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Degressivity, capping and European farm structure: New evidence from Hungary

The debate on reforming the Common Agricultural Policy (CAP) after 2020 had already started when the European Commission published its own vision on the future of agriculture and food production in the European Union. One of the key aspects of this debate relates to the revision of the system of EU direct payments by revising degressivity and capping rules. Although it has, for a long time, been a popular idea to limit payments to larger farms in one way or another, and subsidise smaller agricultural holdings instead, this idea has serious drawbacks as this paper shows. The aim of this study is to analyse the impact of degressivity and capping on European farm structures by reviewing existing literature on the topic as well as by providing new evidence from Hungary. Results suggest that placing a cap on direct payments may be causing more harm than good in terms of land use change.

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Introduction

In 2013, a general agreement was made by the European Council and the European Parliament on the reform of the Common Agricultural Policy (CAP) for the period 2014-2020. The agreement was the result of many years of negotiations on different issues and topics. One of the most heavily debated issues was degressivity and capping, aimed at providing a more equitable distribution of direct payments by farm.

On the one hand, the possibility of reducing/limiting direct payments for large farms has always been a popular idea amongst liberal agricultural economists and decision makers throughout the history of the CAP. The need for 'balancing' direct payments was even expressed in the MacSharry reform proposals in 1992 when direct payments were introduced. On the other hand, degressivity/capping was heavily opposed by countries where large farms dominated the agricultural sector.

It seems that the opponents have won as original ideas on degressivity/capping have largely been watered down after the 2013 removal of modulation (Sahrbacher *et al.,* 2015). The aim of this paper is to analyse the impact of degressivity and capping on European farm structures by reviewing the existing literature on the topic as well as by providing new evidence from Hungary.

The paper is structured as follows. The second section provides a review of the existing literature on the impact of the Common Agricultural Policy (CAP) on European farm structures, followed by a political economy analysis of degressivity and capping. The fourth section shows the uneven distribution of direct payments in Europe, followed by the presentation of the Hungarian evidence. The last section concludes.

The impact of CAP on European farm structures

A large amount of literature is dedicated to the investigation of the impact of CAP measures on structural changes of agricultural holdings. According to EC (2015), there were 11 million farms cultivating 172 million hectares of agricultural land with 22 million people in European agriculture in 2015. EC (2013) suggests that the number of farms has been declining since 1975 and those remaining have become bigger both in terms of agricultural area and also in economic terms. On the whole, the majority of European farms are small, both physically and economically, but the average farm size is increasing.

Generally studies conclude that the CAP has a high impact on farm structures in Europe (Table 1). Breustadt and Glauben (2007) investigated the driving forces behind exiting from farming in Western Europe based on 1993-1997 data to 110 regions in EU-12 by simulating the simple theoretical model of structural change. Their results show that exit rates are lower in regions with more part-time farming, high subsidy payments and high relative price increases for agricultural outputs. The authors suggest that opportunities to combine farm and off-farm income as well as government intervention slows down structural change in European agriculture. These results, however, should be handled with caution as CAP was significantly different in the 1990s to the way it is implemented today.

Bartolini and Viaggi (2013) analysed the determinants of changes in EU farm size based on data obtained from a 2009 survey of over 2363 farm households in 11 Catudy Areas (CSAs) in 9 different European Countries. By also applying simulation modelling, the authors found that single payment scheme models affect the changes in demand for land and CAP abolition strongly reduces the intention to increase the amount of farmed area. Geographic variables, farm characteristics and the number of on-farm employees are found to be factors relevant to explaining planned farmed area expansion.

Happe *et al.,* (2009) investigated the role of CAP in shaping Slovakian farm structure by agent-based modelling as well for 2002 as a base year, based on data of 327 farms. Their results suggest that that direct payments had a strong impact on the structural development of Slovakian farms in the long run and have made farm structure increasingly

homogenous towards larger farm sizes. Moreover, the SPS system was found to persuade single farm holders, otherwise hesitating to exit from the sector, to stay in agriculture

Some studies focus on the role of generation renewal in agriculture as a prerequisite for structural change in the sector. As fewer and bigger farms are offering fewer jobs in Europe, agricultural employment possibilities for young farmers are also shrinking. Young farmers (classified as younger than 35 years) made up 6% of all farm holders in Europe, while elderly farmers (above 55 years) account for 55% of farms in 2007. Moreover, statistics suggest that elderly farmers are generally not retiring and passing on their farms to the younger generation, thereby creating serious consequences on the overall growth potential of the sector. What is more, there are fewer young people in the agricultural sector than in any other sector of the economy (EC, 2011a).

Davis *et al.,* (2013) investigated the efficacy of incentives for new entrants to farming as an alternative to early retirement schemes for farmers in Northern Ireland by employing a dynamic farm optimisation model for survey data with 2001 as a basis year. The authors found new entrant schemes having a positive impact on entry of young farmers, especially in the case of interest rate subsidies on farm development loans.

A comprehensive review on the main challenges young farmers are facing with as well as the evaluation of the efficiency of young farmer schemes can be found in Regidor (2012) as well as in Zagata and Sutherland (2015). Their results, based on simple descriptive statistics, suggest that young farmer schemes have very limited effects on encouraging new entrants to agriculture.

Other studies focus on the impact of CAP on farm exit in terms of structural change and studies generally argue that CAP plays a crucial role in retaining farmers in the sector. On the one hand, farm exit strategies under CAP elimination scenarios were analysed by Raggi *et al.,* (2013), building on survey data carried out in 9 EU countries in 2009, ending up in a sample of 2300 farms-households. By using a probit Heckman model, results suggest that numbers of farm households opting to exit from agriculture increased sharply under the scenario characterised by the removal of the CAP. Their article holds the clear policy message that the current CAP payments are important for staying in/exiting farming activities, but the land reallocation process (as a consequence of land abandonment) clearly requires more targeted instruments (towards young and active farmers, in order to avoid fragmentation, dispersion, or attraction only for speculation purposes).

Olper *et al.,* (2014) examined the different instruments of the CAP on the out-farm migration in a sample of 150 EU regions of the EU-15 over the period 1990-2009 by using fixed effects and GMM regressions. Results suggest that CAP payments generally contribute to keeping labour in agriculture and especially coupled subsidies seem to be the most effective in reducing out-farm migration through obligatory production (and hence labour input).

Peerlings *et al,* (2014) investigated the resilience of European farms with and without the CAP and applied binomial and logit regression models on survey data on 11 case study regions in 9 EU countries conducted in 2009. Results show that farms choosing to exit are those most dependent on CAP support, lease a relatively large share of their

Table 1: Summary of studies on the impact of the CAP on the structure of agricultural holdings.

Study	Method	Unit of analysis	Time	Type	Result
Breustadt and Glauben (2007)	Simulation model	EU-12	1993-1997	Ex-post	Government intervention slows down structural change in European agriculture
Bartolini and Viaggi (2013)	Simulation modelling	EU-27	2009	Ex-ante	Single payment scheme models affect the changes in demand of land and CAP abolishment strongly reduces the intention to increase the amount of farmed area
Happe *et al.* (2009)	Agent-based simulation modelling	Slovakia	2002	Ex-ante	Direct payments make farm structure increasingly homogenous towards larger farm sizes
Davis *et al.* (2013)	Dynamic farm optimisation model	Northern Ireland	2001	Ex-ante	New entrant schemes having a positive impact on young farmers, especially regarding interest rate subsidies on farm development loans
Raggi *et al.* (2013)	Heckman probit model	EU-27	2009	Ex-ante	CAP payments are important for staying in/exiting farming activities, but the land reallocation to young farmers process clearly requires more targeted instruments
Olper *et al.* (2014)	Fixed effects and GMM regression	EU-15	1990-2009	Ex-post	CAP payments generally contribute to keeping labour in agriculture and especially coupled subsidies seem to be the most effective in reducing out-farm migration
Peerlings *et al.* (2014)	Binomial and logit regression models	EU-27	2009	Ex-ante	Least resilient and most CAP-dependent farms are most likely choosing to exit agriculture
Petrick and Zier (2011)	Difference-in-differences panel data regression	Germany	1999-2006	Ex-post	Pillar I and II payments generally ended up in exit of labour from agriculture via investment and capital/labour substitution effects
Tocco *et al.* (2013)	Bivariate probit models	France, Hungary, Italy, Poland	2005-2008	Ex-post	Decoupled payments kept labour in agriculture in the NMS but not in the OMS

Source: own composition

land, and are part-time and diversified farms. These farms were confronted with a relatively high drop in income in the event of CAP abolition and faced relatively high adaptation costs when adjusting their factor input use or simply did not have sufficient assets to be able to survive as farms in a no-CAP world. The results also indicate that – besides being less likely to exit – more specialised farms with young farm heads are most resilient, and small, more diversified farms headed by old farmers are least resilient.

On the other hand, Petrick and Zier (2011) analysed regional employment impacts of the CAP measures in Eastern Germany based on regional data of 1999-2006, resulting in 483 observations. By using a difference-in-differences regression model, the authors found that investment aids and transfers to less-favoured areas had a zero marginal employment effect. They also present evidence that full decoupling of direct payments led to labour shedding, as it made transfer payments independent of factor allocation. Spending on modern technologies in processing and marketing and measures aimed at the development of rural areas led to job losses in agriculture. However, agri-environmental measures, kept labour-intensive technologies in production or induced them.

Tocco *et al.,* (2013) examined the determinants of exit from agriculture of CAP payments in France, Hungary, Italy and Poland in 2005-2008 by bivariate probit models and found that total subsidies were negatively associated with the out-farm migration of agricultural workers in Hungary and Poland, implying that the CAP hindered labour exit from agriculture. Conversely, results were exactly the opposite for France and Italy, representing 'Old Member States'. When analysing impacts of policy changes, the authors conclude that the OMS reacted more to the decoupling in the period analysed while the NMS responded to the recent introduction of EU subsidies.

The political economy of degressivity and capping

The uneven distribution of direct payments has been on the Europe policy agenda for 25 years (direct payments were introduced by the MacSharry reform in 1992). Attempts to limit payments made to large farms have systematically been brought up in all CAP reforms so far (Sahrbacher *et al.,* 2015). As 80% of payments are received by 20% of farms in Europe, the idea seems reasonable and has gained wide public support.

However, it was only in 2005 when a 5% compulsory reduction of direct payments of farms receiving more than €5,000 (modulation) was first implemented, transferring funds from the first pillar of the CAP to the second. From 2009 as a part of a political compromise, modulation rates were stepwise increased to 10% until 2012 and set 4% higher for large farms (progressive modulation) in the belief that the issue has completely been solved (Anania-D'Andrea, 2015).

In the Commission's original proposal published in October 2011 (European Commission 2011a), direct payments were proposed to be reduced by 20% for the tranche of more than €150,000 and up to €200,000; by 40% for the tranche

of more than €200,000 and up to €250,000; by 70% for the tranche of more than €250,000 and up to €300,000 and by 100% for the tranche of more than €300,000. However, the Commission allowed these amounts to be 'calculated by subtracting the salaries effectively paid and declared by the farmer in the previous year, including taxes and social contributions related to employment, from the total amount of direct payments initially due to the farmer without taking into account the payments to be granted pursuant to Chapter 2 of Title III of this Regulation' (EC, 2011a, p 28.). The text also added that 'Member States shall ensure that no payment is made to farmers for whom it is established that, as from the date of publication of the Commission proposal for this Regulation, they artificially created the conditions to avoid the effects of this Article' (EC, 2011a, p 29.).

There has been a heavy debate on the original proposal above. Germany, Great Britain, Italy, Romania, Czech Republic, Slovakia, Sweden and the Netherlands rejected any capping on direct payments by arguing that capping would discriminate between farms according to their size, contradicting the original principles of the CAP Sahrbacher *et al.,* (2015). These countries also argued that capping would result in artificial split of large farms (see next section for evidence).

However, at the other end, Bulgaria, Austria and Poland were in favour of capping, mainly because of their extremely concentrated farm structures as well as their relatively disadvantaged positions in terms of direct payments per hectare. Another argument against capping was that several New Member States inherited dual farm structures from the socialist era, dominated by large-scale units. However, as salaries and wage levels were relatively low in this part of Europe, these countries would have been the most affected in degressivity and capping (Sahrbacher *et al.,* 2015).

All in all, the final decision introduced a mandatory reduction of 5% for the part of basic payments exceeding €150,000. Member states, however, are allowed to increase the degressivity rate up to 100%, making de facto the €150,000 threshold a 'cap' on basic payments. Member states were also allowed by the Ciolos-reform to apply the reduction after deducting labour costs of the previous year from the basic payment. Such 'savings' resulting from degressivity were then to be added to the EAFRD 'envelope', free of any co-financing by the member state. Note that member states were exempted from mandatory degressivity if voluntary redistributive payments were implemented, absorbing more than 5% of its ceiling for direct payments (Anania-D'Andrea, 2013).

In practice, fifteen member states where degressivity was implemented decided to apply the minimum possible percentage cut (without imposing any cap), while nine member states decided to put a cap on direct payments (Table 2). The EC estimated that for the period 2015-19, degressivity and capping would result in a 'saving' of €112 million, which is less than 0.3% of the financial resources allocated to direct payments in the EU-28 (Anania and D'Andrea, 2015). Such a low rate of 'savings', however, was not a surprise after the Commission's initial impact assessment (EC, 2011b), which talked about a 1.3% release of the total amount of direct payments at the EU level, equivalent to around €590 million. Sahrbacher *et al.,* (2015) highlight that this was much less

Table 2: Degressivity and capping applied by the EU Member States.

Country	Degressivity	Capping
Austria	YES	Cap at 150,000€
Belgium (Flanders)	YES	Cap at 150,000€
Bulgaria	YES, cut of 5% above 150,000€	Cap at 300,000€
Cyprus	YES, cut of 5% above 150,000€	NO
Czech Republic	YES, cut of 5% above 150,000€	NO
Denmark	YES, cut of 5% above 150,000€	NO
Estonia	YES, cut of 5% above 150,000€	NO
Finland	YES, cut of 5% above 150,000€	NO
Greece	NO	Cap at 150,000€
Hungary	YES, cut of 5% above 150,000€	Cap at 176,000€
Ireland	NO	Cap at 150,000€
Italy	YES, cut of 50% above 150,000€	Cap at 500,000€
Latvia	YES, cut of 5% above 150,000€	NO
Luxembourg	YES, cut of 5% above 150,000€	NO
Malta	YES, cut of 5% above 150,000€	NO
Netherlands	YES, cut of 5% above 150,000€	NO
Poland	NO	Cap at 150,000€
Portugal	YES, cut of 5% above 150,000€	NO
Slovakia	YES, cut of 5% above 150,000€	NO
Slovenia	YES, cut of 5% above 150,000€	NO
Spain	YES, cut of 5% above 150,000€	NO
Sweden	YES, cut of 5% above 150,000€	NO
United Kingdom (England)	YES, cut of 5% above 150,000€	NO
United Kingdom (Northern Ireland)	NO	Cap at 150,000€
United Kingdom (Wales)	YES, cut of 15% above 150,000€, progressively increasing up to 300,000€,	Cap at 300,000€
United Kingdom (Scotland)	YES, cut of 5% above 150,000€	Cap at 500,000€

Note: The table just contains countries applying degressivity/capping
Source: own composition based on Anania and D'Andrea (2015)

than the amounts coming from modulation (around 3 billion in 2013), while Matthews (2016) shows that by introducing degressivity and capping, Member States reduced their EU direct payment envelopes, as laid down in Annex II of Regulation (EU) No 1307/2013 of the European Parliament and of the Council, by around €109 million, in 2015. Almost two-thirds of this reduction was committed by Hungary.

As to the latest reform ideas, In its Communication "The Future of Food and Farming" of 29 November 2017 (European Commission, 2017), the European Commission proclaims capping as compulsory, and would allow for Member States to introduce or maintain the degressive reduction of direct payments. As for the capping of direct payments, costs of labour could be considered to avoid negative effects on jobs. Member States would be also encouraged to redistribute direct payments to better target small agricultural holdings. These would be the tools of the post-2020 CAP which could influence the distribution of direct payments among the beneficiaries.

The uneven distribution of direct payments in Europe

On average, 80% of the beneficiaries (88% for Bulgaria and Romania) received around 20% of direct payments in 2015 with important differences among member states (EC, 2015). A detailed analysis of the respective dataset provides further information on the payments related to degressivity/capping (Table 3).

German farms received above €150 thousand, the highest amount in the EU-28 in 2015, while the highest share of direct payments under degressivity was found in Slovakia (71% of payments were made above this threshold). The highest number of beneficiaries receiving direct payments above €150 thousand could also be found in Germany (Table 3). The highest share in this regard is observable for Czech Republic (5.17%). Moreover, the average payment above €150 thousand to recipients was the highest in Croatia (almost €500,000 per beneficiary).

The idea of degressivity/capping described above, however, is not theoretically perfect. Bureau and Mahé (2015), for instance, found capping of payments almost completely ineffective at the European level. By allowing member states to choose different degressivity/capping options, the equal distribution of direct payments remains only rhetoric. The authors find a 'general reluctance' of member states to introduce effective capping. They also argued that deducing labour costs is a strange way of fostering rural employment as wage rates were mainly set by the national labour market, thereby resulting in a biased transfer of land and capital to labour. Moreover, heterogeneous proportions of large farms across Europe also make the capping idea hard to implement.

Table 3: Direct payments paid above €150,000 by member state, 2015.

Country	Amount paid (in 000 €)	Out of total (%)	Number of beneficiaries	Out of total (%)	Average payment to recipients (in €)
Austria	11,213	1.59	41	0.01	273,488
Belgium	11,440	2.08	58	0.17	197,241
Bulgaria	203,577	31.62	709	0.72	287,133
Croatia	25,747	16.16	52	0.01	495,134
Cyprus	695	1.35	4	0.01	173,750
Czech Republic	583,062	66.07	1,543	5.17	377,876
Denmark	164,160	17.42	747	2.53	219,759
Estonia	20,393	18.42	87	0.51	234,402
Finland	5,570	1.06	29	0.01	192,069
France	254,786	3.35	883	0.24	288,546
Germany	1,130,648	21.99	3,545	1.12	318,942
Greece	1,727	0.08	10	0.01	172,700
Hungary	432,039	33.63	1,090	0.01	396,366
Ireland	12,263	11.08	64	0.01	191,609
Italy	426,730	10.86	1,588	0.14	268,722
Latvia	13,153	8.40	59	0.01	222,932
Lithuania	38,116	9.67	144	0.10	264,694
Luxembourg	407	1.23	2	0.01	203,500
Malta	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	46,548	5.82	209	0.44	222,287
Poland	222,663	6.64	728	0.01	305,856
Portugal	76,957	11.93	335	0.21	229,722
Romania	233,581	16.46	785	0.01	297,555
Slovakia	305,630	70.87	816	4.62	374,547
Slovenia	7,554	5.56	16	0.01	472,125
Spain	417,361	0.08	1,569	0.01	266,004
Sweden	44,898	6.53	205	0.33	219,015
United Kingdom	431,485	13.87	1,714	1.03	251,742
EU-28	5,122,413	12.14	17,032	0.24	300,752

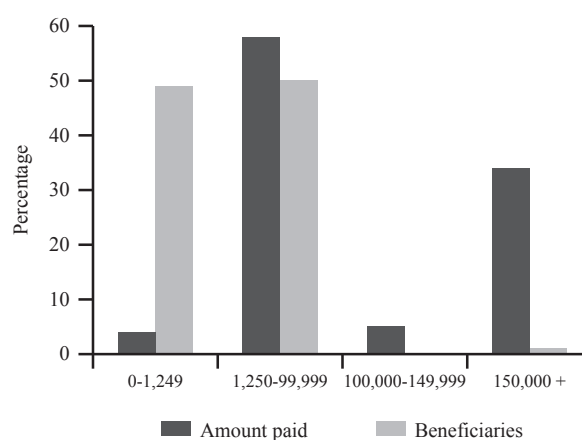Source: own calculations based on DG AGRI (2015)

New evidence from Hungary[1]

According to the latest national statistics (HCSO, 2017), there were 9 thousand agricultural enterprises and 416 thousand agricultural holdings engaged in agriculture in 2016. However, many of the latter were subsistence or semi-subsistance farmers cultivating agricultural areas less than one hectare. According to the Hungarian Paying Agency, however, there were only 173,578 farms applying for direct payments in 2016, accounting for 41% of total farms.

The distribution of direct payments in Hungary is well in line with European evidence (Figure 1). Almost 50% of beneficiaries received less than 5% of the total payments, while 34% of payments were received by 1% of the beneficiaries. Most beneficiaries receive direct payments between €500 and €1250 (small farmers), while the highest amount of payments pertain to the €20-50 thousand size category.

In terms of degressivity/capping, Hungary chose to apply a 5% cut above €150,000 and a cap at €176,000, as evident from Table 1. Degressivity was applied to 568 farms in 2015 (out of which capping was applied to 74) and to 534 farms in 2016 (out of which capping was applied to 60).

The average amount deduced was €144,531 in 2015 and €153,022 in 2016. The total amount 'saved' by degressivity was €46,371,476 in 2015 €39,331,252 in 2016 (compared to €69,746,000 in 2015 and €68,961,000 in 2016 moved from the first pillar to the second).

Figure 1: Distribution of direct payments and beneficiaries in Hungary, by amount received (thousand euro), 2015 financial year.
Source: own composition based on DG AGRI (2015) data

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[1]   All data in this section are from the Hungarian Paying Agency.

Table 4: Number of farms by physical size categories in Hungary, 2012-2016.

Farm size (UAA)	2012	2013	2014	2015	2016
0-3 ha	58,546	59,732	60,143	55,373	54,922
3.01-5.00 ha	25,448	25,653	25,280	25,698	25,456
5.01-10.00 ha	32,214	32,433	32,134	33,808	33,863
10.01-25.00 ha	30,465	30,280	30,195	28,961	28,572
25.01-50.00 ha	12,997	13,032	13,024	13,035	13,044
50.01-100.00 ha	7,689	7,761	7,792	8,170	8,308
100.01-300.00 ha	6,509	6,574	6,669	6,979	7,154
300.01-600.00 ha	981	982	1,067	1,231	1,227
600.01-1,200.00 ha	556	566	565	701	773
1,200.01 ha -	477	443	439	323	259
Total	175,882	177,456	177,308	174,279	173,578

Source: own composition based on Hungarian Paying Agency data

As a new result, the number of farms by physical size categories before and after degressivity/capping was implemented is analysed here. Results echo the fear of Bureau and Mahé (2015), suggesting that degressivity/capping leads to the splitting up of farms. As it is observable from Table 4, the number of farms with over 1200 hectares UAA (affected by capping) decreased by 26% and by 41% from 2014 to 2015 and 2016, respectively. In contrast to this decline, the number of farms with 600-1200 hectares UAA increased by 36% from 2014 to 2016, while the number of farms with 300-600 hectares UAA also grew by 15%.

However, note that changes above are also due to the new Land Transaction Act in force since 2014. According to this, only active farmers (and their family members) living in Hungary and obtaining at least a secondary agricultural and/or forestry qualification can buy land up to 300 hectares in total. National and foreign legal entities are excluded from the Hungarian land market. Moreover, the total area of land used by farmers cannot exceed 1,200 hectares (except for livestock farms and seed producers where the limit is 1,800 hectares). Furthermore, in the new Land Transaction Act, pre-emption rights are provided for the Hungarian State, the farmer using the land, the neighbouring farmers, local farmers and farmers living within a 20 km distance.

All the above creates high administrative burdens and strong state control for local land markets. In terms of land use regulations, Hungarian land policy favours family farms instead of large farms, in line with its capping ceilings (note that €176,000 euro corresponds to 1200 ha in Hungary). On the whole, land regulations together with degressivity/capping are both responsible for the splitting up of large farms.

Conclusions

The paper has analysed the impact of degressivity and capping on European farm structures by reviewing the literature and showing new evidence from Hungary. Results suggests that the CAP has had a high impact on farm structures. The vast majority of the studies conclude that government intervention slows down structural change in European agriculture, though the overall impact of different policy measures is rather mixed. Subsidies keep labour and farms in agriculture, and therefore also act against structural change necessary for productivity purposes. This somehow echoes the original dilemma – whether the CAP wants European agriculture to become productive (competitive) or socially fair (inclusive).

The answer seems to be both as the political economy analysis of degressivity and capping suggests. The aim of direct payments is at least as much to increase competitiveness of farms as to be socially fair and equal by redistributing payments by farm size. However, as is evident from the above data, capping seems to be causing more harm than good. As the Hungarian example shows, it has actually decreased farm sizes and contributed to massive farm splitting. Therefore, the question today pertains not to the exact rate of degressivity and capping but rather to its very existence as the continuation of this idea seems to lead to the creation of smaller and hence less competitive farms. The idea of capping has, in practice, had results the opposite of what was intended.

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