HUMBOLDT-UNIVERSITÄT ZU BERLIN
Wirtschafts- und Sozialwissenschaften an der
Landwirtschaftlich-Gärtnerischen Fakultät

Nr. 70/2004

Grethe, Harald

Turkey's Accession to the EU: What Will the Common Agricultural Policy Cost?

WORKING PAPER

Luisenstraße 56, D-10099 Berlin (Mitte), Germany
tel.: +(49)-30-2093 6317; fax: +(49)-30-2093 6474

Impressum

Herausgeber:	Wirtschafts- und Sozialwissenschaftliche Fachgebiete der Landwirtschaftlich-Gärtnerischen Fakultät der Humboldt-Universität zu Berlin
Editors:	Economic and Social Science Disciplines of the Agricultural and Horticultural Faculty of the Humboldt-University at Berlin
Editeurs:	Sciences économiques et scienes sociales de la Faculté d'agriculture et d'horticulture, Université Humboldt à Berlin
Editor:	Departamentos de Ciencias Económicas y Ciencias Sociales de la Facultad de Agricultura y Horticultura de la Universidad Humboldt de Berlin
Издатель:	Кафедры экономических и социальных наук сельскохозяйственно-садоводческого факультета Берлинского университета имени Гумбольдта

Redaktion: Managing Editor: Rédaction: Redacción: Редакция:	Prof. Friedhelm Streiffeler Institut für Wirtschafts- und Sozialwissenschaften des Landbaus der Humboldt-Universität zu Berlin Fachgebiet Agrarsoziologie Luisenstraße 53 D - 10099 Berlin Telefon: (49)-30-2093 6517 Telefax: (49)-30-2093 6542

Turkey's Accession to the EU:
What Will the Common Agricultural Policy Cost?

Harald Grethe[1]

Institute of Agricultural Economics and Social Sciences, Humboldt-University of Berlin

This Working Paper presents work in progress. Comments and criticism are welcome at

harald.grethe@agrar.hu-berlin.de

Content

[1] Many thanks to Martin Banse and Stefan Tangermann for helpful comments on a draft version. Remaining errors, of course, are mine.

Abstract

At the EU Council in December 2004, European heads of governments will decide on a potential date for the start of EU accession negotiations with Turkey. Various recent analyses assess the cost of applying the Common Agricultural Policy of the EU (CAP) to Turkey without taking into account the specific structure of the agricultural sector in Turkey, which would determine the receipts from EU funds. This paper assesses potential budgetary effects resulting from the application of the CAP to Turkey, if Turkey should accede in 2014. The analysis is based on macroeconomic projections from the literature, equilibrium modelling of the Turkish agricultural sector, and projections of the future development of the CAP. It is found that total EU budgetary outlays for the application of the CAP to Turkey could total about €3.3 billion in 2014 and rise to €5 billion in 2024 due to full phasing in of direct payments and rural development policies. The resulting net transfer under the CAP to Turkey would be about €1.6 billion in 2014 and could increase to €2.6 billion in 2024. Such sums take a backseat to projected transfers under the structural policy of the EU and the overall political project of including Turkey in the EU.

Keywords: Turkey, EU accession, CAP, budgetary effects

Zusammenfassung

Im Dezember 2004 wird der Europäische Rat über die Festlegung eines Zeitpunkts zur Aufnahme von Beitrittsverhandlungen mit der Türkei entscheiden. Die Diskussion über die aus der Gemeinsamen Agrarpolitik der EU (GAP) resultierenden Budgetwirkungen eines EU-Beitritts basiert bisher meist auf Schätzungen, die die spezifische Struktur des türkischen Agrarsektors sowie zukünftige Änderungen der GAP bis zu einem Beitritt der Türkei kaum einbeziehen. In diesem Beitrag werden die aus der GAP resultierenden Budgetwirkungen eines potentiellen EU-Beitritts der Türkei im Jahr 2014 auf Grundlage der Literatur entnommener makroökonomischer Projektionen, Abschätzungen zukünftiger Änderungen der GAP sowie einem Gleichgewichtsmodell des türkischen Agrarsektors analysiert. Im Ergebnis ergeben sich EU-Zahlungen an die Türkei im Rahmen der GAP von insgesamt 3,3 Mrd. € im Jahr 2014, die nach einer schrittweisen Einführung des vollen Umfangs der GAP im Jahre 2024 etwa 5 Mrd. € betragen. Der sich aus der GAP potentiell ergebende Netto-Transfer aus dem EU-Budget an die Türkei beträgt 1,6 Mrd. € im Jahr 2014 und steigt bis 2024 auf etwa 2,6 Mrd. € an. Im Verhältnis zu den sich voraussichtlich aus der europäischen Strukturpolitik ergebenden Transfers und dem politischen Gesamtvorhaben einer Integration der Türkei sind diese Summen eher unbedeutend.

Schlüsselwörter: Türkei, EU-Beitritt, Gemeinsame Agrarpolitik, Budgetwirkungen

1 Introduction

At the EU summit in Helsinki in December 1999, Turkey gained candidate status for full EU membership. European heads of governments will decide on a potential date for the start of accession negotiations at the EU Council in December 2004. The start of negotiations in 2005 seems possible if Turkey fulfils the political Copenhagen criteria laid out as prerequisites for the start of negotiations, and if the political will in the EU is sufficient. Nonetheless, a long period of accession negotiations is expected and many observers believe that accession will not take place before 2014, which is the first year of the Financial Perspective by the EU starting in 2014. Therefore, at this point an assessment of the budgetary effects resulting from the application of the EU's Common Agricultural Policy (CAP) to Turkey is arbitrary, as the CAP changes quickly. For this reason, recent analyses were limited to assessing the effects of full agricultural market integration between Turkey and the EU, without application of the CAP to Turkey (GRETHE, 2004; CAKMAK and KASNAKOGLU, 2001).

Even so, the public discussion on the cost of accession has started: a widely cited study of QUAISSER and REPPEGATHER (2004) estimates total EU expenditure for applying the current CAP to Turkey at €4.4 to 5.4 billion. This estimate is based on a regression analysis applied to the EU-25 sample with agricultural value added and agricultural production value in the individual member states as explanatory variables for EU budgetary outlays for full implementation of the CAP. Such an approach, of course, does not account for the specific production structure of Turkey, nor does it account for the variables which play a major role in the allocation of rural development funds, which are agricultural area, agricultural employment, and per capita income. In addition, it seems unlikely that the current level of direct payments to agricultural producers in the EU, which accounts for more than 60 percent of budgetary outlays for the CAP, will survive until the year 2013, which QUAISSER and REPPEGATHER take as a potential accession year. DERVIS et al. (2004a) estimate the cost of the CAP applied to Turkey in 2015 at about €8 billion, based on the assumption that Turkey's GDP at that time would be around €400 billion with a 10 percent share of the agricultural sector. Therefore if the current EU-15 level of budgetary outlays for the CAP relative to agricultural GDP of roughly 20 percent were maintained, CAP outlays for Turkey would be 20 percent of €40 billion, or €8 billion. This is considered an upper bound as no changes in the CAP until 2015 are taken into account. FLAM (2003) estimates annual EU budgetary outlays for Turkey as an EU member, including structural policies, at €17 billion and Turkey's contribution to the EU budget at about €5 billion. This estimate is based on a regression analysis for the EU-15 sample, which takes GDP as the explanatory variable for the contribution to the EU budget, and eligibility for the cohesion funds and council voting power as explanatory variables for receipts from the EU budget. Obviously, in transferring these results to the accession candidates at that time, no budgetary limits are taken into account; total net transfers to the then 13 accession candidates are estimated at about €50 billion annually (FLAM 2003, p. 45). Furthermore, changes in EU policies since the base period for estimation (1999/2000) are not taken into consideration. None of these recent analyses is based on the specific structure of the agricultural sector in Turkey, which would determine the receipts from EU funds.

Some sector specific analyses were carried out after Turkey's application for full membership in 1987. MANEGOLD (1988) provides an estimate of the budgetary outlays resulting from the CAP applied to Turkey based on Turkish agricultural production and CAP provisions in 1986 of about €4 billion, compared to a Turkish contribution to the EU budget of €740 million. AKDER et al. (1990) estimate the cost of the CAP applied to Turkey at €3.1 billion in 1995. But the CAP has changed a great deal since the end of the 1980s making these assessments of limited validity today. The EU Commission apparently calculated budgetary effects of Turkish accession, as Commissioner Fischler recently stated that the budgetary outlays for applying the CAP to Turkey would be at €11.3 billion (AgraEurope, 2004a).

Although current quantitative analyses available are limited in detail, it is clear that the budgetary concerns with respect to Turkish accession are comprehensible, if one looks at basic indicators of the Turkish economy compared to the EU presented in Table 1.

Table 1: Basic Economic Indicators in Turkey and the EU-25

	EU-25	NMS-10	Bulgaria & Romania	Turkey	Turkey/ EU25
Population (mill.) (2002)	453.0[b]	74.6[b]	29.7[b]	70.3[a]	15.5%
GDP (2003, bill. €)[b]	9,738.9	437.1	68.1	212.3	2.2%
GDP$_{PPS}$ per capita (2003, €/year)[b]	23,270	11,302	6,331	5,750	24.7%
GDP of the agr. sector (2003, bill. €)	194.8	15.7	7.8	31.4	16.1%
As a share in total GDP	2.0%[g]	3.6%[g]	11.5%[g]	14.8%[c]	
Agr. production value (2001/02, bill. €)	282.8[d]	27.1[d]	13.9[d]	25.6[e]	13.3%
Share of employment in agriculture. (EU 2002, Turkey 02/03)	5.4%[d]	13.4%[g]	32.3%[g]	34.4%[f]	

Sources: [a] FAO (2004), [b] EUROSTAT (2004), [c] SIS (2004a), [d] EUROPEAN COMMISSION (2004a), [e] SIS (2003), [f] SIS (2004b), [g] EUROPEAN COMMISSION (2004b), own calculations.

Table 1 shows that Turkey is a large country in terms of population, and has a large agricultural sector, measured by production value as well as agricultural GDP. In terms of population and agricultural production value Turkey is comparable to the 10 new member states (NMS-10). With regard to the role of the agricultural sector in the economy as well as per capita income, Turkey equals Bulgaria and Romania in shares of agriculture in employment and GDP, and per capita GDP in purchasing power standard (GDP$_{PPS}$). Compared to the EU-25, the Turkish economy is small; total Turkish GDP is only slightly more than 2 percent of that of the EU-25. Based on this data Turkey would become a significant net recipient under current EU policies because of high transfers under the EU structural and agricultural policies and a low contribution to the EU budget due to a low GDP. This is precisely what is reflected in the studies cited above. Yet Turkey will not accede today, nor in the immediate future. Until accession, many determining factors such as macroeconomic variables and the design of the CAP will change.

Against this background, this paper roughly assesses the order of magnitude of effects on the EU budget resulting from the application of the CAP to Turkey should Turkey accede in 2014. To this aim, Section 2 outlines the challenge of assessing budgetary effects resulting from the CAP in case of accession and a potential comprehensive analytical framework. Subsequently, a less exhaustive approach followed in this paper is described. In Section 3 the amount of direct payments which would result from the current CAP as well as under further reform scenarios for Turkey is estimated. This is based on the results of a partial equilibrium model (TURKSIM) analysis of full integration of Turkish and EU agricultural markets for the year 2006 (see GRETHE, 2004). In Section 4 potential payments from the EU budget to Turkey under the so-called second pillar of the CAP are examined, including a heterogeneous collection of rural development policies. Finally Section 5 summarizes findings, presents potential net effects on the EU budget, and draws some conclusions.

2 Analytical Approach

In the event of accession, Turkey would not only be subject to the market price level resulting from various market policies under the CAP, but to the CAP itself which is mainly financed by the EU budget. Of main concern are the policies of direct payments to producers under the first pillar of the CAP, and payments under the second pillar of the CAP which includes various types of rural development measures, e.g. payments under environmental programs and investment subsidies.

Due to the long period expected before accession, the time component is extremely important when analysing the effects of applying the CAP to Turkey. Three areas of interest play a major role, not least, the state of the CAP itself. Many reforms of the CAP yet to be implemented are already determined, including partial decoupling of direct payments under the Mid-Term-Reform. Others can be guessed at on the basis of specific reform proposals, such as price reductions and direct payments foreseen for the sugar market regime. Still, for 2014 it seems arbitrary to formulate one "future CAP." Rather a comprehensive analysis should frame a set of scenarios of how the CAP could look like in 2014, and which components and to what degree would be implemented in Turkey in case of accession.

The second important area of interest in determining the budgetary cost and net transfers to Turkey resulting from the CAP is the state of the Turkish agricultural sector at the time of accession. As a result of changes in world market prices, technological progress, increasing incomes and population, and many other factors, the Turkish agricultural sector will be different in 2014. In addition, accession itself will affect the allocation of resources in Turkish agriculture.

A third determining factor for net transfers to Turkey is Turkey's contribution to the EU budget in case of accession. As the contribution of member states to the EU budget is mainly determined by the size of their GDP, shares in GDP are a good indicator for shares in the EU budget. But Turkey's share in the total GDP of a potential EU-29 in 2014 may be very different from that today, as economic growth in the EU-25 (-28) up to 2014 may be different from that in Turkey.

Summarizing all this, an ideal analysis of the budgetary cost and net transfers resulting from applying the CAP to Turkey would include the following factors. Different projection scenarios would be specified with respect to i) macroeconomic growth until 2014, ii) the design of the CAP in 2014, and iii) the steps and speed of phasing in the CAP for Turkey after 2014. These scenarios would then be fed into a simulation model which depicts the Turkish agricultural sector in some detail in order to derive the Turkish composition of agricultural production and consumption in 2014 under each of the scenarios. Based on quantity and policy data for each of the scenarios, total cost to the EU budget and the resulting net transfers to Turkey can be estimated. This, however, goes beyond the scope of this study. Instead, the following approach is applied:

- Turkey's contribution to the EU budget is calculated based on projected GDP from macroeconomic growth scenarios taken from the literature. LEJOUR et al. (2004) project real GDP growth for Turkey until accession at 5.6 percent. DERVIS et al. (2004b) project Turkish per capita GDP expressed in foreign currency to grow by 6 percent until accession, which is equivalent to about 7.2 percent total GDP growth due to population growth. This assumption is qualified by a demographic transition leading to a high share of economically active population, increased foreign direct investment due to the political and economic anchor of the start of accession negotiations, and a yearly appreciation of the real exchange rate by 1 percent. QUAISSER and REPPEGATHER (2004) use a yearly growth rate of 5 percent for Turkish GDP, which they find optimistic. All authors project the GDP growth rate for the EU-25 around 2 percent. For the calculation of Turkey's contribution to the EU budget in this study, Turkey's growth rate of total GDP is assumed at 5.5 percent which is slightly above the average GDP growth rate of the last four decades (DERVIS et al., 2004b). For the EU-27 a GDP growth rate of 2.1 percent is assumed.

- TURKSIM results from a simulation of full integration of Turkish and EU agricultural markets in the year 2006 are used as a quantity framework to determine the level of direct payments to Turkey (GRETHE, 2004). These results already include all market effects due to full market integration. But they are limited if valued against the comprehensive analysis scheduled above. First, they do not include any reactions of the Turkish producers to the CAP, except to those resulting from price changes. This mistake may be acceptable, as the most important element of the CAP, except price policies, which are direct payments to producers, will largely be decoupled from production in the future. For payments not fully decoupled, the usual EU approach is to limit payments to reference quantities at a recent level, which also does not allow for strong production effects. Another fuzziness of the current TURKSIM analysis results from the fact that projections are for the year 2006 and not for 2014. This might slightly underestimate direct payments for Turkey due to a somewhat lower reference yield.

- The assessment of budgetary costs of applying the CAP to Turkey is based on current agricultural policies including those reform steps already decided upon. This analysis is limited to the most important budgetary transfers resulting from the CAP: direct payments for cereals; oilseeds and protein crops; tobacco; olive oil; cotton; milk; beef, sheep, and goat meat, as well as rural development policies. These policies accounted for 84 percent of the agricultural budget in 2002, excluding export subsidies.[2] In order not to underestimate the real budgetary cost, the remaining 16 percent are added as a lump sum for Turkey.[3] It will be argued that this approach substantially overestimates budgetary outlays due to expected future reforms. Thus there is a need for some discussion of how potential reforms could affect the cost of applying the CAP to Turkey.

3 Direct Payments

In 2004, the EU will spend more than €30 billion on direct payments to agricultural producers, more than 60 percent of its agricultural budget. Table 2 shows the budgetary cost resulting from fully applying direct payments for selected products under the CAP to Turkish agricultural production under the above-described assumptions.

---

[2] Export subsidies are excluded as they will probably be abolished, or at least substantially reduced, in 2014.

[3] This is, of course, a very rough approach. For some of the policies which fall into this category, Turkey would get relatively less than current EU members, e.g. for pork market policies; for other policies, more, e.g. processing aids for paste tomatoes. Furthermore, 16 percent is a relative measure within the total agricultural budget. If the value of direct payments is assumed to decline by 1.5 percent annually, as it is in the calculations below, this implies an absolute decline in the amount reserved for "other policies." This may be true for some policies, but not for others. In short, this 16 percent is more a reminder of "some substantial amount," than a well-founded projection.

Table 2: Budgetary Outlays for Direct Payments for Selected Products in Turkey, Full Implementation of Current EU Level in 2014

		Quantity	Payment per unit (2004 €)[a]	Budgetary outlay (mill. 2004 €)
Cereals and oilseeds in TURKSIM				
	Eligible quantity (1,000 t)	28,803	51.45	1,482
	2006 area (1,000 ha)	13,684		
	Base yield (t/ha)	2.1		
Cereals and oilseeds not in TURKSIM				
	Eligible quantity (1,000 t)	842	51.45	43
	2002 area (1,000 ha)	400		
Proteine crops in TURKSIM				
	Eligible quantity (1,000 t)	3,029	59.21	179
	2006 area (1,000 ha)	1,439		
Durum	2006 area (1,000 ha)	1,927	113.45	219
Tobacco	2006 (1,000 t)	237	2,368.56	563
Olive oil	2006 (1,000 t)	136	1,080.14	147
Hazelnuts	2006 area (1,000 ha)	987	98.62	97
Cotton	2006 (1,000 t)	3,248	408.37	1,327
Milk	2006 (1,000 t)	11,774	28.99	341
Beef	2006 (1,000 t)	353	967.93	341
Sheep meat	2006 (1,000 t)	333	1,372.13	457
Total outlays for direct payments:				5,197

[a] Assumptions include: direct payments for milk fully implemented, modulation of 5 percent fully implemented, beef premiums/ton 50 percent above EU level as most payments are made per animal and Turkey has a higher number of animals/ton of meat produced, direct payments for sugar not yet included, direct payments fixed in nominal values, inflation between 2004 and 2012 1.5 percent annually.

Sources: AGRAEUROPE (2004b), SIS (2003), GRETHE (2004), own calculations.

Table 2 shows that budgetary outlays for applying direct payments in their current form to Turkey for the most important products would total to about €5.2 billion.[4] The largest blocks of outlays are for cereals and oilseeds as well as cotton, which together account for €2.8 billion.

---

[4] This contrasts significantly with the €8 billion of direct payments for Turkey recently brought forward by EU Agricultural Commissioner Fischler (AgraEurope, 2004a). Several reasons could contribute to such a difference. If direct payments foreseen for sugar growers under the current reform proposal were included, this would add about €185 million. In addition, Commissioner Fischler may not have based his statement on the drop of direct payments due to their fixation in nominal amounts and modulation, which would add another €1.2 billion.

But the calculation of such numbers ignores the fact that Turkish producers are very unlikely to ever get direct income transfers of such size from the EU budget. This is due to the high cost of such payments to the EU budget which will potentially lead to further reform of the direct payment system before Turkish accession. For the NMS-10, the direct payments are granted at 25 percent of the EU-15 in 2004, and increase until 2013 to the level applicable in the EU-15 in that year. This will put considerable pressure on the EU to reform these payments because granting direct payments at the current level to the new member states would be costly to the EU-15 (WEISE et al., 2002) and probably conflict with the overall ceiling on the CAP (AgraEurope, 2004c), especially after accession of Bulgaria and Romania. An additional reason for the low probability of Turkish producers receiving significant direct payments is the most recent reform, which will fully decouple most direct payments from agricultural production in the future. Therefore, the need to establish payments at a comparable level in a common market for reasons of competition will become much less important in the future. A trend towards nationalization of direct payments may be the result, already partially realized through the different level of direct payments in the EU-15 and the NMS-10 until 2013, and the possibility of individual countries in the NMS-10 to pay national top-ups in addition to the EU direct payments to their producers. In short, direct payments will be reduced, probably fully decoupled, and potentially partly nationalized before Turkey will become an EU member. Thus any direct payments from the EU budget to Turkish producers will be much lower than payments under the current CAP, if any at all.

As an example, if one assumes that the level of direct payments in the EU is reduced by an average annual rate of 3 percent up to 2014, budgetary outlays for full implementation of direct payments in Turkey drop to €3.6 billion. Furthermore, it is highly probable that direct payments for Turkey would be phased in as they are for the NMS-10 and as they will be for Bulgaria and Romania. For those countries, the starting level is 25 percent of the EU level and the full level is reached in the tenth year of membership. Such an approach would reduce direct payments for Turkey in the initial year of membership to about €900 million. In 2024 this amount would be about €2 billion, if one assumes that the EU level is reduced further by 3 percent annually.

4 Second Pillar of the CAP

In contrast to the instrument of direct payments from the EU budget, which will probably decline in importance in the future, the second pillar of the CAP is projected to rise: in 2004 about €8.3 billion or 18 percent of the expenditure on EU agricultural policies are spent on this broad policy basket of rural development policies and in its draft Financial Perspective for 2007 to 2013, the EU-Commission proposes to increase these payments to €13.2 billion or 23 percent of the CAP budget in 2013 (AGRAEUROPE, 2004d). Through the modulation mechanism, which shifts 5 percent of direct payments to the second pillar of the CAP until 2007, there is a direct link between the reduction of direct payments in the first pillar and the strengthening of the second pillar of the CAP. Current EU payments in the second pillar of the CAP are distributed among member states according to historical negotiating power and their readiness to co-finance EU funds. But for the allocation of modulation funds, which is "new second pillar money," the EU has explicitly established agricultural area, employment in agriculture, and GDP_{PPS} per capita as criteria for the allocation of funds.[5] The same criteria were used by the European Commission, along with the somewhat nebulous "…specific territorial situation in each country" (EUROPEAN COMMISSION, 2002, p. 5) for the allocation of Sapard funds to the Central European accession candidates, and in the allocation of rural development funds for the NMS-10 as well as Bulgaria and Romania. Based on these criteria Turkey would be eligible for a high share of payments under the second pillar of the CAP.

What could the future level of payments to Turkey be under the second pillar of the CAP? The answer to this question can only be guessed at as there is no clearly defined rule of allocating second pillar funds to individual member states, whether one of the EU-15, or a new member state. Therefore, the following "best guess" is based on the level of rural development funds being allocated to the NMS-10 for the period 2004-2006 and to Bulgaria and Romania for the period 2007-2009, as well as on the above-mentioned criteria of agricultural area, employment, and GDP_{PPS} per capita. Table 3 presents a comparison of those criteria for the NMS-10, Romania and Bulgaria, and Turkey in 2002, as well as projections for all countries for the (assumed) year of accession.

---

[5] EC Directive 1782/2003, Official Journal of the EUROPEAN COMMUNITIES (OJ) L 270, 21.10.2003.

Table 3: Criteria for the Allocation of Rural Development Funds to the NMS-10, Bulgaria and Romania, and Turkey

	NMS-10		Bulgaria & Romania		Turkey		Turkey (2014) in % of	
	(2002, 2003)	(2004)	(2002, 2003)	(2007)	(2002, 2003)	(2014)	NMS 10 (2004)	B & R (2007)
Agricultural area (1,000 ha)	36,139	36,139	20,144	20,144	38,883	38,883	**108%**	**193%**
Agricultural employment (1,000)	3,880	3,610 [a]	3,982	3,325 [a]	7,458	4,839 [a]	**134%**	**146%**
GDP_{PPS} per capita (2003 €)	11,302	11,641 [b]	6,331	7,550 [b]	5,750	9,234[b]	**79%**	**122%**

[a] Agricultural employment in Turkey is assumed to continue to decrease by an annual rate of 3.5 percent until 2014, as it did in 1996 to 2002. For the NMS-10, Bulgaria, and Romania the same annual rate is applied.

[b] GDP_{PPS} per head is assumed to grow in real terms by 3 percent annually between 2003 and 2004 in the NMS-10. For Bulgaria and Romania the growth rate is assumed at 4.5 percent annually from 2003 to 2007. Projections are from EUROPEAN COMMISSION (2004b). In Turkey, GDP_{PPS} per head is assumed to grow in real terms by an annual rate of 4.4 percent between 2003 and 2014 based on sources cited above.

Sources: SIS (2004b), EUROPEAN COMMISSION (2004a, 2004b), own calculations.

Table 3 shows that Turkey's agricultural sector is expected to be slightly larger in 2014 than that of the NMS-10, and considerably larger than that of Bulgaria and Romania at the time of accession in terms of area and employment. The GDP_{PPS} per capita, however, is projected to be 21 percent lower than that of the NMS-10 but about 22 percent above that of Bulgaria and Romania. The following formula has been chosen to determine the level of rural payments for Turkey relative to any reference country group based on the criteria given above: [6]

$$(1) \qquad \text{Factor}_{\text{Turkey/reference}} = \frac{(0.65 \bullet \text{area ratio}_{\text{Turkey/reference}}) + (0.35 \bullet \text{employment ratio}_{\text{Turkey/reference}})}{(1 + GDP_{PPS} \text{ ratio}_{\text{Turkey/reference}})/2},$$

with "reference" standing for the NMS-10 or Bulgaria and Romania, or any average one wishes to apply.

The resulting factor of rural development payments for Turkey compared to the NMS-10 ($\text{Factor}_{\text{Turkey/NMS 10}}$) is 1.3. Rural development funds allocated to the NMS-10 from the Guarantee section of the EAGGF are €5.8 billion for the period 2004 to 2006 (EUROPEAN

[6] The higher weight of area than employment has been observed for example in the allocation of SAPARD funds to Bulgaria and Romania. But as has been mentioned above: any such formula is arbitrary and only a very rough anticipation of what could happen in the future.

COMMISSION, 2003a), i.e. about €1.9 billion per year.[7] Thus, Turkey would receive about €2.5 billion of rural development funds in case of accession from the CAP budget if one takes the NMS-10 as a reference. Taking Bulgaria and Romania as a reference, the resulting factor is 1.59. Rural development funds foreseen for Bulgaria and Romania for the period 2007-2009 are €1 billion annually (AGRA, 2004). Thus, Turkey would receive only about €1.6 billion of rural development funds in the first years of membership from the CAP budget if one takes Bulgaria and Romania as a reference. For Bulgaria and Romania, in contrast to the NMS-10, rural development measures are phased in. In 2009 the level will be at €1.27 billion and it is understood, that this amount will increase to about €1.4 billion in later years.[8] If one takes this as a reference, the final level of rural development funds from the Guarantee section of the EAGGF for Turkey may be at €2.2 billion, which is very close to the figures recently put forward by Agricultural Commissioner Fischler (AgraEurope, 2004a).

To no surprise, equation (1) can not fully explain the allocation of rural development funds to new member states – but final results derived from the NMS-10 are rather similar to those derived from Bulgaria and Romania. Two reasons lead to the assumption that in accession negotiations Turkey would probably end up closer to the allocation of funds based on the results for Bulgaria and Romania. First, the Turkish agricultural sector is more similar to that of Bulgaria and Romania in terms of its role in the overall economy. Second, Turkey's political "leverage" in accession negotiations may be less than that of the first wave of Central European accession countries. On the other hand, the decline in direct payments projected above may go along with a higher allocation of funds to the second pillar of the CAP, which may also enhance rural development funds for newly acceding members.

5 Conclusions

The above analysis shows that fully applying an unchanged CAP to Turkey in 2014 would cause high costs to the EU budget. Direct payments alone would account for about €5.2 billion. But the full implementation of the current CAP seems, for many reasons, not an option. The estimates made above, which assume direct payments in the EU to decline by 3

[7] Rural development measures financed from the Guidance section of the EAGGF, which are much lower, are not included here. This is because they fall under the 4 percent of GDP limit for EU structural policies discussed below.

[8] This phasing in process and its determinants as well as the determination of final levels are treated in a rather intransparent manner. Numbers are fixed in an EU-non-paper.

percent annually and a phase-in for Turkey as was applied to the NMS-10 and scheduled for Bulgaria and Romania, would see direct payments for Turkey in 2014 at about €900 million, which could increase to €2 billion in 2024 when direct payments would be fully phased in.

EU budgetary outlays for rural development policies in the first years of membership could amount to €1.6 to 2.5 billion, depending on whether one takes Bulgaria and Romania or the NMS-10 as a reference. As argued above, Bulgaria and Romania may be the more realistic reference in terms of political leverage as well as nature of the agricultural sector. Total EU budgetary outlays for the application of the CAP to Turkey could then total about €3.3 billion in 2014, if one adds the 16 percent budget share for policies except direct payments and rural development mentioned above. The total amount could rise to €5 billion in 2024 due to full phasing-in of direct payments and rural development policies.

In total, such payments would imply a significant net transfer from the then EU-28 to Turkey, because Turkey's contribution to the EU budget would be limited by its relatively low GDP. On the basis of projected GDP shares based on the growth rates presented above, Turkey would contribute about 2.9 percent to the EU budget in 2014. If one assumes the EU budget for the CAP without Turkey in 2014 at €55.5 billion, which is the level projected under the EU draft Financial Perspective for the year 2013, and the budgetary outlays under the CAP for Turkey to be at €3.3 billion, Turkey would contribute about €1.7 billion to the EU CAP budget. As a result, the net transfer under the CAP to Turkey would be about €1.6 billion in 2014. Until 2024, the resulting net transfer could increase to €2.6 billion, resulting from phasing-in of direct payments and rural development policies, but also a higher contribution from Turkey to the EU budget as growth catches up.[9] Are these figures high? In closing these amounts are put into perspective from a Turkish as well as an EU point of view.

For Turkey, a net transfer of €1.6 billion from the CAP would be about 0.3 percent of projected total GDP in 2014 and thus relatively small. Total annual EU payments for implementing the CAP in Turkey would amount to about 10 percent of projected agricultural production value in 2014 and about €680 per capita employed in agriculture. This would

---

[9] As a sensitivity analysis, Turkey's receipts from the CAP and the resulting net transfers were calculated again with the GDP growth rate for Turkey being two percentage points lower, i.e. overall GDP growth at 3.5 percent and GDP/capita growth at 2.4 percent. Under such a scenario Turkey's net receipts resulting from the CAP would be at €1.9 billion in 2014 and at €3.6 billion after full phasing-in of direct payments in 2024.

increase to about 14 percent of agricultural production value and €1,480 per person employed in agriculture in 2024.[10] So for the agricultural sector, transfers resulting from the CAP are substantial. On the other hand, applying the CAP in Turkey would go along with significant price reductions leading to an estimated loss in producer income of about €1 billion (GRETHE, 2004: 211), and probably also an abolition of transfers to agricultural producers under the current Turkish system of direct payments, which amounted to €1.3 billion in 2003 (OECD, 2004).

More important from the Turkish perspective than the resulting net transfers, however, seems the degree to which the CAP fits Turkish needs for the development of the agricultural sector. Direct payments in the first pillar of the CAP simply shift money to agricultural producers which for the most part ends up in the pockets of land owners, so long as payments are linked to area. Such transfers may even inhibit the necessary process of improvement of Turkish agricultural structure. Transfers of EU funds to Turkey under the second pillar of the CAP may hold more interest for Turkey than high direct payments. This is because payments under the second pillar can be targeted at measures which are aimed at improving productivity in Turkish agriculture, e.g. training farmers or workers who want to leave the sector, public investment in rural infrastructure, modernization of the food processing industry, and measures to improve the distribution of land among farms such as reparcelling.

From an EU perspective, Turkey would be a significant recipient of CAP funds. Projections made above would estimate Turkey receiving about 5.6 to 8.3 percent of the CAP budget. This, although, is not especially high compared to other large EU countries. For example in 2002 France received about €9.9 billion, which was 21 percent of the CAP budget of the EU-15. In terms of the net transfer situation resulting from the CAP, Turkey is in the range of other acceding countries: net transfers resulting from the CAP to the NMS-10 between 2004 and 2006 are about €900 million annually, and net transfers resulting from the CAP to Romania and Bulgaria are projected at €1.7 billion annually for the period 2007 to 2009.[11] Some of the EU-15 members received larger net transfers in the past: in 2002 net transfers to

[10] Negative growth rates projected for employment in the agricultural sector above are extrapolated to 2024.

[11] Own calculations based on the GDP growth rates presented above, the Financial Perspective for 2007-2013 (AGRAEUROPE 2004c), EUROPEAN COMMISSION (2003a, 2004d), and Agra (2004).

France resulting from the CAP were about €1.5 billion and for Spain they amounted to €2.9 billion.[12]

Finally, transfers to Turkey under the CAP can be assessed against the overall project of including Turkey in the EU, in budgetary as well as political terms. With respect to the budgetary impact of Turkish membership, expected transfers resulting from the CAP are much below the transfers which would result from the full implementation of the current EU structural policy in Turkey. Because of low income levels, all Turkish regions would be eligible to receive funds, and under the current policy rules, the upper limit of payments after full phasing-in would be 4 percent of GDP. Based on GDP projections made above, this would be about €15.3 billion in 2014. Net transfers resulting from the EU structural policy under such a scenario would be about €12.6 billion.[13] However, a slower phasing-in is applied to the NMS-10, which receive about €7.2 annually on average for 2004 to 2006 from the structural and cohesion funds (EUROPEAN COMMISSION, 2002), equivalent to about 1.6 percent of their projected GDP in that period. For Bulgaria and Romania an annual average sum of about €2.8 billion is agreed upon for the period 2007-2009 (EUROPEAN COMMISSION, 2004c), about 3 percent of their projected GDP. For both country groups, structural and cohesion funds outlays per capita in the first three years of membership are around €90, which seems to have been then navigational mark fixing the level of payments for this period. If one applies this level to the projected population in Turkey in 2014, Turkey would receive €7.6 billion annually and the resulting net transfer would be at €5.2 billion, much higher than expected payments and net transfers resulting from the CAP.

With respect to the overall political project of including Turkey in the EU, costs resulting from the CAP seem to take a backseat. The values, interests and opportunities at stake are too important to let an annual transfer of about €1.6 to 2.6 billion dominate the discussion. Nonetheless, the accession of Turkey may be an additional incentive among many to fully decouple and phase out direct payments in the EU.

---

[12] Own calculations based on EUROPEAN COMMISSION (2003b, 2004a).

[13] Own calculations based on projected expenditure for structural policy in the EU-27 in 2013 in the EU draft Financial Perspective 2007-2013 (EUROPEAN COMMISSION, 2004c).

6 References

AGRA (2004): Council Concludes Bulgarian and Romanian Accession Talks on Agriculture. In: AGRA FACTS. No. 46-04, 04.06.2004: 1-2.

AGRAEUROPE (2004a): Fischler Rejects Turkish EU Membership. In: AgraEurope Weekly. No. 2122, 10.09.2004: EP 2-3.

AGRAEUROPE (2004b): CAP Monitor.

AgraEurope (2004c): CAP Aids to be Cut as Financial Perspective Proposals Bite. In: AgraEurope Weekly. No. 2092, 13.02.2004.

AGRAEUROPE (2004d): Commission Triggers Funding Row as Financial Perspectives Unveiled. In: AgraEurope Weekly. No. 2092, 13.02.2004: EP 1-3.

AKDER, H. et al. (1990): Turkish Agriculture and European Community Policies, Issues, Strategies and Institutional Adaptation. Report of a study for the United Nations Development Programme, executed by the United Nations Conference on Trade and Development.

CAKMAK, E and H. KASNAKOGLU (2001): Tarim Sektöründe Türkiye ve Avrupa Birligi Etkilesimi: Türkiye 'nin AB'ye Üyeliginin Analizi. Proje Raporu 2001-18. Agricultural Economics Research Institute. Ankara, August.

DERVIS K., GROS, D., ÖZTRAK, F. and Y. ISIK (2004a): Turkey and the EU Budget. Prospects and Issues. Centre for European Policy Studies, EU-Turkey Working Papers No. 6, Brussels, August. http://shop.ceps.be/BookDetail.php?item_id=1148.

DERVIS K., GROS, D., ÖZTRAK, F., BAYAR, F., and Y. ISIK (2004b): Relative Income Growth and Convergence. Centre for European Policy Studies, EU-Turkey Working Papers No. 8, Brussels, September. http://shop.ceps.be/BookDetail.php?item_id=1153.

EUROPEAN COMMUNITIES: Official Journal. L 270, 21.10.2003.

EUROPEAN COMMISSION (2002): EU Agriculture and Enlargement. Fact Sheet. http://europa.eu.int/comm/agriculture/publi/fact/enlarge/2002_en.pdf.

EUROPEAN COMMISSION (2003a): Rural Development in the European Union. Fact Sheet. http://europa.eu.int/comm/agriculture/publi/fact/rurdev2003/en.pdf.

EUROPEAN COMMISSION (2003b): Allocation of 2002 EU Operating Expenditure by Member State. September 2003. http://europa.eu.int/comm/budget/pdf/agenda2000/allocrep_en2002.pdf.

EUROPEAN COMMISSION (2004a): The 2003 Agricultural Year, http://europa.eu.int/comm/agriculture/agrista/2003/table_en/index.htm.

EUROPEAN COMMISSION (2004b): unpublished data.

EUROPEAN COMMISSION (2004c): Commission Proposes a Fair and Balanced Share of the EU Budget for Bulgaria and Romania. Press Release IP/04/188, 10.02.2004. http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/04/188&format=HTML&aged=0&language=EN&guiLanguage=en.

EUROPEAN COMMISSION (2004d): General Budget for the European Union for the Financial Year 2004, The Figures. April. http://europa.eu.int/comm/budget/pdf/budget/syntchif2004/en.pdf.

EUROSTAT (2004): New Cronos Database. http://europa.eu.int/comm/eurostat/newcronos/queen/display.do?screen=welcome&open=/&product=YES&depth=2&language=de.

FAO (2004): FAOSTAT database. http://faostat.fao.org/faostat/collections?subset=agriculture.

FLAM, H. (2003): Turkey and the EU: Politics and Economics of Accession. Seminar Paper 718, Institute for International Economic Studies, Stockholm University. http://www.iies.su.se/publications/seminarpapers/718.pdf.

GRETHE, H. (2004): Effects of Including Agricultural Products in the Customs Union between Turkey and the EU. A Partial Equilibrium Analysis for Turkey. CeGE-Schriften, Center for Globalization and Europeanization of the Economy, Georg-August-Universität Göttingen, No. 9. Peter Lang Verlag, Frankfurt am Main. Also published at http://webdoc.sub.gwdg.de/diss/2004/grethe/index.html.

LEJOUR, A. M., R. A. DE MOOIJ and C. H. CAPEL (2004): Assessing the Economic Implications of Turkish Accession to the EU. CBP Document No 56, March. http://www.cpb.nl/eng/pub/document/56/doc56.pdf.

MANEGOLD, D. (1988): Agrarpolitische Probleme einer Mitgliedschaft der Türkei in der Europäischen Gemeinschaft. Arbeitsbericht des Instituts für landwirtschaftliche Marktforschung der Bundesforschungsanstalt für Landwirtschaft Braunschweig-Völkenrode (FAL).

OECD (2004): Producer and Consumer Support Estimates, OECD Database 1986-2003. http://www.oecd.org/document/58/0,2340,en_2649_37401_32264698_1_1_1_37401,00.html.

QUAISSER, W. and A. REPPEGATHER (2004): EU-Beitrittsreife der Türkei und Konsequenzen einer EU-Mitgliedschaft. Working Paper Nr. 252, Osteuropa-Institut München. http://www.cdu-csu-ep.de/tuerkei/studie_osteuropainstitut_lang_0304.pdf.

SIS (2003): Agricultural Structure 2002.

SIS (2004a): Quarterly GNP. http://www.die.gov.tr/english/SONIST/GSMH/gsmh.html.

SIS (2004b): Labour Force Datablase. http://lmisnt.pub.die.gov.tr/die/plsql/lmwebeng.lmrapor_header.

WEISE, C., M. BANSE, W. BODE, B. LIPPERT, F. NÖLLE and S. TANGERMANN (2002): Die Finanzierung der Osterweiterung der EU. Nomos Verlagsgesellschaft, Baden-Baden.

WORKING PAPER der Wirtschafts- und Sozialwissenschaften an der Landwirtschaftlich-Gärtnerischen Fakultät der Humboldt-Universität zu Berlin:
Die Hefte 1- 18 erschienen unter dem Titel BERLINER BEITRÄGE ZUR AGRARENTWICKLUNG.

Nr. 1 **(1989) Kirschke, D.**
Entscheidungsfindung im System der Internationalen Agrarforschungsinstitute.
Nr. 2 **(1989) Agrawal, R.C.**
Approaches to Perspective Planning of Agricultural Sector in Developing Countries.
Nr. 3 **(1990) Streiffeler, F.**
Aufgabe alter Fischfangtechniken, Generationenkonflikt und Ressourcenerschöpfung - Eine Studie bei den Wagenia in Zaire.
Nr. 4 **(1990) Nitsch, M.**
The Biofuel Programme PROALCOOL within the Brazilian Energy Strategy.
Nr. 5 **(1990) Kirschke, D. und Lorenzl, G.**
Reason, rhetoric, and reality: Agricultural policy analysis reconsidered.
Nr. 6 **(1990) Blum, V.**
Veränderungen kleinbäuerlichen Wirtschaftens in sozialen Krisensituationen.
Beispiele aus den peruanischen Anden.
Nr. 7 **(1991) Hagelschuer, P.**
Systemwechsel und sektorale Wirkungen in der Landwirtschaft der ehemaligen DDR.
Nr. 8 **(1991) Sauer, P.**
Entwicklungszusammenarbeit - Arbeitsfeld von Diplom-Agraringenieuren? -
Nr. 9 **(1991) Dirscherl, C.**
Die Organisation landwirtschaftlicher Arbeit in der LPG:
Beobachtungen eines agrarsoziologischen Forschungspraktikums.
Nr. 10 **(1993) Kirschke, D.**
Agrarpolitik im Spannungsfeld zwischen Ernährungssicherung und Ressourcenschutz.
Nr. 11 **(1993) Kirschke, D.**
EG-Agrarpolitik, Gatt und kein Ende.
Nr. 12 **(1993) Kirschke, D.**
Research priority setting for livestock development in developing countries.
Nr. 13 **(1994) Creemers, L.**
Städtische Landwirtschaft in Lateinamerika und der Karibik (Eine Erkundung der grünen Flächen in den Städten).
Nr.14 **(1995) Hagelschuer, P.**
Der Transformationsprozeß in den fünf neuen Bundesländern der BRD mit seinen Auswirkungen auf den Agrarsektor.
Nr. 15 **(1995) Schubert, W.**
Bodennutzung und Betriebssysteme in der Ukraine.
Nr. 16 **(1995) Lorenzl, G. und Brandt, H.**
Landbau und Metropolis: Ein Beitrag zur agrikulturellen Sinnfindung.
Nr. 17 **(1995) Kennedy, P.L.; von Witzke, H.; Roe, T.L.**
A Cooperative Game Approach To Agricultural Trade Negotiations.
Nr. 18 **(1995) Bohler, K.F.**
Historisch-soziologische Typen der Agrar- und Sozialverfassung in Deutschland.
Nr. 19 **(1996) Hagelschuer, P.; Mertens, H.**
Zu Ergebnissen der Transformation in den Agrarsektoren ausgewählter mittel- und osteuropäischer Länder.
Nr. 20 **(1996) Svatos, M.**
Der Transformationsprozeß und der strukturelle Wandel in der Landwirtschaft der Tschechischen Republik (TR).
Nr. 21 **(1996) Häger, A.; Hagelschuer, P.**
Einige soziale Auswirkungen der Transformation im Agrarsektor der Neuen Bundesländer.
Nr. 22 **(1996) Jahnke, H. E.**
Farming Systems and Development Paths of Agriculture - the Case of the Seasonal Tropics.
Nr. 23 **(1996) Balmann, A.; Moosburger, A.; Odening, M.**
Beschäftigungswirkungen der Umstrukturierung der ostdeutschen Landwirtschaft.
Nr. 24 **(1996) Gabbert, S.; Schamel, G.; von Witzke, H.**
Wine Quality and Price: A Hedonic Approach.
Nr. 25 **(1996) Kirschke, D.; Lotze, H.; Noleppa, S.; von Witzke, H.**
Reform of the CAP Reform: Empirical Evidence for the New Länder of Germany.
Nr. 26 **(1996) Berger, Th.**
Fuzzy-KW. Ein Programm zur Berechnung von Fuzzy-Kapitalwerten.
Nr. 27 **(1996) Gallagher, P.**
International Marketing Margins with Trade Uncertainty. Some Effects of Non-Tariff Trade Barriers.
Nr. 28 **(1996) Lotze, H.**
Foreign Direct Investment and Technology Transfer in Transition Economies: An Application of the GTAP Model.
Nr. 29 **(1996) Schubert, W.**
Ukraine - Agrarstrukturen im Umbruch.

Nr. 30 **(1996) Brandt, H.; Jahnke, H.E.; Mechtel, M.; Schulze, A.**
Intensitätsfragen der Reiserzeugung in Westafrika - eine Fallstudie aus Sierra Leone.

Nr. 31 **(1996) Weber, M.; Jahnke, H.E.**
Modellierung der potentiellen Auswirkungen des „Broad-Bed-Makers“ (BBM) in der äthiopischen Landwirtschaft.

Nr. 32 **(1997) Schamel, G.**
Agricultural Trade and the Environment: Domestic Versus Global Perspectives.

Nr. 33 **(1997) Hagedorn, K.**
Access to Land Rights as a Question of Political Influence. The Case of Privatization of Nationalized Land in Eastern Germany.

Nr. 34 **(1997) Kühne, S.; Hagelschuer, P.; Häger, A.**
Auswirkungen des Transformationsprozesses auf die Fleischwirtschaft in den neuen Bundesländern.

Nr. 35 **(1997) Odening, M.; Hirschauer, N.**
Transfer pricing in divisionalized farms.

Nr. 36 **(1997) Chennamaneni, R.**
Indian Agriculture at Cross Roads: Emerging Issues of Growth, Environment, and Food Security.

Nr. 37 **(1997) Kühne, S.; Hagelschuer, P.**
Auswirkungen des Transformationsprozesses auf die Milchwirtschaft in den neuen Bundesländern.

Nr. 38 **(1997) Burchard, M.**
Der Generalplan Ost: Ein finsteres Kapitel Berliner Wissenschaftsgeschichte.

Nr. 39 **(1997) Küpers, H.; Nasoetion, I.H.; Dieter-Gillwald, I.; Jahnke, H. E.**
Investitionsentscheidungen unter Transformationsbedingungen - Ein Ansatz für Planung, Bewertung und Risikoabschätzung einer landwirtschaftlichen Direktinvestition in Polen.

Nr. 40 **(1997) Halk, O.; Helzer, M.; Janßen, J.; Lorenzl, G.; Richter, L.; Schade, G.**
Forschung und Praxis im Agrarmarketing. Forschungskolloquium anläßlich des 65. Geburtstages von Prof. Dr. Manfred Helzer.

Nr. 41 **(1997) Wawrzyniak, J.; Ciesielska, B.; Schade, G.; Mertens, H.**
Die Zunahme des Angebots ausländischer Produkte auf dem Poznaner Markt für Gartenbauerzeugnisse und diesbezügliche Verbrauchermeinungen.

Nr. 42 **(1997) Jütting, J.**
Transmission von Preiseffekten im Kontext von Strukturanpassung.

Nr. 43 **(1997) Herok, C.; Lotze H.**
Auswirkungen einer Osterweiterung der EU unter einer veränderten Gemeinsamen Agrarpolitik.

Nr. 44 **(1998) Filler, G.; Garmhausen, A.; Jaster, K.; Kachel, K.-U.**
Eine ökonomische Situationsanalyse von Landwirtschaftsbetrieben im Biosphärenreservat Schorfheide-Chorin.

Nr. 45 **(1998) Kühne, S.; Hagelschuer, P.**
Auswirkungen des Transformationsprozesses auf die Zuckerwirtschaft in den neuen Bundesländern.

Nr. 46 **(1998) Balmann, A.; Moosburger, A.; Odening, M.**
‘Agenda 2000’ - Abschätzung der Auswirkungen auf landwirtschaftliche Unternehmen in den Neuen Bundesländern.

Nr. 47 **(1998) Balmann, A.; Hilbig, C.**
Zur Identifikation von Pfadabhängigkeiten in hochdimensionalen Systemen: Eine Anwendung multivariater Analyseverfahren auf simulierte Agrarstrukturentwicklungen.

Nr. 48 **(1998) Bräuer, M.**
Transformation und internationale Agrarpädagogik.

Nr. 49 **(1998) Teherani-Krönner, P.**
Women in Rural Production, Household and Food Security: An Iranian Perspective.

Nr. 50 **(1999) Jahnke, Hans E. (Hrsg.)**
Humboldt und Landwirtschaft - Beiträge zur Situation der Landwirtschaft in Mexiko damals und heute.

Nr. 51 **(1999) Gatzweiler, F. W.**
The Economic Value of Environmental Functions Provided by Dayak Rubber Gardens in West Kalimantan (Indonesian Borneo).

Nr. 52 **(1999) Garmhausen, A.; Jaster, K.**
Betriebswirtschaftliche Beurteilung verschiedener Bodennutzungsformen.

Nr. 53 **(1999) Gabbert, S.; Weikard, H.-P.**
On the Measurement of Undernourishment: A Critique of Methods.

Nr. 54 **(1999) Kirschke, D.; Morgenroth, S.; Franke, Ch.**
How do Human-Induced Factors Influence Soil Erosion in Developing Countries?

Nr. 55 **(2000) Odening, M.**
Der Optionswert von Sachinvestitionen - Theoretischer Hintergrund und Bewertungsmethoden.

Nr. 56 **(2000) Schäfer, R.**
Frauenarbeit, Frauenzusammenschlüsse und ländliche Entwicklung - Fallbeispiele aus Asien, Afrika und Zentralamerika.

Nr. 57 **(2000) Bogale, A.**
Land Degradation: Does it constitute a rational path for survival of resource-poor farmers in Merhabete District?

Nr. 58 **(2001) Lissitsa, A.; Odening, M.**
Effizienz und totale Faktorproduktivität in der ukrainischen Landwirtschaft im Transformationsprozess.

Nr. 59 **(2001) Stoehr, I.**
Berliner Agrarökonomen im "Dritten Reich". Von Max Sering zu Konrad Meyer - ein "machtergreifender" Generationswechsel in der Agrar- und Siedlungswissenschaft.

Nr. 60 **(2001) Hopfer, R.**
Berliner Agrarökonomen im "Dritten Reich". Karl Brandt und das Institut für landwirtschaftliche Marktforschung.

Nr. 61 **(2002) Odening, M.; Hinrichs, J.**
Die Quantifizierung von Marktrisiken in der Tierproduktion mittels Value-at-Risk und Extreme-Value-Theory

Nr. 62 **(2002) Schäfer, M.; Schade, G.**
Wege zur Verbreitung ökologisch produzierter Nahrungsmittel in Berlin-Brandenburg.

Nr. 63 **(2002) Hagelschuer, P.; Grienig, H. (Hrsg.)**
Probleme der Welternährung. Beiträge zum Ehrenkolloquium in memorian Prof. Dr. S. Münch.

Nr. 64 **(2002) Berndt, W.; Hagelschuer, P.**
Kirchengüter in der DDR. Teil I: Die kirchliche Landwirtschaft in der SBZ (1945-1949).

Nr. 65 **(2003) Mußhoff, O., Hirschauer, N., Palmer, K.**
Bounded Recursive Stochastic Simulation - a simple and efficient method for pricing complex American type options.

Nr. 66 **(2003) Weber, G.**
Internationaler Handel und multifunktionale Landwirtschaft: Ein Agrarsektormodell zur Analyse politischer Optionen und Entscheidungsunterstützung.

Nr. 67 **(2003) Odening, M., Mußhoff, O., Hüttel, S.**
Empirische Validierung von Realoptionsmodellen.

Nr. 68 **(2003) Jaster, K.; Filler, G.**
Umgestaltung der Landwirtschaft in Ostdeutschland.

Nr. 69 **(2004) Arbenser, L.**
A General Equilibrium Analysis of the Impact of Inward FDI on Ghana: The Role of Complementary Policies.

Nr. 70 **(2004) Grethe, H.**
Turkey's Accession to the EU: What Will the Common Agricultural Policy Cost?

Der Autor:
Dr. Harald Grethe
Institut für Wirtschafts- und Sozialwissenschaften des Landbaus
der Humboldt-Universität zu Berlin, Fachgebiet Internationaler Agrarhandel und Entwicklung
Luisenstr. 56, D-10099 Berlin
Tel: +49-30-2093-6787, E-mail: harald.grethe@agrar.hu-berlin.de