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Does farm ownership structure matter? Distribution of CAP subsidies between primary and final beneficiaries in Slovakia

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Abstract: This paper analyses the distribution of Common Agricultural Policy (CAP) subsidies between primary beneficiaries (farms) and final beneficiaries (farm owners) in Slovakia in 2021, using unique micro-level data. The results showed a significant inequality in the distribution of CAP subsidies between primary and final beneficiaries in Slovakia. The majority of CAP payments (92% for primary beneficiaries and 89% for final beneficiaries) were concentrated among the top 20% of beneficiaries, with a higher concentration among primary beneficiaries than final beneficiaries. However, there was a reversal at the top stratum of beneficiaries. The top 1% of primary beneficiaries received 26.2% of CAP subsidies, compared to 31.0% for final beneficiaries. For the remaining 99% of beneficiaries, the distribution of CAP subsidies was more concentrated at the level of primary beneficiaries than at the level of final beneficiaries. The analyses suggest that the implementation of the CAP in Slovakia has not been sufficient to address the unequal distribution of CAP subsidies.

Keywords: agricultural policy; concentration; farm income; micro-level; support inequality

The distribution Common Agricultural Policy (CAP) subsidies between small and large farms is a contentious issue among policymakers and academics (MacDonald et al. 2006; Kirwan 2007; Bekkerman et al. 2019; Espinosa et al. 2020; Pokrivčák et al. 2020). This debate revolves around the core objective of the CAP, which is to provide income support to farmers. Critics argue that large farms, which are able to generate substantial income on their own, may not need this support. Instead, they propose redirecting subsidies to promote social and economic development in rural areas and to support environmental public goods. This issue is particularly important in eastern EU Member States (MS), where large farms play a more prominent role than in the west.

Efforts to reform the distribution of CAP subsidies date back to the 1992 MacSharry reform, which aimed to reduce payments to large farms but was not adopted by the Council. A 5% reduction in payments for farms above EUR 5 000, known as modulation, began

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in 2005. Further reductions were proposed in 2008 but faced opposition from countries with a high proportion of large farms, resulting in a minimal increase in the modulation rate from 2009 (European Commission 2008; Swinnen 2015; Matthews 2018a). Recent reforms have advocated reducing (degressivity) and capping direct payments to large farms and increasing payments to small farms (i.e. redistributive payments). Introduced in 2013 and reinforced by the post-2020 CAP reform, these measures give Member States flexibility in applying the capping, with only degressivity being mandatory. As a result, eight Member States, including Slovakia, have introduced a CAP on direct payments from 2022 (European Commission 2022).

Despite these policy attempts, the unequal distribution of CAP subsidies and the reduction of subsidies to large farms still remains an unresolved issue. Moreover, the policy debate and the academic literature focus mainly on the distribution of CAP subsidies to primary beneficiaries (i.e. farms), as CAP support is primarily targeted at farmers. The distribution of subsidies among primary beneficiaries (farms) depends strongly on the size structure of farms within a given MS. However, the actual distribution of subsidies also depends on the ownership structure of the farms, as this determines the final beneficiaries of the subsidies. The distinction between subsidies to primary beneficiaries (farms) and final beneficiaries (farm owners) is generally not a major policy issue in most western EU Member States, where individual (family) farms dominate. As these farms are usually owned by a single individual, the distribution of CAP subsidies is largely the same whether primary or final beneficiaries are considered. A different scenario may emerge in some eastern EU Member States, where large corporate farms coexist with individual farms (e.g. Bulgaria, Czechia, Hungary, Romania, Slovakia and the Baltic States). In these countries, corporate farms, such as limited liability companies, cooperatives and joint-stock companies, account for a significant proportion of agricultural land and food production. These corporate farms may have several owners, each with ownership shares in several farms. For example, in Slovakia in 2021, out of 18 161 farms receiving CAP subsidies, 3 502 were corporate farms. These corporate farms use 81% of the Utilised Agricultural Area (UAA) with an average size of 426 ha, compared to 23 ha for individual farms. Consequently, the distribution of CAP subsidies based on final beneficiaries (farm owners) may not be the same as that based on primary beneficiaries (farmers) and may be more skewed towards large beneficiaries when ownership is concentrated.

The objective of this paper is to investigate the concentration and inequality in the distribution of CAP subsidies in Slovakia by examining the differences between farm-level beneficiaries (primary beneficiaries) and farm owners (final beneficiaries). Using a unique micro-level dataset, we identify how ownership structure – in particular the concentration of ownership across multiple farms – affects the allocation of subsidies, allowing certain individuals to receive disproportionate support. That is, the paper assesses the extent to which the CAP succeeds or fails in promoting an equitable distribution of subsidies and discusses policy implications for mitigating unequal access to subsidies among beneficiaries. To this end, we used two existing registers of final beneficiaries and matched them with data on subsidy recipients (primary beneficiaries) from the Agricultural Payment Agency (APA 2021). We measured the concentration of CAP support among individual primary and final beneficiaries. We also assessed the UAA controlled by the subsidy beneficiaries. Slovakia is an interesting case study for analysing the distribution of CAP subsidies among primary and final beneficiaries, as it is an MS with the largest share of corporate farms in total land use in the EU.

This paper adds to the rich literature on the income distribution effects of agricultural subsidies. Studies have examined the direct and indirect market income distribution effects of subsidies. Direct effects concern the distribution of subsidies among beneficiaries, assessing how subsidies are allocated across farms, sectors and regions and the impact of different policy reforms on this distribution (e.g. MacDonald et al. 2006; Kirwan 2007; Cionga et al. 2008; European Commission 2011b; Bekkerman et al. 2019; Espinosa et.al. 2020; Pokrivčák et al. 2020; Lososova and Zdenek 2023). Studies on indirect market distribution effects analyse changes in input and output prices due to subsidies and examine whether the policy benefits reach farmers or leak out to non-agricultural actors, such as landowners, input suppliers, consumers or the food processors (e.g. Floyd 1965; Gardner 1987; Salhofer and Schmid 2004; Kilian and Salhofer 2008; Patton et al. 2008; Kirwan 2009; Gocht et al. 2013; Michalek et al. 2014; Ciaian et al. 2018; Baldoni and Ciaian 2023). Our paper contributes to the first strand of this literature by providing new evidence on the direct distributional effects of CAP subsi-

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dies on both primary and final beneficiaries. To the best of our knowledge, this is one of the first papers to focus on the income distribution effects of agricultural subsidies specifically for final beneficiaries and to compare them with primary beneficiaries. An exception is the study by Pieter et al. (2021), which attempted to identify both primary and final beneficiaries for various EU support programs (including the CAP) but did not analyse the equity or inequality of the distribution of CAP subsidies. Instead, it focused on the structure of primary and final beneficiaries by type and location and listed the top 50 beneficiaries in the EU MS.

The consideration of both primary and final beneficiaries is particularly important in certain EU MS, such as Slovakia, where the agricultural sector is dominated by large corporate farms. The corporate ownership structure of these farms can lead to a significant concentration of ownership in the hands of a few individuals. This concentration can lead to a significant accumulation of CAP subsidies among a small number of final beneficiaries, potentially exceeding the limits set in the current implementation of the CAP, which is primarily aimed at reducing payments to large primary beneficiaries.

Our results have several policy implications. First, the paper contributes to the policy question of how MS achieve the CAP objective of providing income support to farms, in particular to small and medium-sized farms. Second, the paper indirectly sheds light on the effectiveness of the CAP measures to address the unequal distribution of CAP subsidies such as through degressivity, capping and redistributive payments. If investors (final beneficiaries) have the possibility to invest in several farms (corporate farms), this may increase their subsidy gains. In such cases, policy instruments such as capping of subsidies per farm or redistributive payments to small farms may not actually achieve the objective of a fairer distribution of income in the EU.

MATERIAL AND METHODS

The methodology of the paper employed several analytical approaches and indicators to assess the distribution of CAP subsidies in Slovakia, focusing on both primary beneficiaries (farms) and final beneficiaries (farm owners). The approaches used include as follows:

i) Lorenz curve and Gini coefficient: The paper employs the Lorenz curve and the Gini coefficient to illustrate the degree of inequality in the distribution of CAP subsidies among beneficiaries. By plotting the cumulative share of subsidies against the cumulative share of beneficiaries, the Lorenz curve provides a visual representation of how evenly or unevenly subsidies are distributed. A more pronounced curve indicates greater inequality, while a curve closer to the diagonal line would indicate a more equitable distribution. Similarly, the Gini coefficient, which ranges from 0 to 1, quantifies inequality, where 0 indicates perfect equality, and 1 indicates perfect inequality.

ii) Concentration of CAP support: The paper analyses the concentration of CAP support among individual beneficiaries by calculating the relative shares of subsidies among the top and bottom segments of the beneficiary distribution. This includes calculating the shares of the top 1%, 5%, 10% and 20% and the bottom 80% and 90% of both primary and final beneficiaries. These indicators highlight the inequalities in subsidy receipt by showing how much of the total subsidy is concentrated among a small number of beneficiaries compared to the larger population.

iii) Top 15 largest primary and final beneficiaries: The paper specifically identifies the top 15 beneficiaries in both categories – primary and final. This indicator provides insight into the extreme end of the distribution and shows how much CAP support is allocated to these beneficiaries relative to others.

iv) Distribution of CAP subsidies in connected and non-connected farms: The methodology also identifies connected farms (those with common ownership between beneficiaries) and non-connected farms (those without common ownership between beneficiaries), analysing their implications for the distribution of CAP subsidies. This approach helps to understand how ownership structures affect the distribution of subsidies and highlights any differences in subsidy levels based on farm connectivity.

v) CAP subsidies by farm groups: This analysis identifies farm groups in Slovakia, defined as multiple farms connected through at least one common owner (final beneficiary). This approach assesses how the concentration of ownership by certain individuals across multiple farms affects the distribution of subsidies.

For these analyses, the paper considers total CAP subsidies and further decomposes them into decoupled payments, coupled payments and non-project-based Rural Development Programme (RDP) payments (see below). In addition, the analyses include the distribution of CAP subsidies in relation to the UAA. This multifaceted methodology allows for a nuanced understanding of the underlying distribution of CAP subsidies and the implications for equity among beneficiaries in Slovakia.

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Defining primary and final beneficiaries of CAP subsidies

The CAP subsidies in Slovakia are disbursed by APA (2021) to farms, which are the primary beneficiaries. A farm may be owned by one or more owners. An owner, in this case, is considered to be an individual or a natural person expressed in legal language.

The primary beneficiary (farm) may be a corporate farm (i.e. a legal entity) or a farm owned by an individual (i.e. an individual farm). An individual farm is both the primary beneficiary and the final beneficiary. An individual farm cannot be divided or owned by another owner. Therefore, in the case of an individual farm, the primary and final beneficiaries are considered to be one and the same.

The need to identify the final beneficiary applies to corporate farms. According to the current legislation in Slovakia, as well as in the EU, a corporate farm may have several or no final beneficiaries. According to the legislation, any person (owner) who owns/controls at least 25% of the primary beneficiary (i.e. the farm) is considered to be the final beneficiary. For example, if a corporate farm is owned by one individual who owns 100% of the company, that individual is the sole final beneficiary. If the company is owned by ten partners, each with a 10% share, none of them is considered to be the final beneficiary. In this case, the primary beneficiary is considered to be the final beneficiary. If the corporate farm is owned by three partners, each with a share of 25% or more, all of them are counted as final beneficiaries (Pieter et al. 2021).

Data

Our analyses are based on datasets for 2021 available from several data sources. We identified final beneficiaries of farms in Slovakia by merging the following two registers: the register of public sector partners (RPSP 2021) and The register of final beneficiaries (RFB 2021). These registers contain information on final beneficiaries who receive subsidies or purchase assets from the public sector. The data had to be merged because entities registered in the RPSP (2021) were not required to be registered in the RFB (2021). For farms not registered in either of the above two registers, we assumed that the primary beneficiary was also the final beneficiary, as most of them were individual farms.

APA (2021) disburses CAP subsidies to farms (primary beneficiaries) in Slovakia. Therefore, the information on the primary beneficiaries used in this paper was available from APA (2021). The data on primary beneficiaries included information on the amount of CAP subsidies received and the amount of UAA used. The APA (2021) dataset included information on all CAP direct payments – decoupled and coupled payments, such as subsidies per hectare and per head of livestock – and non-project based RDP support, such as agri-environment-climate payments, Natura payments or payments granted under the Areas of Natural Constraints scheme and organic farming. However, the data did not cover the RDP project-based support such as investment support, the young farmers scheme or animal welfare schemes. Therefore, references to total CAP subsidies in this paper excluded project-based RDP subsidies. As shown in Table 1, the decoupled payments accounted for the largest share of total CAP subsidies in Slovakia in 2021 (68%), followed by non-project-based RDP support (20%) and coupled payments (12%).

Descriptive statistics of final beneficiaries and farm ownership structure

The number of final beneficiaries identified from the RPSP (2021) and RFB (2021) registers in 2021 was 5 081, representing 25% of all final beneficiaries and corresponding to 3 244 farms (of which 3 058 are corporate farms and 186 individual farms). These identified final benefici ries, and their corresponding farms covered 1 508 521 hectares of UAA and received EUR 428 million of CAP subsidies in 2021. The combined data thus represented 82% of the UAA and 83% of the CAP subsidies paid in Slovakia in 2021. Furthermore, the registers covered 18% of all farms (87.3% of all corporate farms and 1.27% of all individual farms in Slovakia). This means that 82% of the farms were not covered by the RPSP (2021) and RFB (2021) registers, most of which were individual farms (Table 2). For the purpose of this paper, all these farms not included in the registers were considered to be owned by one final beneficiary – the farmer.

Table 1. CAP subsidies covered in Slovakia (2021)

Type of CAP support	Million EUR	% of total CAP
Direct payments	416.30	80.21
Decoupled payments	353.83	68.18
Coupled payments	62.47	12.04
Non-project-based RDPs	102.68	19.79
Total CAP	518.87	100.00

RDPs – Rural development programmes; CAP – Common Agricultural Policy

Source: APA (2021), RPSP (2021), RFB (2021), own processing

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This also included the 444 (12.7% of the corporate farms) corporate farms that were not identified in either of the two final beneficiary registers; they were considered to have one final beneficiary.

Table 3 shows the descriptive statistics of the distribution of the farm ownership structure of final beneficiaries in Slovakia in 2021. The majority of farms (95.32% of all farms in Slovakia in 2021) had one final beneficiary (owner), 3.21% had two final beneficiaries, and 1.47% had more than two final beneficiaries. A small proportion of farms (0.03%) had 10 or more final beneficiaries. Farms with more than one final beneficiary used disproportionately more UAA (17.1% of UAA) than was their share in the total number of final beneficiaries (4.68% of final beneficiaries). The majority of these farms were corporate farms. The opposite was true for farms with a single final beneficiary (82.90% of UAA against 95.32% of primary beneficiaries). The majority of these farms were individual farms. This was also reflected in the fact that the average size of farms with more final beneficiaries was larger than that of farms with fewer final beneficiaries.

Similarly, the majority of final beneficiaries (97.3%) had ownership stake in one farm. The remaining 2.7% of final beneficiaries had ownership stakes in more than one farm: 1.8% had stakes in 2 farms, 0.8% in 3 to 9 farms and 0.1% in 10 or more farms. Final beneficiaries with stakes in multiple farms accounted for a disproportionately high share of the UAA (33.9%

Table 2. Identified final beneficiaries of CAP subsidies in Slovakia (2021)

Beneficiary and subsidy metrics	Total Slovakia	Identified final beneficiaries	
		number/ area/value	share on total value in Slovakia
Number of final beneficiaries (No. and %)	19 998	5 081	25%
Number of primary beneficiaries – farms (No. and %)	18 161*	3 244	18%
UAA (ha and %)	1 832 459	1 508 521	82%
CAP subsidies (EUR and %)	518 976 842	428 281 759	83%

*The total number of farms registered in IACS in 2021 was 18 521 out of which 360 farms declared neither land nor animals and received no financial support from the CAP. We have excluded these farms from the dataset. CAP – Common Agricultural Policy; UAA – Utilised Agricultural Area

Source: APA (2021), RPSP (2021), RFB (2021), own processing

Table 3. Distribution of the farm ownership structure in Slovakia (2021)

Final beneficiary and farm ownership breakdown	Number of primary/ final beneficiaries (No.)	% of total beneficiaries	UAA per beneficiary (ha)	% of UAA
Number of primary beneficiaries (farms)				
1 final beneficiary per farm	17 312	95.32	87.75	82.90
2 final beneficiary per farm	583	3.21	227.89	7.25
3 to 9 final beneficiary per farm	262	1.44	672.49	9.62
10 or more final beneficiary per farm	5	0.03	856.20	0.23
Total	18 161	100.00	100.90	100.00
Number of final beneficiaries (owners)				
Ownership in 1 farm	19 458	97.30	62.30	66.15
Ownership in 2 farms	367	1.84	558.14	11.18
Ownership in 3 to 9 farms	156	0.78	2 005.17	17.07
Ownership in 10 or more farms	17	0.09	6 039.29	5.60
Total	19 998	100.00	91.63	100.00

UAA – Utilised Agricultural Area

Source: APA (2021), RPSP (2021), RFB (2021), own processing

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of the UAA) compared to their share in the total number of final beneficiaries (2.7% of the final beneficiaries). The opposite was true for the final beneficiaries with a stake in a single farm (66.1% of the UAA compared to 97.3% of the final beneficiaries). The average area per final beneficiary increased progressively with the number of stakes the beneficiary had in different farms: From 62 ha for those with stake in one farm to 6 039 ha for those with stakes in 10 or more farms (Table 3).

Overall, there were 10% more final beneficiaries (owners) than primary beneficiaries (farms) in Slovakia in 2021 – 19 998 compared to 18 161 – because the dispersion of multiple owners per farm is a higher (4.68%) than the concentration of ownership in multiple farms (2.7%) (Table 3).

RESULTS

Figure 1 shows the overall distribution (Lorenz curve) of UAA and CAP subsidies between primary and final beneficiaries in Slovakia in 2021. Table 4 shows the distribution of CAP subsidies among different groups of beneficiaries. The results indicate that the distribution of CAP subsidies among beneficiaries was relatively highly unequal. The distribution of CAP subsidies (Panel B in Figure 1) shows a similar pattern to the distribution of UAA (Panel A in Figure 1), as most subsidies are allocated based on land use (i.e. decoupled payments). As shown in Table 4, the majority of CAP payments were concentrated in the top 10% of beneficiaries. Approximately 83% of CAP subsidies were received by the top 10% of primary beneficiaries in 2021 and 75% by the top 10% of final beneficiaries. On an individual beneficiary basis, the average value of CAP subsidies was EUR 236.9 thousand for the top 10% of primary beneficiaries and EUR 194.5 thousand for the top 10% of final beneficiaries. The concentration share of CAP subsidies increased to 92% and 89% for the top 20% of primary and final beneficiaries, respectively. The corresponding average value per beneficiary was EUR 132.0 thousand and EUR 115.8 thousand for primary and final beneficiaries, respectively. These figures were significantly higher than the average value of CAP subsidies across all primary beneficiaries (EUR 28 576) and final beneficiaries (EUR 25 951). The bottom 80% of primary and final beneficiaries receive less than 11% of CAP subsidies and less than EUR 4 000 per beneficiary. These concentration shares largely hold for different types of payments – i.e. coupled payments, decoupled payments, and non–project based RDPs – although RDPs and coupled payments tend to be more concentrated than decoupled payments.

Table 4. Top and bottom primary and final beneficiaries of CAP subsidies in Slovakia (2021)

Beneficiary groups by percentile	Total CAP subsidies (%)	Coupled payments (%)	Decoupled payments (%)	Non–project based RDPs (%)	Number of primary beneficiaries	Total CAP subsidies per beneficiary (thousand EUR)
Primary beneficiaries						
Top 1%	26.20	38.40	24.30	25.30	181	750.49
Top 5%	66.80	79.50	63.80	69.50	908	382.01
Top 10%	82.90	89.40	80.60	87.00	1 816	236.94
Top 20%	92.40	95.40	90.70	96.40	3 632	132.00
Bottom 80%	7.60	4.60	9.30	3.60	14 529	2 714.73
Bottom 99%	73.80	61.60	75.70	74.70	17 980	21 301.72
Final beneficiaries						
Top 1%	31.00	38.50	30.40	28.50	199	808.98
Top 5%	59.50	66.10	57.70	62.00	999	309.20
Top 10%	74.90	80.60	73.00	78.20	1 999	194.46
Top 20%	89.20	93.10	87.30	93.60	3 999	115.78
Bottom 80%	10.80	6.90	12.70	6.40	15 999	3 503.31
Bottom 99%	69.00	61.50	69.60	71.50	19 799	18 086.47

CAP subsidies include direct payments and non–project based RDPs; CAP – Common Agricultural Policy; RDPs – Rural development programmes

Source: APA (2021), RPSP (2021), RFB (2021), own processing

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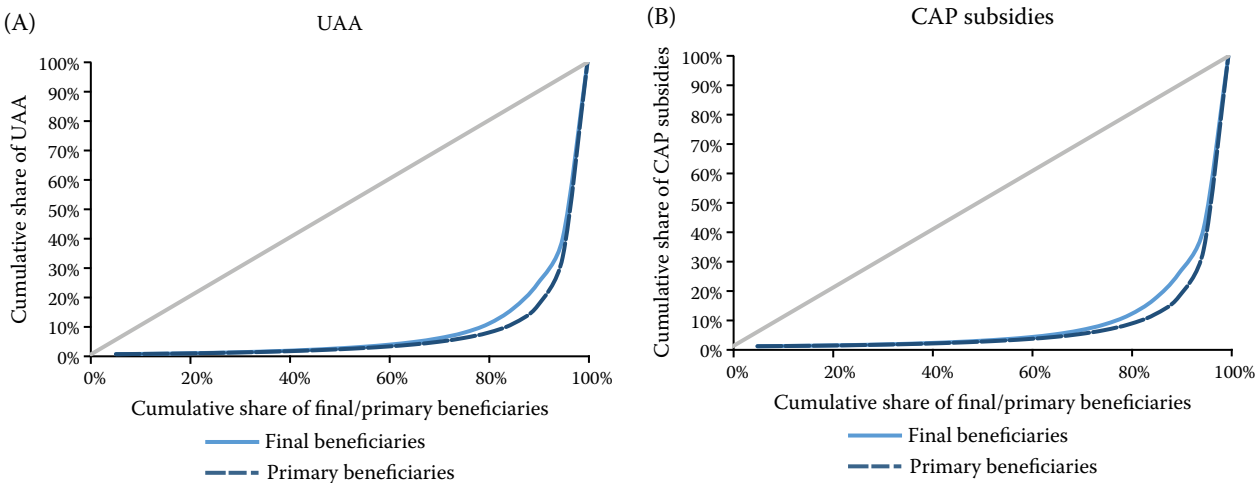

Figure 1. Distribution of UAA and CAP subsidies among primary and final beneficiaries in Slovakia (2021) (Lorenz curve)

CAP subsidies include direct payments and non-project based Rural development programmes (RDPs); CAP – Common Agricultural Policy; UAA – Utilised Agricultural Area
Source: APA (2021), RPSP (2021), RFB (2021), own processing

These results are mainly due to the significant concentration of land in large (corporate) farms or in a small number of farm owners, which serves as the primary eligibility criteria for receiving most CAP subsidies.

In general, the overall inequality of CAP subsidies (and UAA) was greater for primary beneficiaries than for final beneficiaries. That is, the Gini coefficient for the distribution of CAP subsidies was 0.86 for primary beneficiaries, while for final beneficiaries it was slightly lower at 0.83. The Gini coefficients for UAA were similar to those for CAP subsidies: 0.86 for primary beneficiaries and 0.83 for final beneficiaries. The greater inequality of the CAP for primary beneficiaries than for final beneficiaries could be explained by the fact that, as shown in Table 3, there were more final beneficiaries (owners) than primary beneficiaries (farms), as well by the fact that many corporate farms in Slovakia had multiple owners.

Although the Gini coefficient suggests greater overall inequality in the distribution of CAP subsidies among primary beneficiaries than among final beneficiaries, the situation was reversed when examining the top stratum of beneficiaries. The top 1% of primary beneficiaries received 26.2% of CAP subsidies, while the corresponding figure for final beneficiaries was 31.0%. On average, each primary beneficiary in this category received EUR 750.5 thousand, while each final beneficiary receives EUR 809.0 (Table 4). These results could be explained by the fact that the concentration of owners at the top of the distribution was greater than that of farms. There was a small group of owners who accumulated ownership stakes in multiple corporate farms. This can be observed in Table 3, which shows that 156 owners had stakes in 3 or more farms with an average area of 2 005 ha per beneficiary, while 17 owners had stakes in 10 or more farms with an average area of 6 039 ha per beneficiary. As a result, this group of owners controlled a disproportionately large share of the UAA and consequently captured a significant share of the CAP subsidies.

In contrast, the distribution of CAP subsidies among the bottom 99% of primary beneficiaries showed a lower degree of inequality compared to the bottom 99% of final beneficiaries. The former group received 73.8% of the total CAP subsidies in 2021, while the latter group received 69.0%. On average, each primary beneficiary in the bottom 99% category received EUR 21.3 thousand, while each final beneficiary received EUR 18.1 thousand (Table 4).

Table 5 further details the CAP subsidies for the top 15 largest primary and final beneficiaries in Slovakia in 2021. The inequality in the distribution of CAP subsidies between the top 15 final and primary beneficiaries is even greater as compared to the top 1% of beneficiaries shown in Table 4. The top 15 final beneficiaries received almost twice the amount of CAP subsidies (6.7% of the total CAP subsidies) than the top 15 primary beneficiaries (3.7% of the total CAP subsidies).

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Table 5. Top 15 largest primary and final beneficiaries of CAP subsidies in Slovakia (2021)

	Primary beneficiaries				Final beneficiaries			
Ranking of beneficiaries	CAP subsidies per beneficiary (million EUR)	Share of total CAP subsidies (%)	UAA per beneficiary (thousand ha)	Share of total UAA (%)	CAP subsidies per beneficiary (million EUR)	Share of total CAP subsidies (%)	UAA per beneficiary (thousand ha)	Share of total UAA (%)
1st	1.74	0.34	4.67	0.25	4.56	0.88	15.30	0.83
2nd	1.49	0.29	2.91	0.16	2.97	0.57	13.78	0.75
3rd	1.49	0.29	6.67	0.36	2.92	0.56	12.66	0.69
4th	1.36	0.26	3.95	0.22	2.81	0.54	8.26	0.45
5th	1.34	0.26	4.50	0.25	2.80	0.54	10.65	0.58
6th	1.32	0.25	3.75	0.20	2.08	0.40	6.61	0.36
7th	1.29	0.25	4.76	0.26	1.98	0.38	8.01	0.44
8th	1.20	0.23	3.57	0.19	1.94	0.37	5.65	0.31
9th	1.20	0.23	4.53	0.25	1.90	0.37	6.65	0.36
10th	1.19	0.23	4.37	0.24	1.89	0.36	5.43	0.30
11th	1.19	0.23	3.59	0.20	1.81	0.35	6.12	0.33
12th	1.18	0.23	3.93	0.21	1.75	0.34	7.14	0.39
13th	1.18	0.23	4.83	0.26	1.75	0.34	7.14	0.39
14th	1.15	0.22	4.66	0.25	1.75	0.34	7.14	0.39
15th	1.14	0.22	4.53	0.25	1.70	0.33	7.04	0.38
Total	19.45	3.75	65.21	3.56	34.60	6.67	127.56	6.96

CAP subsidies include direct payments and non–project based RDPs; CAP – Common Agricultural Policy; UAA – Utilised Agricultural Area; RDPs– Rural development programmes

Source: APA (2021), RPSP (2021), RFB (2021), own processing

The largest primary beneficiary received an average value of CAP payments of EUR 1.74 million per beneficiary, while the largest final beneficiary received a significantly higher value of payments of EUR 4.56 million. The CAP payments received by the top 15 final beneficiaries ranged from EUR 1.70 million to EUR 4.56 million. These amounts were 1.5 to 2.6 times higher than the payments received by the top 15 primary beneficiaries, which ranged from EUR 1.14 million to EUR 1.74 million. Again, these results are explained by the fact that the concertation of owners at the top of the distribution is greater than that of farms. For comparison, the top 15 final beneficiaries in Slovakia control about 7.0% of the UAA, while the top 15 primary beneficiaries used about 3.6% of the UAA.

CAP subsidies in connected versus non-connected farms

As shown in Table 3, most of the final beneficiaries in our dataset had a stake in only one farm. That is, 97.3% (19 458) of all final beneficiaries were single owners (i.e. have a 100% stake) or co-owners (i.e. have a stake smaller than 100%) only in one corporate farm. Therefore, the farms of these final beneficiaries were not connected with other farms through joint co-ownerships. In total, the final beneficiaries with stakes (100% or less) in only one non-connected corporate farm received EUR 345.9 million of CAP subsidies (67% of all CAP subsidies) and controlled 66% of the agricultural land in 2021. The average support received by final beneficiaries of non-connected farms was EUR 17 776 per beneficiary and it was lower than the average support of non-connected farms (primary beneficiaries) at EUR 18 695 per farm. In this case, the distribution of CAP subsidies was more dispersed (less concentrated) at the level of final beneficiaries than at the level of primary beneficiaries. This result was expected because the number of owners (i.e. final beneficiaries) was equal (for final beneficiaries with 100% ownership shares) or smaller (for multiple final beneficiaries owning a non-connected corporate farm) than the number of non-connected corporate farms.

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Table 6. CAP subsidy distribution in connected and non-connected farms in Slovakia (2021)

Farm ownership category	Number of farms per FB (No.)	Number of FBs (No.)	Total CAP subsidies (EUR)	CAP subsidies per FB (EUR)	Total CAP Subsidies (%)	Coupled payments (%)	Decoupled payments (%)	Non-project based RDPs (%)	UAA (%)
Ownership in 1 farm	1	19 458	345 878 751	17 776	66.6	60.6	58.9	60.3	66.1
Ownership in 2 or more farms	2	367	58 504 572	159 413	11.3	13.6	13.6	14.1	11.2
	3	69	26 801 647	388 430	5.2	6.9	6.3	6.5	5.1
	4	34	11 921 475	350 632	2.3	1.7	2.7	2.5	2.4
	5	14	10 218 695	729 907	2.0	2.6	2.7	2.4	2.1
	6	26	18 883 792	726 300	3.6	3.0	3.9	4.3	3.7
	7	7	7 037 895	1 005 414	1.4	1.4	1.8	2.4	1.4
	8	2	3 187 600	1 593 800	0.6	0.8	0.9	0.3	0.7
	9	4	9 248 570	2 312 143	1.8	2.3	2.1	2.2	1.7
	11	1	2 078 302	2 078 302	0.4	0.2	0.4	0.8	0.4
	12	5	5 943 516	1 188 703	1.1	1.2	1.3	1.7	1.1
	13	5	4 858 050	971 610	0.9	1.8	1.3	0.2	1.1
	15	1	4 563 970	4 563 970	0.9	1.1	1.0	1.2	0.8
	17	1	2 918 960	2 918 960	0.6	0.4	0.8	0.4	0.7
	22	1	1 691 913	1 691 913	0.3	0.5	0.5	0.1	0.4
	23	3	5 239 134	1 746 378	1.0	1.6	1.4	0.4	1.2
All connected farms	2–23	540	173 098 090	320 552	33.4	39.2	40.7	39.6	33.9
All farms	1–23	19 998	518 976 842	25 951	100.0	100.0	100.0	100.0	100.0

FB – Final beneficiary; CAP – Common Agricultural Policy; UAA – Utilised Agricultural Area; RDP – Rural development programme

Source: APA (2021), RPSP (2021), RFB (2021), own processing

Only 2.7% (540) of all final beneficiaries had a stake in more than one corporate farm (Table 3). These farms were connected through at least one owner who (co)owned several farms. In 2021, the average CAP support received by final beneficiaries of connected farms was 18 times higher than that received by final beneficiaries of non-connected farms. This difference is mainly due to the combination of a few owners co-owning large commercial farms, as opposed to a significant number of very small individual farms, each with a single owner. The average support per final beneficiary in connected farms was EUR 320.6 thousand, and the average support per connected farm was EUR 201.5 thousand. The total CAP support corresponding to these 540 final beneficiaries amounts to EUR 173 million, paid by the APA (2021) to 1 000 farms (primary beneficiaries). This amount corresponds to 33% of the total CAP subsidies granted in Slovakia (Table 6). These figures are very similar to those presented in Table 4, which shows that the top 1% of the largest final beneficiaries received 31% of CAP subsidies. Similarly, the corresponding figure for the 1% of primary beneficiaries farms was 26% of CAP subsidies.

CAP subsidies by farm groups

Table 7 shows the CAP subsidies disbursed to farm groups in Slovakia in 2021. A farm group consists of multiple farms that are connected through at least one common owner (final beneficiary). Each farm group had a different set of common final beneficiaries. A farm group represents the concentration of ownership among certain individuals who hold stakes in different (corporate) farms, potentially allowing them to control a larger land area and receive higher CAP subsidies. In 2021, 318 farm groups were identified in Slovakia, with a total of 1 000 farms and 2 to 25 farms per group. Table 7 shows the results for the farm groups ordered by size in terms of UAA, starting

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Table 7. CAP subsidies by largest farm groups in Slovakia (2021)

Number of the largest farm groups (by UAA)	10	25	50	100	200	250	318
Number of primary beneficiaries (No.)	128.00	217.00	326.00	480.00	737.00	854.00	1 000.0
Share of primary beneficiaries (%)	0.70	1.19	1.80	2.64	4.06	4.70	5.51
Number of final beneficiaries (No.)	51.00	137.00	223.00	398.00	694.00	801.00	974.00
Share of final beneficiaries (%)	0.26	0.69	1.12	1.99	3.47	4.01	4.870
Share in total UAA (%)	9.39	15.67	22.74	29.92	36.90	38.12	38.59
Total CAP subsidies (million EUR)	44.40	74.30	112.40	150.60	188.00	195.40	198.20
Direct payment	38.30	63.70	93.50	123.20	151.20	156.20	158.30
Coupled payments	6.00	9.90	15.40	20.40	24.30	24.90	25.30
Decoupled payments	32.30	53.80	78.10	102.80	126.90	131.20	133.00
Non-project RDPs	6.10	10.60	18.90	27.40	36.80	39.30	39.90
Total CAP subsidies (% of total CAP)	8.55	14.32	21.66	29.02	36.23	37.65	38.18
CAP subsidies per farm (thousand EUR/farm)	346.60	342.40	344.80	313.70	255.10	228.80	198.20
Direct payment	299.20	293.50	286.80	256.60	205.10	182.90	158.30
Coupled payments	47.10	45.50	47.30	42.50	32.90	29.20	25.30
Decoupled payments	252.10	248.00	239.50	214.10	172.20	153.70	133.00
Non-project RDPs	47.40	48.90	58.10	57.10	50.00	46.00	39.90
CAP subsidies per final beneficiary (thousand EUR/beneficiary)	869.90	542.40	504.10	378.30	270.90	244.00	203.40
Direct payment	750.80	464.90	419.20	309.50	217.80	195.00	162.50
Coupled payments	118.10	72.10	69.10	51.20	34.90	31.10	25.90
Decoupled payments	632.70	392.80	350.10	258.20	182.90	163.80	136.50
Non-project RDPs	119.10	77.50	84.90	68.90	53.10	49.00	41.00

UAA – Utilised Agricultural Area; CAP – Common Agriculture Policy; RDPs – Rural development programmes
Source: APA (2021), RPSP (2021), RFB (2021), own processing

with the 10 largest groups. The 10 largest farm groups had 51 final beneficiaries (0.3% of the total number of final beneficiaries), controlled 9.4% of the UAA in Slovakia and received EUR 44.4 million (8.6%) of the CAP subsidies. This corresponds to EUR 346.6 thousand per farm (primary beneficiary) and EUR 869.9 thousand per final beneficiary. The 50 largest farm groups had 223 final beneficiaries (1.1%), controlled 22.7% of the agricultural area and received EUR 112.4 million (21.7%) of the CAP subsidies. Finally, all 318 farm groups identified in Slovakia had 974 final beneficiaries (4.9%), controlled 38.6% of the agricultural area and received 38.2% of the CAP subsidies. The value of the subsidy per farm (per final beneficiary) decreased from EUR 346.6 thousand (EUR 869.9 thousand) for the top 10 largest farm groups to EUR 198.2 thousand (EUR 203.4 thousand) when all 318 farm groups were considered. The inequality of CAP subsidies for final beneficiaries was greater than that for primary beneficiaries, especially for the largest farm groups, and decreased as more farm groups are considered. Specifically, the ratio of CAP subsidies per beneficiary between final and primary beneficiaries was 2.5 for the top 10 largest farm groups, gradually decreasing to almost 1 when all 318 farm groups were considered. This means that the CAP subsidies received by final beneficiaries are 150% higher than those received by primary beneficiaries for the top 10 largest farm groups, but the difference becomes negligible when all farm groups are considered.

DISCUSSION

The results of this paper indicate a pronounced inequality in the distribution of CAP subsidies among beneficiaries in Slovakia, highlighting the concentration of subsidies among the top beneficiaries in particular. The Gini coefficients of 0.86 for primary beneficiaries and 0.83 for final beneficiaries indicate significant inequality, which is in line with the findings of Espinosa

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et al. (2020), who reported a lower Gini coefficient of 0.60 for primary beneficiaries for the EU as a whole. This suggests that Slovakia has significantly higher inequality of CAP subsidies compared to the EU average (at least for primary beneficiaries), which raises concerns about the effectiveness of CAP implementation in promoting equitable support to farmers.

Particularly striking is the finding that about 83% (75%) of CAP subsidies were concentrated in the top 10% of primary beneficiaries (final beneficiaries). This concentration underlines the influence of large corporate farms that dominate the land ownership landscape in Slovakia. Previous studies have also found that larger farms benefit disproportionately from CAP payments in different EU Member States (e.g. Espinosa et al. 2020; European Commission 2021; Garcia-Bernardo et al. 2021; Viegas et al. 2023; Dinis 2024). However, the level of inequality in other Member States tends to be lower than in Slovakia. For example, the European Commission (2021) reported that 20% of the primary beneficiaries of the CAP received 80% of the direct payments in the EU. The average subsidy received in Slovakia by the top 10% of primary beneficiaries (EUR 236.9 thousand) and final beneficiaries (EUR 194.5 thousand) was significantly higher than the overall average of EUR 28 576 for all primary beneficiaries and EUR 25 951 for all final beneficiaries, respectively, highlighting a strong disparity of subsidy benefits. At EU level, the European Commission (2020) indicates that only 0.5% of all primary beneficiaries receive more than EUR 100 000 in direct payments. Comparisons for final beneficiaries are not readily available across member states or at EU level.

Interestingly, while overall inequality in the distribution of CAP subsidies was greater among primary beneficiaries than among final beneficiaries, as measured by indicators such as the Gini coefficient or the share of subsidies received by the top 20% of beneficiaries, this trend was reversed at the top stratum of beneficiaries. The top 1% of final beneficiaries received a larger share of CAP subsidies than the top 1% of primary beneficiaries. For the top 15 final beneficiaries, CAP payments ranged from EUR 1.70 million to EUR 4.56 million, compared to EUR 1.14 million to EUR 1.74 million for the top 15 primary beneficiaries. At the EU level these figures were even higher due to the larger pool of beneficiaries. According to Pieter et al. (2021), the top 15 final beneficiaries across the EU received between EUR 11.27 million and EUR 44.16 million in CAP payments in 2019, while primary beneficiaries received between EUR 19.08 million and EUR 45.26 million.

The analysis of connected farms, i.e. those with at least one owner who (co)owns multiple farms, versus non-connected farms reveals another layer of complexity. The 2.7% of final beneficiaries with stakes in multiple corporate farms received 33% of total CAP subsidies, underlining the role of ownership structures in shaping subsidy allocation. Furthermore, the significant difference in the average support received by final beneficiaries in connected farms (EUR 320.6 thousand) compared to those in non-connected farms (EUR 17 776) highlights how ownership concentration can exacerbate subsidy inequality. These findings further highlight a significant concentration of CAP subsidies granted to a small number of owners of corporate farms in Slovakia, located in the top stratum of the distribution of final beneficiaries. This concentration of subsidies was more pronounced compared to the top stratum within the distribution of primary beneficiaries. Carter (2001) argued that multiple business ownership can be an important growth strategy in the agricultural sector, allowing for diversification of income streams, reduced risk, and improved financial performance and long-term sustainability, especially in agricultural sectors where gains from economies of scale are limited. Our results extend this argument and suggest that multiple farm ownership can also serve as a strategy for accumulating policy gains.

Finally, in line with previous findings, there was a considerable concentration of CAP subsidies in large groups of farms with at least one common owner. However, the concentration of CAP subsidies varied between farm groups. The highest concentration was found among the largest farm groups, e.g. the top 10 largest farm groups. As the number of farm groups increased, the ratio of subsidies per beneficiary between primary and final beneficiaries decreased. A significant number of farm groups had a relatively high number of co-owners, resulting in a lower concentration of area and subsidies at the level of final beneficiaries compared to primary beneficiaries. The combination of farm groups with a high number of co-owners and the largest farm groups shows a significant reduction in the disparity in the distribution of CAP subsidies between primary and final beneficiaries. This concentration for the largest farm groups, albeit on a smaller scale, mirrors, to some extent, the ownership structure of agroholdings in Russia, Ukraine, and Kazakhstan. The large aggregations of multiple farms and enterprises in agro-holdings in these countries also receive disproportionately greater policy benefits, often due to political influence, than smaller, single-

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owner farms (Wandel 2011; Matyukha et al. 2015; Gagalyuk and Valentinov 2019). Similarly, in Slovakia, this ownership structure allows farm groups to consolidate land, thereby increasing their ability to obtain subsidies and potentially limiting access to support for smaller, individual farms.

CONCLUSION

This paper used unique micro-level data from the RPSP (2021), RFB (2021) and the APA (2021) to assess the distribution of CAP subsidies between primary beneficiaries (farms) and final beneficiaries (farm owners) in Slovakia for 2021. To the best of our knowledge, this is one of the first papers to consider both primary and final beneficiaries when analysing the income distribution effects of agricultural subsidies.

The results of the paper indicate that CAP subsidies are very unequally distributed among both primary and final beneficiaries in Slovakia, with greater overall inequality (e.g. as measured by the Gini coefficient or the top 20% of beneficiaries) observed among the former. This disparity is partly due to the higher number of final beneficiaries (owners) compared to primary beneficiaries (farms) and to the fact that many corporate farms in Slovakia have multiple owners. Interestingly, however, the concentration of subsidies is reversed at the top stratum of beneficiaries (e.g. top 1% of beneficiaries, top 15 largest beneficiaries), where inequality among final beneficiaries is significantly higher than among primary beneficiaries. This concentration of CAP subsidies results from a small number of individuals accumulating shares in several farms. For example, in the 10 largest farm groups – where ownership is consolidated through at least one common owner across multiple farms – CAP payments per final beneficiary are 2.5 times higher than those per primary beneficiary.

The analyses in this paper have shown that inequality in the distribution of CAP subsidies remains a policy issue in Slovakia, as their concentration among the largest beneficiaries is high for both primary and final beneficiaries. However, when looking at the largest beneficiaries, the subsidy concentration is more pronounced for final beneficiaries than for primary beneficiaries. The policy measures available in the CAP to address the unequal distribution of subsidies (e.g. degressivity, capping, redistributive payments) have not been sufficiently applied to address this problem. In fact, the largest final beneficiaries have been able to circumvent these measures and obtain substantial amounts of subsidies (above the level received by farmers) by controlling a large area of land through obtaining (co)ownership stakes in multiple farms. Consequently, in order to address the issue of unequal distribution of CAP subsidies in Slovakia, it would be necessary to introduce more stringent measures that would limit the level of income support, not only at the level of primary beneficiaries but also at the level of final beneficiaries. The results of this paper suggest that such measures would primarily affect a rather small number of beneficiaries. In addition, the results of this paper suggest that the implementation of the CAP would need to take into account the different ownership structures of farms in other Member States in order to address the inequality in the distribution of subsidies more comprehensively. This consideration may be particularly relevant for EU countries with a significant presence of large corporate farms, such as Bulgaria, Czechia, Hungary, Romania and the Baltic States. By implementing policies that recognize the diverse ownership structures across the EU, CAP subsidies could be distributed more equitably, ultimately benefiting a wider range of farms and promoting greater fairness across the EU agricultural sector. Our findings also highlight the importance of addressing CAP subsidy concentration and ownership structures in the context of the EU enlargement process, particularly for countries such as Ukraine and Moldova, where large corporate farms (agroholdings) are even more prevalent – many exceeding 10 000 ha – than in current EU MS (Gagalyuk and Valentinov 2019; Möllers 2022; Román 2024; World Bank 2024). Without reform, the potential implementation of the current CAP in these countries could lead to a significant concentration of subsidies in the hands of a few final beneficiaries who control vast tracts of land through (co)ownership of several farms.

It is important to recognise that our results reflect the methodological assumptions made during the analysis. First, this paper used data from the RPSP (2021) and the RFB (2021) to identify the final beneficiaries of CAP subsidies. However, 82% of farms were not included in these registers. We assume that these unregistered farms were owned by a single final beneficiary, which may lead to an underestimation of ownership concentration and CAP subsidies to certain individuals. However, we expect this underestimation to be minimal as most of these unregistered farms are individual farms. Second, in line with the legislation, the paper defines final beneficiaries as individuals

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who own at least 25% of a corporate farm. However, this definition may not capture all cases of ownership concentration. Alternative definitions could either underestimate or overestimate the concentration results, depending on whether the 25% share is concentrated or dispersed among individual owners. Third, due to data limitations, the paper focuses only on the distribution of CAP subsidies in Slovakia for 2021, without examining temporal trends that could provide a more nuanced analysis. Fourth, the analyses do not include project-based DP payments, which could either underestimate or overestimate the concentration results, depending on the distribution of these payments across farms. However, given their small share in the total CAP budget, their impact on the results is likely to be rather small. Finally, the results of this paper are specific to Slovakia and cannot be directly extrapolated to other Member States, as farm and ownership structures vary considerably between countries. Nevertheless, similar patterns may be observed in other Member States with a significant presence of large corporate farms (e.g., Bulgaria, Czechia, Hungary, Romania, and the Baltic States). The concentration of CAP subsidies, especially among final beneficiaries, is likely to be at the higher end in Slovakia compared to other EU countries, as Slovakia has the highest share of corporate farms in the EU.

Future research should address the limitations of the current study in order to provide a more comprehensive view of CAP subsidy distribution. In particular, expanding the data coverage to include additional EU Member States or more years would allow for a comparative analysis of subsidy distribution across different farm structures, thus improving the generalizability of the results. The inclusion of additional years could also reveal trends over time. In addition, examining how farm and ownership structures respond to CAP measures aimed at reducing inequality in subsidy distribution – such as degressivity, capping, redistributive payments – would provide insights into the behavioural effects of these policy interventions.

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