face value of the SFP is present at the municipality level (

Figure 4). IACS data show that in all trading regions the std. dev. per municipality is only 10 to 20 EUR per ha lower than the std. dev. in the entire trading region. The reason for this large level of variation is the coexistence of both intensive producing farms with comparatively high SFP face values, and extensive farms with low SFP face values in every municipality. In Eastern Germany the average std. dev. is in most cases considerably lower than in Western Germany. This reflects the more homogenous agricultural structure in Eastern Germany.

Since the high degree of variation is present at municipality level, a farmer who wants to upgrade his SFP portfolio (exchange of low value SFP by high value SFP) can find a trading partner within the municipality. Taking into account the larger std. dev. in Western Germany, there should be a higher potential for SFP transactions due to the upgrade of the SFP portfolio. The std. dev. of the SFP at municipality level is highly auto-correlated spatially and strongly clustered (Global Moran's I Index = 0.04; Z Score = 112; $p < 0.01$; only municipalities with more than four farms).

Figure 4: Comparison of the observed variance of the average farm face value of SFP on municipality and trade region level



Source: Own analysis of the ZID (as at 20.07.2007)

1) based on average values per farm

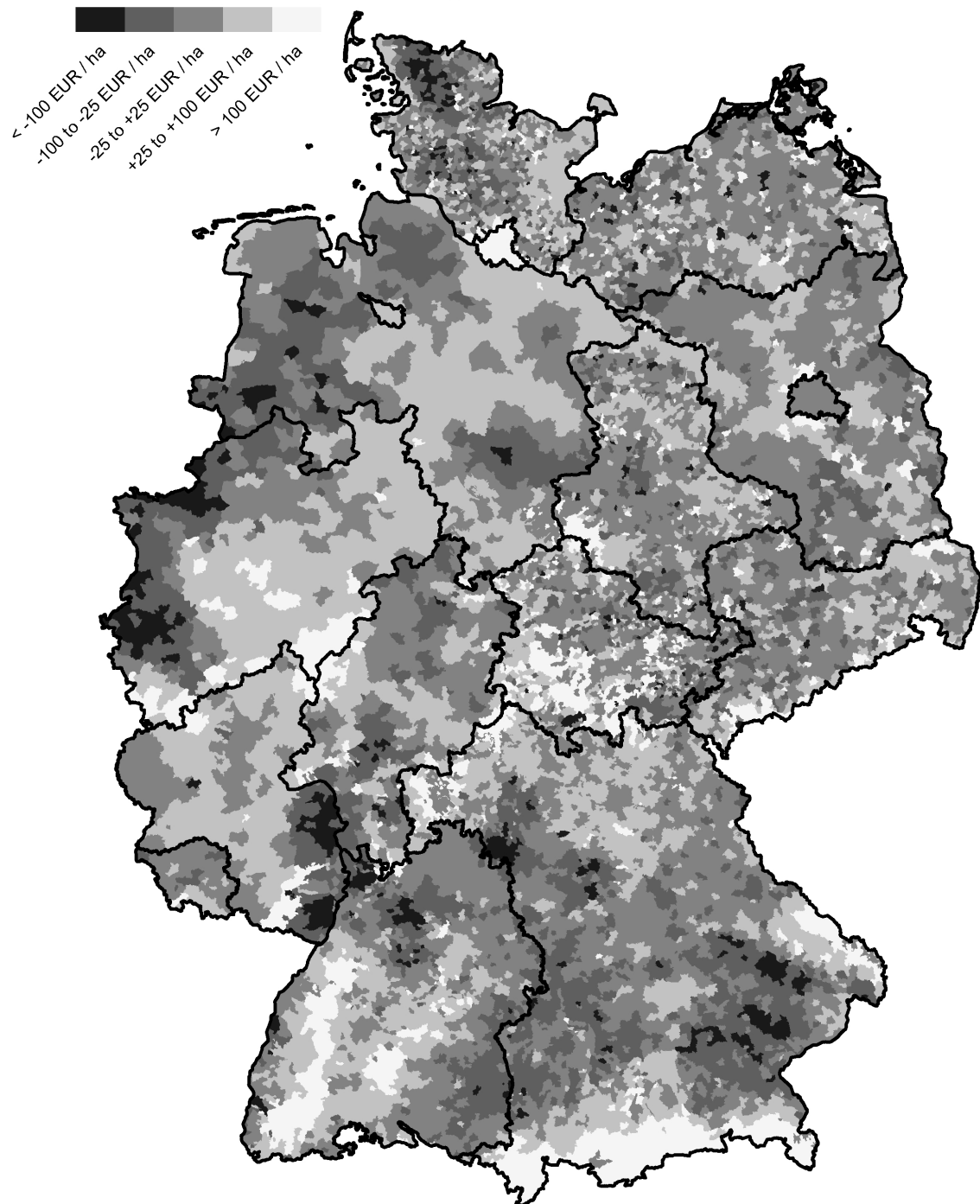
4.3 Regional redistribution by the reform in 2013

For the majority of German farms, the implementation of the decoupling had little effect on the level of their transfer payments. Significant changes will become apparent at the end of the transition phase when in each trading region the pure regional model will be implemented. The target value (face value of SFP in the pure regional model in 2013) will be determined in 2009 and is based on the number of SFP activated in this year.

Figure 5 shows the effect of implementing the regional model. Data are based on current estimates of the target value (BMELV, 2006) and include future decoupling steps for tobacco and sugar. In the Alps and most mid mountain areas, the implementation of the regional model will lead to significantly rising face values of the SFP (on average over 100 EUR per ha). Adversely, the SFP for farmers situated in areas with favourable production conditions (mainly loess areas and regions with intensive arable forage cropping) will lose value.

Figure 5: Change of the average face value per municipality induced by the transition from the hybrid to the regional model

Effect of the full implementation of the regional model on the face value



Source: Own analysis of the ZID (as at 20.07.2007)

5 The Market for SFP

The second major innovation of the Fischler Reform, besides the decoupling of production, is the tradability of SFP. Transfer payments can generally be treated like financial assets. Trade is limited to trading regions to inhibit broad redistribution among the federal states. There are different ways of transferring SFP among farmers. Permanent transfer (sale) of SFP is possible with and without land. In contrast, temporary transfer (rent) can only be conducted with land.

This section first shows results of a farm and expert survey concerning market prices for SFP. Further on, we present trade volumes, trading reasons and trade flows. Trading reasons are derived from state comparisons and based on logical conclusions and assumptions because trading prices and reasons are not registered in central, supra-regional statistics.

5.1 *Market prices for SFP*

Since no official office documents market prices of SFP, we conducted a survey to reveal market prices. In a first survey we asked 12,500 farmers in five selected German regions. In total, 1101 farmers stated their willingness to pay (WTP) and their willingness to accept (WTA) for a 300 € standardized SFP. We preferred this kind of question to a direct price question for a couple of reasons. Firstly, only a small part of the farmers have already traded with SFP. As such they often do not know the real market price and it would not be possible to interpret their answer as market price for SFP. Secondly, the mean face value of SFP differs both between and within trading regions. So farmers can answer the question on a concrete SFP with a certain face value only by estimation. Thirdly, the crucial advantage of demanding WTP and WTA is derived from logical consideration, that the real price lays somewhere in between the price spread of WTP and WTA. So, we can not give an exact market price (which would be wrong, anyway) but a relatively small, as the survey shows, price range. As expected, WTA is higher than WTP.

In a second survey, we interviewed agricultural consultants throughout Germany about the prices of SFP in their department.

Table 2 shows the results of both surveys. Nearly all values are in between a range of 1.1 to 1.5 times the face value of the SFP. In the northern states (BE & BB, MVP, NS & HB) data are a bit but significantly higher, up to 1.5 times the face value. The lowest valuation factor can be found in NRW and BW.

Table 2: Selected results on the valuation factor of payment entitlements in different parts of Germany (relative to a 300 € standard SFP)

	Expert survey ¹⁾		Farm survey ²⁾			
	n	Avg. valuation factor	n	WTP Avg. valuation factor	n	WTA Avg. valuation factor
BE & BB	-	-	87	1.2 ^a	79	1.5 ^{a, c}
BW	-	-	164	1.1 ^c	155	1.3 ^b
BY	54	1.4	238	1.1 ^{b, c}	221	1.4 ^c
HE	6	1.3	-	-	-	-
MVP	-	-	63	1.3 ^a	60	1.7 ^a
NRW	7	1.3	127	1.0 ^{b, c}	118	1.3 ^b
NS & HB	21	1.3	156	1.1 ^{a, b}	145	1.4 ^{a, c}
SH	11	1.5	-	-	-	-

Source: Own surveys

1) Survey of the county offices of agricultural consultants, conducted in October 2007

2) Farm survey in six of thirteen German trading regions for payment entitlements conducted in autumn 2007; same letters indicate that the difference in the respective distribution is not significant ($P > 0.05$, two tailed Mann-Whitney U-Test)

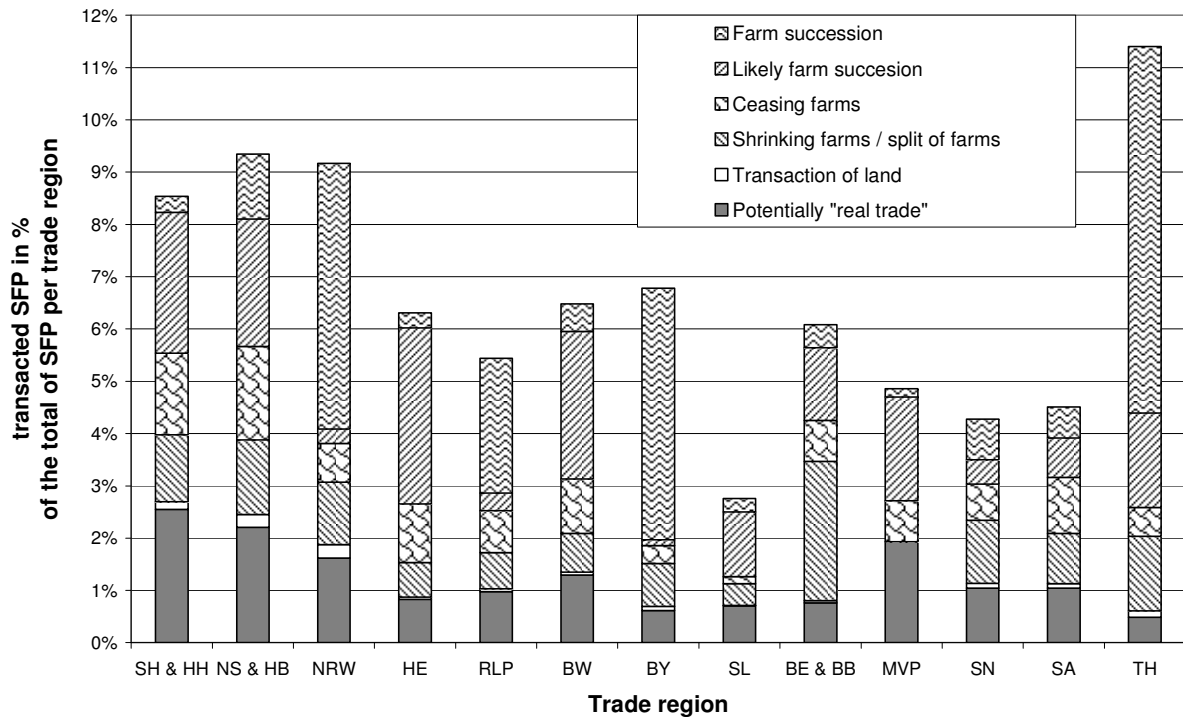
5.2 Trade volume on the market for SFP

From January 2006 to July 2007, 1.1 million SFP of the roughly 16.9 million SFP were permanently transferred. An additional 275,000 SFP were rented in the IACS fiscal year 2007. In total about 8 % of the SFP changed owners. However, further analysis is required for a detailed description of the market for SFP in Germany.

Nearly 40% of the trading volume can be linked to transactions in which either the farmers were assigned a new IACS number, due to municipal reforms, or those that occur conjointly with a farm transfer (Figure 6). Transactions in which the selling farm is ceasing or strongly reducing its farming activity, account for another third of the trading volume. ‘Transaction of land’ refers to instances in which a farmer sells and buys SFP with comparable face value. The most likely explanation for this behaviour is that in the view of engaged partners, the SFP remains linked to a specific piece of land beyond the duration of a tenure contract and is transferred at the end of tenure contract from the old to the new tenant. Since the Federal states do not book transactions homogenously, some assumptions on the linkage of transaction and objective are needed (see Röder and Kilian, submitted). Only 224,000 SFP - or 1.3 % of the issued SFP - could not be assigned to any of the previously mentioned trading classes. For the transaction of these SFP, their properties as a financial asset might play a significant role. Therefore, this type of transaction is labelled “real trade”. In the Northern

Germany regions SH & HH, NS & HB and MVP the relative importance of this type of transaction is nearly twice as high as in the other regions.

Figure 6: Volume of trade and divided by objective for trading

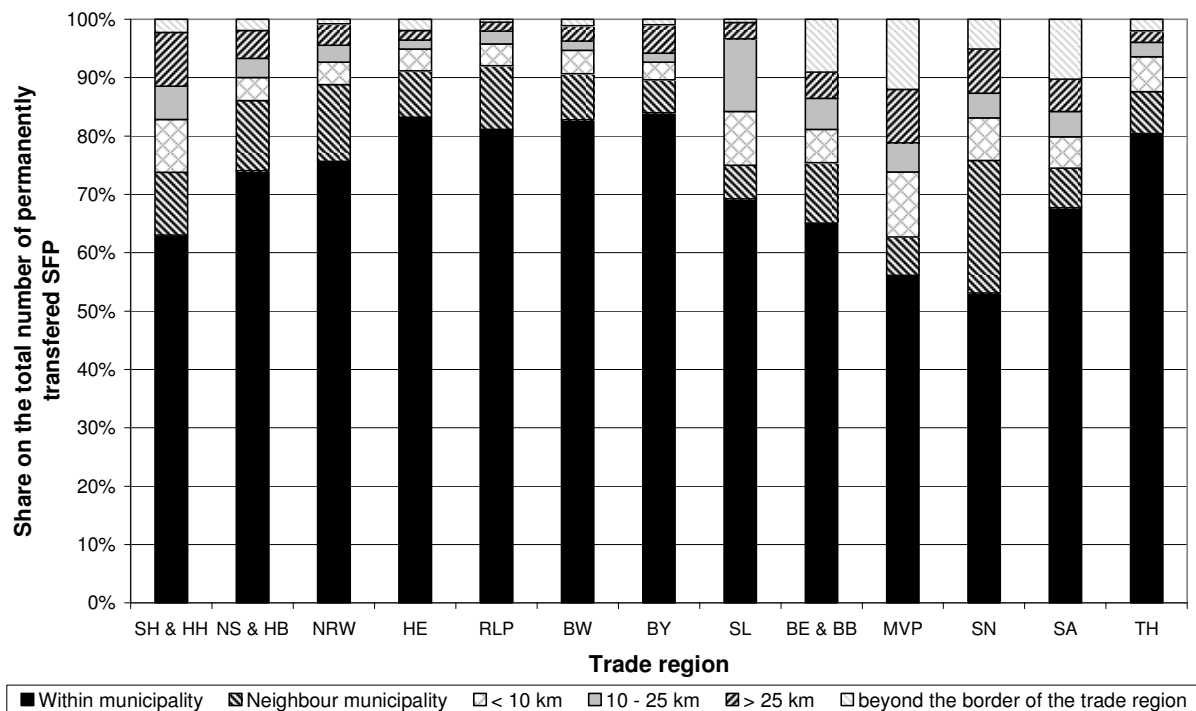


Source: Own analysis of the ZID (as at 20.07.2007)

5.3 Trade patterns on the market for SFP

The trade of SFP is to a very large degree a local phenomenon. For the assessment of the spatial distribution of SFP trade, it is sufficient to consider SFP purchase since SFP lease can only occur in combination with land. The analysis shows that only 108,000 SFP - or 0.64 % of the issued SFP – are transferred for further than 10 km. So these data provide no indication of a significant redistribution of funds on the regional level. The highest regional redistribution was in the trading region SH & HH (1 % of the issued SFP). In HE, RLP, TH and SL less than 0.25 of the issued SFP migrated more than 25 km.

Figure 7: Trading distances of SFP (permanent transfer only)



Source: Own analysis of the ZID (as at 20.07.2007)

Although SFP can only be activated in trade regions in which they were issued, in BE & BB, MVP and SA about 10 % of the permanently transferred SFP are purchased by farms which are located outside the respective trade region and located at least 25 km away from the selling entity. The assumption is that the acquiring farmer manages operating sites in several trade regions and thus the SFP are moving in fact a much shorter distance than indicated by the distance of the farmsteads. In total, 26,000 SFP can be assigned to this type of transfer.

Up until now, we could not detect on the regional level a change in the average face value of SFP. Only in 17 of the 439 German counties did the average face value in 2007 deviate more than 0.5 % from the respective value at the initial issue date. Of these 17 counties, 14 are county independent cities.

The market for set-aside SFP is bit more dynamic than the market for standard SFP. Nearly 13,000 set-aside SFP were involved in transactions that could be classified as “real trade” according to the criteria used in Figure 6. This equals 1.5 % of the issued set-aside SFP. In the trading regions BY, BE & BB and TH set-aside SFP are traded nearly twice as often as standard SFP, relative figures taken (RÖDER and KILIAN, submitted). The inverse relationship can be observed in MVP.

The number of set-aside SFP changed markedly only in eight counties. A change is considered to be marked if the relative share of set-aside SFP on the total number of SFP changed by more than 0.25 % and if the number of set-aside SFP changed by more than 50. The analysis of the trading distance of set-aside SFP show a larger distance than for traded standard SFP in Western Germany (RÖDER and KILIAN, submitted). In Eastern Germany, set aside SFP are traded mainly within the vicinity of the selling farm.

6 Discussion

Germany implemented the decoupling of transfer payments by a hybrid model. The implementation induced only moderate changes for the farmers. The objective of German agricultural politics is to contribute to the support of extensive operating farmers in marginal areas (BMELV, 2005). Thus, Germany decided to convert in the medium term to a pure regional model. This transition will result in significant changes. Farmers with intensive arable forage cropping and cattle will lose. Farmers with grassland and low stocking rate will profit of the reform.

Until 2007, the 2nd year after implementation of SPS, there has been only little trade with SFP. Trading reasons for SFP are mainly caused by trade of land. Trade with SFP without land is unimportant: insignificant trade is caused by strategic considerations regarding set-aside, cross-compliance or solvency. Additionally, upgrading, replacing low value SFP by high valued SFP, (as expected to play a certain role to cause regional distribution,) occurs rarely. Theoretically, the maximum incentive to trade was the point of implementation of SPS. Considering expected duration and heterogeneity of SFP, the first fiscal year marked the maximum difference in present value of SFP. With the transition to the regional model and incalculable duration beyond 2013, the trade incentive declines as the present values of SFP will continue to converge.

We identified the price of SFP by consideration of WTP and WTA. Both WTP and WTA differ slightly but significantly between the regions despite the same potential flow of returns. The highest WTP and WTA can be found in the northern German investigation areas, the lowest in Northrhine Westphalia and Baden-Wurttemberg. Possible explanations are different agricultural and socio-economic structure in the trading regions (e.g. relevance of agriculture and direct payments as source of income), the degree of incorporation of SFP in land (tenure) price and possible additional non-monetary agreements.

Although SFP guarantee farmers with land continuous payments for the coming years, the trading value of SFP are low. Even if all influencing factors, such as duration, interest rate,

modulation or potential financial discipline, are conservatively assessed, the net present value of a SFP is at least three or four times its face value. A possible explanation of this phenomenon is given in Kilian and Salhofer (2008). They assert that the surplus of SFP is proportional to eligible land, meaning no demand for SFP, causes low trading prices of SFP. Analysis of German IACS database shows that around 1 % of SFP are not activated (Roeder and Kilian, submitted).

Some EU member states have implemented various regulations to limit the potential reallocation effects induced by the trade with SFP. For instance, Italy (INEA, 2006) and France (MAAPAR, 2004) implemented siphoning regulations. Depending on the type of trade (with or without land,) and the geographical distance between trading partners, a certain percentage of the face value must be reallocated to the national reserve. In general, the share is higher for distant trade and trading without land. For Germany, empirical evidence gives no justification for this levy since even in the absence of any regulations, reallocation of funds and set-aside SFP has not reached a relevant level.

Various internet portals provide indications that the market price for SFP in Germany is comparable with English market price (Cumberland and Dumfriesshire, 2008). In contrast, Scottish SFP are significantly more expensive at 2-3 times the face value (John Swan, 2008; ANM Group, 2008).

Recent decisions of the EU commission will lead to major changes in dealing with SFP. Beginning in 2008, fields cultivated with fruits and vegetables and vineyards are eligible for SFP. Further, the set aside obligation will be suspended for 2008. In this way, SFP with set aside obligations can be used as ordinary SFP.

Acknowledgements

The authors would like to thank Hubertus Wolfgarten and Andreas Müller of the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) and Richard Carmanns and Helmut Hartmann of the Central IACS database (ZID) for their information, advice and collaboration. The research was funded by the Federal Ministry of Food, Agriculture and Consumer Protection via the Federal Agency for Agriculture and Food (BLE).

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