



NOTE

Taxation of Agricultural Land in Europe: A Comparative Approach

Autors: Guillaume Sainteny (CS FRB), Louise Dupuis (FRB)

Proofreaders: Philippe Billet (CS FRB), Aurélie Delavaud (FRB), Sabrina Gaba (CS FRB), Robin Goffaux (FRB), Hélène Soubelet (FRB)

TABLE OF CONTENTS

THE MAIN TAXES ON AGRICULTURAL LAND IN EUROPE.....	4
Land tax	4
Income tax	5
Inheritance tax.....	5
Property transfer tax	6
Capital gains tax on real estate	7
Wealth tax	7
A GLOBALLY MODERATE TAXATION MOTIVATED BY SOCIO-ECONOMIC, AND NOT ENVIRONMENTAL, CONSIDERATIONS	8
AGRICULTURAL LAND IS MORE TAXED IN FRANCE	11
The weight of non-income-based taxes in France	12
Agricultural land in France generates a negative profit	13
High taxation despite regulated rental prices	14
Fall in revenue and tax increases: agricultural land in France is subject to a “scissors effect”	15
Fiscal policies are in contradiction with the objectives to curb land artificialization	16
Recommendations.....	18
Acknowledgements	23
References	24
Appendix 1 - Agricultural land in Europe.....	26
Appendix 2 - Land tax applied to agricultural land in Europe	29
Appendix 3 - Income tax applied to agricultural land in Europe.....	31
Appendix 4 - Inheritance tax applied to agricultural land in Europe	32
Appendix 5 - Property transfer tax applied to agricultural land in Europe	34
Appendix 6 - Capital gains tax on real estate applied to agricultural land in Europe	36
Appendix 7 - Wealth tax applied to agricultural land in Europe	38

Agricultural land covers 36 % of the land surface in the European Union (corresponding to 161.8 million hectares)¹. The importance of these surfaces gives them an essential place in terms of biodiversity. However, this number does not reflect the considerable variation between countries. Indeed, agricultural land surface ranges from slightly over 6 % in Sweden and Finland to more than 69 % in Ireland, corresponding to a ten-fold difference. The average size of an agricultural holding ranges from 3 to 90 hectares depending on the country, corresponding to a 30-fold difference. In 16 countries, most of the agricultural land is leased but in 13 other countries, most farmers own the land they operate (Appendix 1). Agricultural practices are diverse. Mediterranean agriculture has little in common with arable crop production, extensive breeding is different from intensive cereal crop cultivation. The proportion of permanent grassland in the total utilized agricultural area (UAA) ranges from less than 10 % (in Cyprus, Malta, Denmark, Finland) to over 65 % (Switzerland, the United Kingdom, Ireland). Organic farming represents less than 1 % of the UAA in Malta but more than 20 % in certain countries (Austria, Estonia, Lichtenstein, Sweden) (Appendix 2). France occupies an intermediate position: 9.5 % of the UAA is organically farmed and 33 % is grassland (both temporary and permanent).

In the EU, agriculture is regulated by the well-known and long-established common agricultural policy (CAP), which receives a large portion of the EU budget (386.6 billion € over the 2021-2027 period, corresponding to 32 % of the European budget²). It is also governed by the EU's internal market policy. In addition, various European directives for the protection of the environment apply to agriculture, notably those for biodiversity conservation (the Birds Directive, the Habitats Directive, the Environmental Liability Directive), environmental assessment (the Environmental Impact Assessment Directive, the Strategic Environmental Assessment Directive), and water management (the Water Framework Directive, the Nitrates Directive, the Sewage Sludge Directive, the Floods Directive...). The EU has also ratified multiple international conventions on biodiversity that have implications for agricultural land (the Convention on Biodiversity, the Bern Convention, the Bonn Convention, the Ramsar Convention...).

Even though European agriculture is subject to this threefold harmonization process, the rules regarding the taxation of agricultural land seem rather variable from one country to the next. We do not observe any movement towards fiscal harmonization. Yet, taxation of agricultural land can influence the outcome of agricultural and environmental policies. It can improve or hinder the profitability of agriculture, provide incentives for certain types of agriculture (which have a more or less positive impact on biodiversity), and encourage or discourage changes in land use.

The rate of agricultural land artificializations considered too rapid by the EU³, by the governments of many member states⁴ as well as professionals in the agricultural sector. Yet artificialization of natural areas is one of the main causes of biodiversity loss⁵. As for urban sprawl, which frequently spills over agricultural land, it increases greenhouse gas emissions (GGE). Academic studies show that the rate of urbanization of agricultural land slows down when agriculture is profitable⁶ and the price of agricultural

¹ Eurostat. Forestry is not included in these data

² The European Commission website. Common agricultural policy funds. https://agriculture.ec.europa.eu/common-agricultural-policy/financing-cap/cap-funds_en

³ European Environment Agency (2019). Land and soil in Europe - Ever-sprawling urban concrete? Article; European Commission. (2012). Guidelines on best practice to limit, mitigate or compensate soil sealing. Working document; European Commission. (2020). Bringing nature back into our lives - EU 2030 biodiversity strategy. Factsheet. Brussels.

⁴ French Ministry of Ecological Transition (Ministère de la Transition écologique). (2021). Artificialisation des sols. <https://www.ecologie.gouv.fr/artificialisation-des-sols>; France Stratégie. (2019). Objectif "Zéro artificialisation nette" : quels leviers pour protéger les sols ?; GODART Marie-Françoise et RUELLE Christine. (2019). Réduisons l'artificialisation des sols en Wallonie. Une information – Un projet de territoire – Des mesures applicables. Conférence Permanente du Développement Territorial. 86 pp; JERING Almut & al. (2013). Globale Landflächen und Biomasse – nachhaltig und ressourcenschonend nutzen. Umweltbundesamt.

⁵ IPBES. (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. IPBES Secretariat. Bonn. Germany. 56 pp.

⁶ PENDALL Rolf. (1999). Do land-use controls cause sprawl? Environment and Planning B: Planning and Design. Vol 26. N°4. Pp 555-571. Doi: 10.1068/b260555.; CHANEL Olivier, DELATTRE Laurence, NAPOLÉONE Claude. (2014). Determinants of local public policies for farmland preservation and urban expansion: A French illustration. Land Economics. 90 (3), pp.411-433; COLSAET Alice, LAURENS Yann, LEVREL Harold. (2018). What drives land take and urban land expansion? A systematic review. Land use Policy. 78. Pp.339-349.; APPIAH Divine et al. (2014). Determinants of periurbanization and land use change patterns in peri-urban Ghana. Journal of Sustainable Development. DOI: 10.5539/jsd.v7n6p95.; AZADI Hossein et al. (2016). Agricultural Land Conversion Drivers in Northeast Iran: Application of Structural Equation Model. Applied Spatial Analysis and Policy. DOI: 10.1007/s12061-015-9160-4.

land is high⁷. Taxation of agricultural land influences these factors. If taxation is too high, it can decrease profitability and thus facilitate the urbanization of agricultural land. Similarly, the value of an asset generally being equal to the discounted sum of its expected future returns, if high taxation decreases the annual income from agricultural land, land value goes down, which can also facilitate the urbanization of agricultural land.

Thus, taxation of agricultural land has multiple effects, both on the value of the land itself and on agricultural, land use, urban planning and environmental policies⁸. Furthermore, within the framework of possible strategies for biodiversity conservation, taxation of agricultural land and how it is implemented can favor one option over another. For these different reasons, the French Foundation for Biodiversity Research (Fondation pour la Recherche sur la Biodiversité (FRB)) has carried out a comparative analysis of the taxation of agricultural land in Europe.

THE MAIN TAXES ON AGRICULTURAL LAND IN EUROPE⁹

Land tax

This tax does not exist in five countries¹⁰. In ten countries, agricultural land is completely exempt from land tax, and in four others¹⁰, it is largely exempt. In total, two-thirds of the countries in this study do not impose, or at a very low rate, a land tax on agricultural land. This observation is important as land tax is an annual tax that is independent of the income from agricultural land and constitutes a near-fixed charge calculated by the hectare.

As the tax base used varies from country to country, comparing taxation levels is extremely difficult. The most commonly used tax base is the cadastral value. However, even among countries that use this value, comparisons remain very challenging as the cadastral value¹¹ used varies between countries and even within a country.

⁷ JIANG LI, Zhang Yonghui. (2016). Modeling urban expansion and agricultural land conversion in Henan province, China: An integration of land use and socioeconomic data. *Sustainability* (Switzerland). DOI: 10.3390/su8090920.; DENG Xiangzheng, HUANG Jikun, ROZELLE Scott, UCHIDA Emi. (2008). Growth, population and industrialization, and urban land expansion of China. *Journal of Urban Economics*. DOI: 10.1016/j.jue.2006.12.006.; GUASTELLA Gianni, PAREGLIO Stefano, SCKOKAI Paolo. (2017). A spatial econometric analysis of land use efficiency in large and small municipalities. *Land Use Policy*. DOI: 10.1016/j.landusepol.2017.01.023.; ALVANIDES Seraphim, GARROD Guy, OUESLATI Walid. (2015). Determinants of urban sprawl in European cities. *Urban Studies*. DOI: 10.1177/0042098015577773.; PAULSEN Kurt. (2014). Geography, policy or market? New evidence on the measurement and causes of sprawl (and infill) in US metropolitan regions. *Urban Studies*. DOI: 10.1177/0042098013512874.

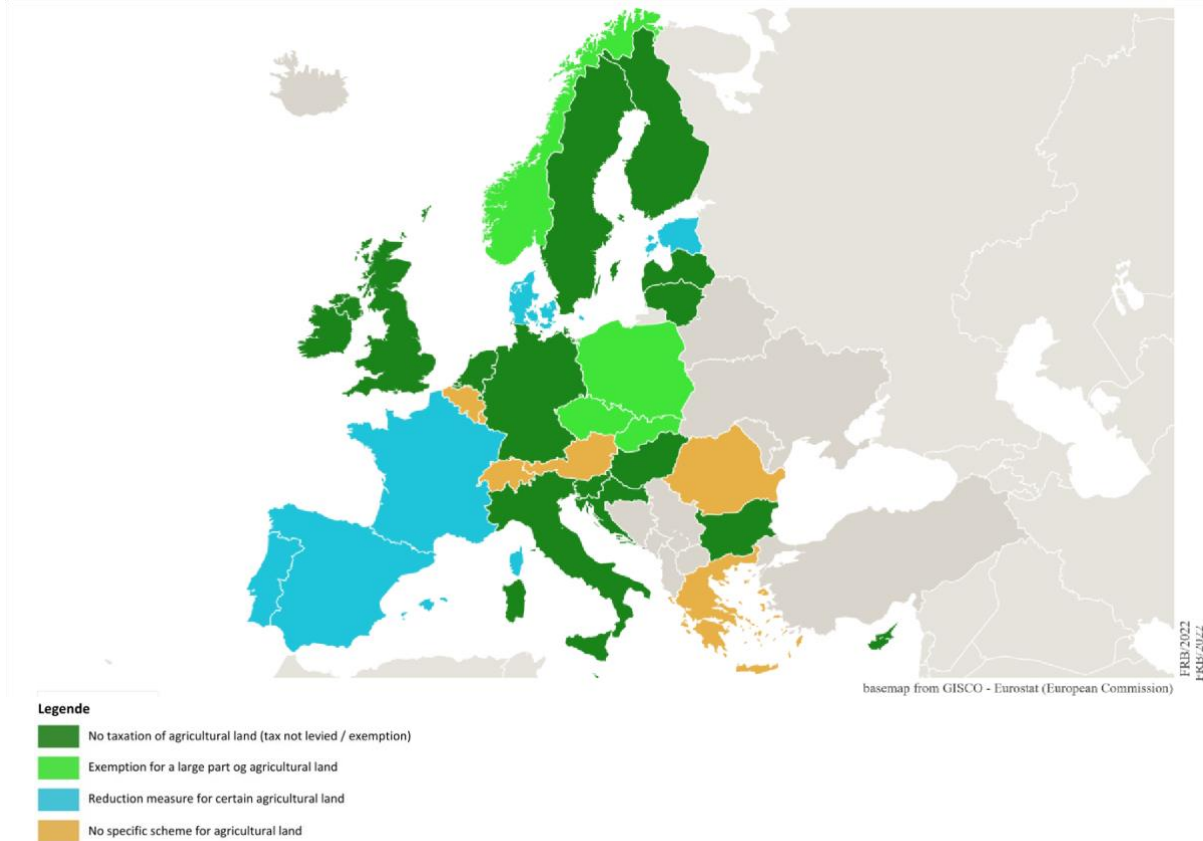
⁸ Of course, the impact of taxation can be more or less significant depending on the agricultural system in place and the weight of other variables.

⁹ Current tax rates and fiscal measures are detailed in the appendices. This paper focuses on the taxation of agricultural land under common law. Many countries have fiscal measures that specifically apply to owner-operated agricultural land. ¹⁰ Cyprus, Croatia, Malta, the UK, Slovenia

¹⁰ Norway, Poland, the Czech Republic, Slovakia.

¹¹ The cadastral value is a theoretical value that is not related to the actual value of the property or to the income it generates.

Map 1. Land tax applied to agricultural land in Europe



Income tax

In most countries in this study, income from leasing agricultural land is subject to income tax. With the exception of Lichtenstein where income tax does not exist, six countries have put in place fiscal measures that are specific to agricultural land: Bulgaria and the Netherlands, where agricultural land is exempt; Belgium and Hungary, where agricultural land is exempt depending on the duration of tenancy; and Austria and Ireland, where agricultural land is exempt up to a certain income threshold (Appendix 3).

Inheritance tax

We can see that there is a trend to abolish inheritance tax in Europe: eleven countries¹² have got rid of this tax since the early 2000s. Among the countries that impose an inheritance tax, twelve (i.e., more than half) have put in place advantageous fiscal measures for agricultural land. These exemptions and abatements seem to have been put in place primarily for socio-economic reasons. Often, the aim is to support and maintain farming activity¹³. These differential tax regimes can be explained by the fact that, because of the low rate of return of agricultural land, there is a risk that a high inheritance tax would not be covered by the rental income of previous years. This could lead to the sale or artificialization of part of the land to cover the tax on the remaining land, resulting in land surface reduction and fragmentation.

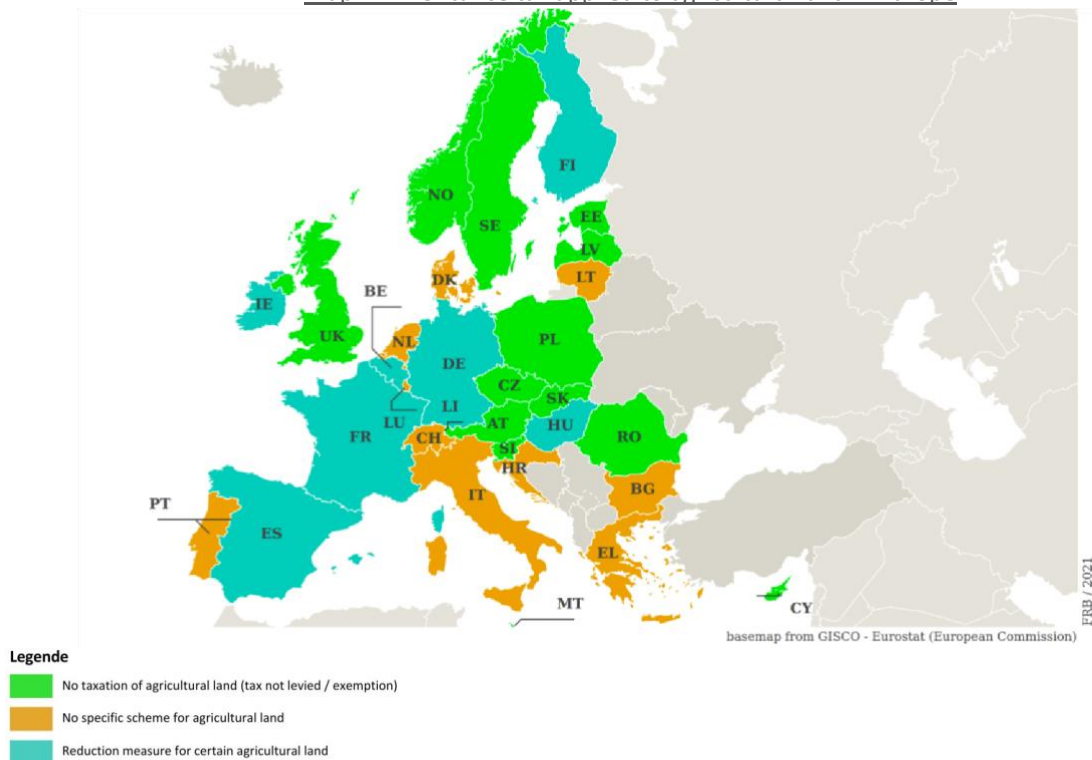
Thus, in Finland, tax relief can be claimed when this tax threatens the conservation of agricultural land or the continuation of farming activities. In this case, the agricultural land is valued not at its market

¹² Countries that have abolished inheritance tax are: Austria (2008), Cyprus (2000), Estonia, Latvia, Malta, the Czech Republic (2014), Romania, Slovakia (2004), Sweden (2005), Norway (2014), Liechtenstein (2011).

¹³ OECD (2020). Taxation in Agriculture. OECD. Paris. <https://doi.org/10.1787/073bdf99-en>.

value but at its use value, which according to the OECD, reduces the tax base by 40 to 70 %¹⁴, and thus the amount of tax due. As for countries that do not have specific measures in place for agricultural land, they often set rather low inheritance tax rates.

Map 2. Inheritance tax applied to agricultural land in Europe

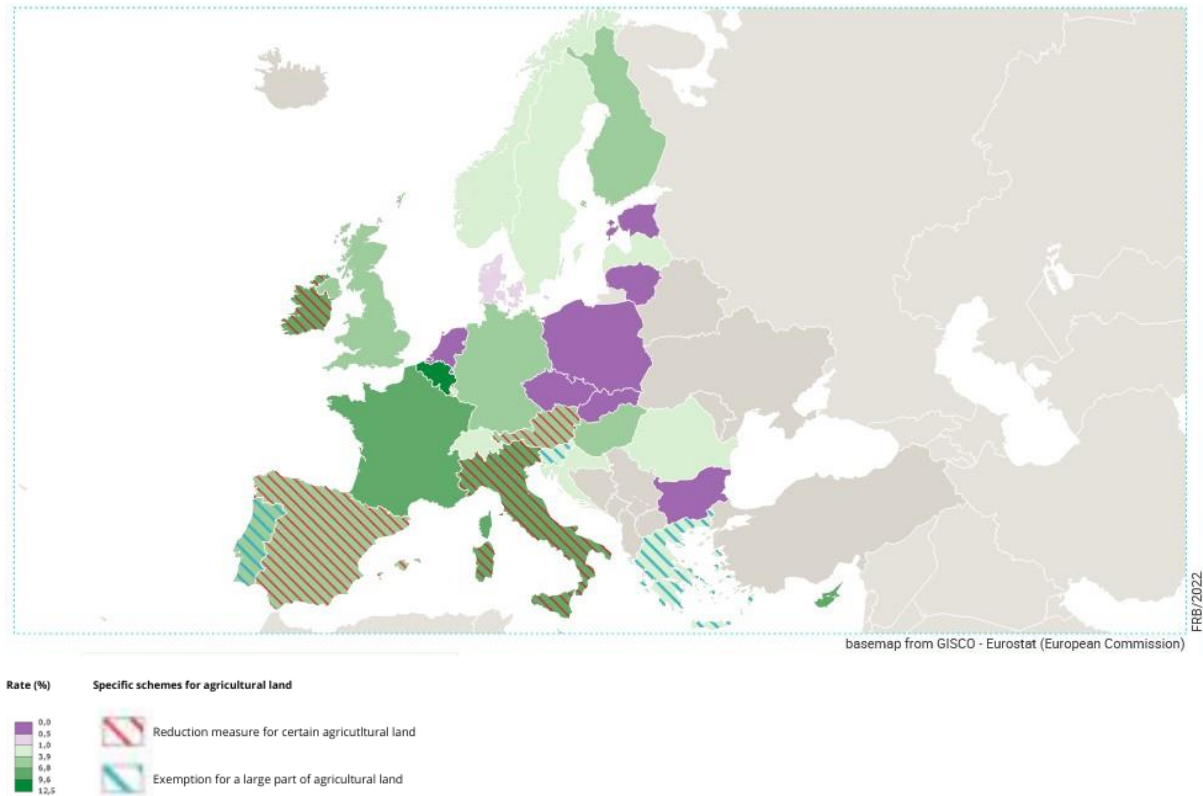


Property transfer tax

Property transfer tax follows a similar trend as the one observed for inheritance tax. Four countries have abolished this tax since 2005. Eleven countries have put in place advantageous fiscal measures for agricultural land, of which three apply full exemptions.

¹⁴ This method of calculation is also used in other countries such as the United States and Japan. OECD (2020). Taxation in Agriculture. op.cit., p. 49.

Map 3. Property transfer tax applied to agricultural land in Europe



Capital gains tax on real estate

In most European countries (23/30), capital gains from agricultural land are subject to the general tax regime, without exemptions. In three countries – Austria, Belgium, the Netherlands, agricultural land is exempt from capital gains tax. In three other countries, exemption is conditional or up to a certain amount, or tax is applied at a highly reduced rate. The aim of these fiscal measures seems to be promoting the continuation of farming activities on sold land.

Nevertheless, when we compare the tax rate applied to capital gains of real estate with the one applied to financial assets, we can see that in twelve countries, the latter is lower¹⁵. This may seem surprising as the rate of return of financial assets is higher than that of undeveloped land. Finally, in nine countries, the tax rate applied to capital gains of undeveloped land is much higher than that of developed property. This can also seem surprising since capital gains are generally much higher for developed property.

Furthermore, in many countries, capital gains of real estate are exempt from tax after a short or very short duration of ownership (less than or equal to ten years). However, France has both a relatively high tax rate and a slow abatement schedule. Indeed, in France, the longest duration of ownership (30 years) is required before qualifying for a full exemption.

Wealth tax

¹⁵ Five countries apply a lower tax rate on the capital gains of real estate, and 13 countries apply the same tax rate on capital gains of real estate and financial assets.

A number of countries have abolished this tax in recent years. It now exists in only two EU member states: Spain and France. Outside of the EU, it also exists in Norway and Switzerland. Applying this tax to agricultural land generates a number of difficulties. First, it is, in effect, a second land tax; this double taxation does not apply to assets not subjected to land tax. Second, like land tax, wealth tax does not take into account the income from the agricultural land which are taxed. Third, this tax is imposed on top of other taxes that tax the same tax base, i.e., the asset value (property transfer tax, inheritance tax). Finally, it taxes an asset with a low to very low return rate. Thus, this tax increases the tax burden on agricultural land.

The four countries where this tax still exists have all put in place measures that are specific to agricultural land in order to decrease the weight of this tax. Norway allows a reduction of 75 % of the asset value for tax calculation purposes. In practice, this caps the tax rate at 0.21% for agricultural land (national tax and local tax). France applies a similar but less advantageous measure for agricultural land since the tax base is reduced by only 50 %¹⁷, this reduction only applies to land under long-term tenancy and the general wealth tax rate is much higher than in Norway¹⁷. In Spain, many autonomous regions apply a 0 % tax rate. Finally, Switzerland uses a tax base that is less than the market value of the land, which reduces the taxation of agricultural land.

Furthermore, to relieve the tax burden on agricultural land, most states imposing this tax do not impose other taxes (e.g., inheritance tax in Norway) and/or set low rates in general or specific rates for agricultural land, e.g. inheritance tax in Spain, capital gains tax on real estate in Norway, and property transfer tax in Spain, Norway, and Switzerland. By contrast, France combines a wealth tax on real estate with the highest income tax, social security contributions rates and high capital gains and property sales tax rates for agricultural land¹⁸.

These comparisons highlight certain tendencies.

A GLOBALLY MODERATE TAXATION MOTIVATED BY SOCIO-ECONOMIC, AND NOT ENVIRONMENTAL, CONSIDERATIONS

First of all, agricultural land seems globally lowly taxed in Europe. In twelve countries, i.e., 40 % of the countries in this study, agricultural land is subject to a specific regime, either exemption or reduced rates, for at least half of the six examined taxes. Although this indicator does not measure the overall tax burden on agricultural land, it shows that there is general willingness to lighten it.

In addition, some countries cumulate fiscal measures that are favorable to agricultural land (see Table 1). This is the case, for instance, of Austria, Bulgaria, Hungary and Ireland. This demonstrates that these countries, as well as others, try to reduce the overall tax burden on agricultural land.

Table 1. Tax rates and fiscal measures in Austria, Bulgaria, Hungary and Ireland

¹⁶ % reduction of the tax base for up to 101 897 € and 50 % above that.

¹⁷ The marginal rate is three times that of Norway.

¹⁸ In particular, income tax and inheritance tax rates are higher in France than in the three other countries that apply a wealth tax; the rates of capital gains tax (real estate) and property sales tax are higher in France than in two of these three countries (Norway and Spain).

	Austria	Bulgaria	Hungary	Ireland
Land tax	0.16 – 0.2 % of the cadastral value Tax base capped at 30 % of the market value	Exemption for farmland	Exemption for land used for agriculture	Exemption for land used for agriculture and horticulture
Income tax	Exemption : 75 000 € (Global income)	Exemption for income from leasing of farmland	Exemption for income from leasing of farmland	General tax rate : 20 – 40 % Exemption for certain income from leasing of farmland (18 000 to 40 000 € depending on the lease period) 5 - 7 years: 18 000 € 7 -10 years: 22 500 € 10 - 15 years: 30 000 € 15 years +: 40 000 €
Wealth tax				
Inheritance tax		0.4 – 6.6 %	4.5 %: farmland 2.25 %: if the beneficiary is a farmer	3.3 % Agricultural relief: 90 % reduction of the market value of agricultural property
Property transfer tax	General rate 4.6 % Reduced rate for agricultural land transferred between close relatives: 2% Tax base capped at 30 % of the market value	Exemption for farmland	0 – 4 %	General rate: 7.5 % Exemption for long-term leases (at least 5 years) Consanguinity relief: 1% for the transfer of agricultural property between related persons (beneficiary must farm the land directly or lease the land to a farmer)
Capital gains tax (real estate)	Exemption for farmland	General rate: 10 % Exemption if owned for at least 5 years	General rate: 15 % Exemption after 15 years of ownership (reduced rate after 5 years of ownership, of 10 % per year)	General rate: 33% Agricultural relief: 90 % reduction of the market value of agricultural property (i.e., a rate of 3.3%)

Furthermore, the trend in Europe is to reduce the tax burden in general, especially coming from nonincome-based taxes. Thus, nine countries have abolished inheritance tax since 2000, four have abolished property transfer tax since 2005 and eight have abolished wealth tax since 1994. Indeed, non-incomebased taxes constitute an important and penalizing portion of the taxes on agricultural land, given their low income.

Then, there are very few fiscal measures specific to agricultural land that take into account the ecological potential of the area or the practices that benefit biodiversity (for instance, in France: a five-year temporary 50 % land tax reduction can be applied to agricultural wetlands under certain conditions¹⁹; some local councils can exempt agricultural land converted to organically farming from land tax for five years after their conversion date; in Poland: organically farmed land is permanently and completely exempt from land tax).

¹⁹ This measure applies only to wet areas belonging to categories 2 and 6 of the ministerial instruction of December 31, 1908, namely natural grassland and prairies, pastures, heathland, moorland and marshes.

Overall, the different national tax regimes for agricultural land appear to have been set up with food production in mind. The objectives of existing measures are more socio-economic than environmental: supporting the maintenance of farming activity during transfers, reducing costs to improve profitability or ensure farm viability, supporting farmers' incomes. These reasons make sense from a historical and economic point of view. However, some of these fiscal measures, by promoting the maintenance of agricultural activity or by contributing to its viability, have mixed effects, both negative and positive, on biodiversity. On the one hand, they can encourage the maintenance of farming practices and types of farming that have either detrimental or beneficial effects on biodiversity. On the other hand, by promoting the maintenance of agriculture and its viability in certain areas, they allow the conservation of agricultural land and delay or prevent its artificialization.

The Williamson Act, a way to slow down the urbanization of agricultural land in California

In the United States, 23 states have implemented programs offering tax incentives such as relief from land tax for the conservation of open spaces²⁰. In 1965, California enacted the California Land Conservation Act, also known as the Williamson Act. The aim of this act is to promote the conservation of agricultural land located in county-defined conservation areas and slow down its development for urban uses. The mechanism is simple: a landowner passes a voluntary agreement with the county to exclusively use his land for farming. This contract is binding for 10 years, and is automatically renewed, unless otherwise specified²¹. In exchange, the land under contract is valued according to its actual use (farming) rather than its potential market value²². The aim is to avoid a tax on agricultural land that is dissociated from its income, which could lead landowners to build up or sell their land. This is a way to slow down or limit land urbanisation.

The Open Space Easement Act²³ of 1974 works differently from a conservation easement²⁴, as its goal is to "preserve and maintain open space lands, while allowing limited²⁵ compatible uses and development"²¹. An open space easement is an agreement between a landowner and a county/town, in perpetuity or for a fixed term, where the landowner agrees not to build (or modified his land in any way that would be incompatible with the preservation and the maintenance of its natural characteristics). In exchange, if the easement is in perpetuity, the landowner can benefit from a reduction of the tax base, equal to the value of the donation, for federal income tax. If the easement is not in perpetuity, the land is still valued for land tax on the basis of its actual use and not its market value. Agricultural land is eligible for this relief provided that the farming activity is not detrimental to the scenic nature of the area.

Thus, in addition to conservation easements, California applies a joint system with two different but complementary objectives. The Williamson Act acts to limit or delay the urbanisation of agricultural land by avoiding taxation that is not related to income. The Open Space Easement Act prevents or reduces the development of areas of outstanding natural beauty. In both cases, the aim is to reduce taxation, which could otherwise lead to land development, to help conserve these areas.

The current tax measures for agricultural land do not steer towards using the best practices for biodiversity conservation, carbon storage or for reconciling crop production with biodiversity conservation in open areas prone to biodiversity loss. They can even sometimes incite land artificialization

²⁰ Open space is any piece of land that is undeveloped (has no buildings or other built structures) that is accessible to the public: Environmental Protection Agency. "What is open space/green space?". <https://www3.epa.gov/region1/eco/uep/openspace.html>

²¹ For contracts terminated outside the non-renewal process, the landowner is required to pay a cancellation fee equal to 12.5 % of the unrestricted fair market value of the property.

²² In the United States, undeveloped land is taxed according to its market value, not its cadastral value.

²³ Open space easements exist in three states: California, Maryland and Virginia.

²⁴ See Foundation for Biodiversity Research (*Fondation pour la Recherche sur la Biodiversité* (FRB)). (2021). Comment développer les obligations réelles environnementales en France ? Note from the Science Committee.

²⁵ Santa Clara County Planning Office. (2010). Open space easement – brochure. Department of planning and development. California.

to the detriment of biodiversity, climate change mitigation, the landscape and agriculture itself. The construction of the agricultural land taxation is essentially based on economic and social considerations. In the context of the Green Deal and the EU Biodiversity Strategy, is it not time to rethink the fiscal policy for agricultural land?

AGRICULTURAL LAND IS TAXED MORE IN FRANCE

The French Foundation for Biodiversity Research's comparative assessment of the taxation of forests across Europe showed that, on average, forests in France were slightly more taxed than in other European countries. This difference seems far more pronounced when it comes to agricultural land.

In addition to multiple annual taxes related to income (income tax and social security contributions), France imposes five different taxes on agricultural land that are independent of income: land tax, the tax for the cost of the chamber of agriculture (taxe pour frais de chambre d'agriculture), property transfer tax, inheritance tax, and if applicable, wealth tax on real estate, three of which are due annually. This explains why the tax rate can sometimes exceed 100 % of the income.

Land tax in France, as in half of the countries in Europe, is independent of income. France has the highest marginal tax rate in Europe for income tax, the second highest marginal tax rate for inheritance tax, the fourth highest for property transfer tax, the fifth highest for capital gains tax with slow abatement schedules and the longest duration of taxation²⁷. France is one of only four countries where a wealth tax applies to agricultural land. It is the only country where this tax applies only to real estate, which puts agricultural land at a disadvantage compared to financial assets. France is also the only country where this tax applies to agricultural land despite imposing regulated farm rents.

Whereas in a number of European countries, the abolition of certain taxes has reduced the tax burden on agricultural land, taxation of agricultural land in France has increased in recent years: capital gains tax on real estate was increased in 2005, 2009, 2011, 2012, 2013 and 2017; property transfer tax was increased in 2006 and 2014²⁸; income tax was increased in 2010, 2012 and 2014; the generalized social contribution (contribution sociale généralisée (CSG)) was introduced in 1991 and was increased in 1993, 1997, 1998, 2005 and 2017; the contribution for the reimbursement of the social debt (contribution au remboursement de la dette sociale (CRDS)) was introduced in 1996; the social security contribution (prélèvement social) was introduced in 1998 and was increased in 2011 and 2012; the additional social security contribution (contribution additionnelle au prélèvement social) was introduced in 2004; the contribution to the active solidarity income (cotisation au revenu de solidarité active (RSA)) was introduced in 2009, transformed into the solidarity contribution (prélèvement de solidarité) and increased in 2013 and 2019.

This higher taxation of agricultural land in France generates several difficulties, both for the agricultural sector itself and for the environment. Generally speaking, higher taxation in France decreases the profitability of agricultural land after tax, and even generates negative profits, which can increase the pressure for switching to other land uses. Higher taxation can also be linked to a faster rate of land artificialization in France than in the rest of Europe.

In addition, these taxes are applied on farm rents that are considerably lower in France than the European average (lower than all other western European countries and even of some eastern European countries). The average rental price of one hectare of agricultural land in France is 140 €, compared to 800 € in the Netherlands, 530 € in Denmark, 500 € in Switzerland, 350 € in Germany, 300 € in Ireland and Austria, 230 € in Finland, 220 € in the United Kingdom and Poland, 160 € Sweden, 150 € in Spain, Slovenia and Hungary²⁹. This difference is due to the fact that rental prices of agricultural land are

²⁷ 30 years compared to 10 years maximum for nearly all other countries that apply exemptions based on the duration of ownership. ²⁸ However, although the inheritance tax rate has not changed recently, the abatement on 75 % of the value that was applicable on up to 101 897 €, is applicable on up to 300 000 € since 2019.

²⁹ Eurostat, 2019.

regulated in France. In Europe, rental prices are for the most part unregulated. Each year in France, a prefectural decree for each department sets the minimum and maximum rental price. Comparatively, we can estimate that the rental price of agricultural land in France is on average half what it would be if prices were unregulated. It is important to take this into account when evaluating the taxation of agricultural land.

Thus, France combines both low rental prices and high taxation on agricultural land, with a significant proportion of these taxes calculated independently of rental income. This combination tends to lead to a post-tax profit that is null or negative. In practice, we can see that all other western European countries have higher rural rental prices and less tax on agricultural land and/or rental income from agricultural land than France.

The weight of non-income-based taxes in France

When all taxes are based on gross income, the net rate of return remains the same irrespective of whether the income is high or low. However, this is no longer the case with non-income-based taxes. Indeed, gross income becomes a more important variable when taxation of a property is largely set independently of income than when taxation is proportional to income. A low gross income that is heavily taxed through mostly non-income-based taxes often leads to a net post-tax income that is low, or even null or negative in constant euros.

In addition, taxes based on the value of agricultural land and not on income lead to more urbanization or land transfers, not only when the land is legally approved for conversion, but also when it is not but there is a possibility that it might be one day (this is frequently the case in coastal regions). This occurs when income from leased agricultural land remains the same or nearly the same but taxes based on the appraised value go up. When the asset generates a regulated income that is not linked to its value, taxes based on the appraised value often led to this situation. This pernicious effect is intelligently counteracted by the Williamson Act in California. These taxes are payable irrespective of the annual rural rental income even if it is null. Thus, these taxes and their rates do not take into account the evolution of rental prices. As rental prices are regulated, the reference rural rent index can decrease one year or year-on-year. However, the rates of land tax, the tax for the cost of the chamber of agriculture, property transfer tax, inheritance tax, capital gains tax on real estate... are not reduced accordingly. These taxes follow their own logic, i.e., financing the beneficiaries of these taxes. Tax rates can even go up if the needs of these beneficiaries increase, or to compensate the decrease in fiscal revenue from other sources. This can happen even in years where rural rental income goes down. This has been happening in France since the second half of the 20th century. Gross rural rental income has tended to go down, but, at the same time, taxes on agricultural land have increased without taking into account this decrease in gross income.

The EU member state whose system is most similar to the French one is Belgium, where rental prices of agricultural land are also regulated. A comparison of France and Belgium is therefore pertinent, and is presented in Table 4. This comparison highlights two major differences. First, even if these two countries regulate the rental prices of agricultural land, they are set much higher (more than twice) in Belgium. Second, the taxation of rural rental income is much lower in Belgium. It is not subject to social security contributions and income tax is often very low or not applied. Thus, although the rental price of agricultural land is regulated in Belgium, it is much higher, and the associated income is taxed much less than in France. The combination of these factors allows rural leases to be profitable in Belgium. The opposite combination prevents this in France.

Table 4. Comparison of the taxation of agricultural land in Belgium and France

	Belgium	France
--	---------	--------

Average rental price / ha	National average : 304 € ²⁶ Flanders: 380 € Wallonia: 241 €	140 €
Land tax	Cadastral value	Cadastral value
Income tax	Exemption: - "career-long" rural land leases - "long term" rural land leases with a first tenancy period of at least 18 years Otherwise: 25 – 50 % of the cadastral value (much less than the rental income)	17.2 – 75 %
Wealth tax		0 – 0,75 % (long-term rural land leases) : Otherwise: 0 – 1,5 %
Inheritance tax	Wallonia: 0 – 64 % A reduction of 30 to 55 % for "long-term" rural land leases (10 % less if the landowner (lessor) is over 35 years old) A reduction of 50 to 75 % for "career-long" rural land leases (10 % less if the landowner (lessor) is over 35 years old). The reductions are 20 to 45 % and 40 to 65 %, respectively, if the lessor is over 35 years old. Otherwise: 0 – 80 % Flanders: 3 - 55 % (A draft bill is considering exempting leased agricultural land)	Long-term rural land leases: taxes due are calculated from a quarter of the value up to 300 000 euros and on 50 % of the value above that threshold, i.e. a tax rate of 1.25 to 30 % Otherwise: 5 – 60 %
Property sales tax	Wallonia and Brussels: 0 – 12.5 % Flanders: 0 – 10 %	8 %
Capital gains tax (real estate)	Exempt	General rate 36.2 % Applicable abatement rates: 6 – 21 years: 7.65 % each year 22 nd year: 5.6 % 22 years or more: 9 % (social contributions only) each year Exemption after 30 years 75% for taxpayers whose wealth tax is capped, without any progressive abatements, even after 30 years.

Agricultural land in France generates a negative profit

The trends highlighted in our study confirm previous observations and analyses based on smaller-scale comparisons. As early as 1986, the French tax advisory board (conseil des impôts) showed that the average annual tax burden on agricultural land was comparatively much higher in France than in three other countries – Germany, the United Kingdom and the United States – and that it led to a post-tax negative profit of agricultural land in all cases considered²⁷. The multiple tax increases since 1986²⁸ have further increased the tax burden on

²⁶ Statistics Belgium, 2019.

²⁷ French Tax Advisory Board. (1986). Huitième rapport au président de la République. JORF. 4063. 443 p.

²⁸ Increase in property tax, the tax for the cost of the chamber of agriculture, inheritance tax and property sales tax, creation and increase of social security contributions...

agricultural land in France as well as contributed to their net negative rate of return. In 2013, a joint report from the General Inspectorate of Finance (Inspection Générale des

Finances (IGF)) and the General Food, Agriculture and Rural Areas Council (Conseil Général de l'Alimentation, de l'Agriculture et des Espaces Ruraux (CGAAER))²⁹ showed that in 20 years, in France:

- agricultural land was the asset with the lowest rate of return;
- its rate of return was the only one below inflation, and thus was negative in constant euros;
- it was the only asset in that case.

This situation is not unrelated to the wishes of rural landowners to convert the land to other uses (forestation as forests are less taxed, renewable energy as rental prices are much higher than for agricultural land, urban development). When the rate of return of agricultural land is negative, landowners struggle to maintain an asset that is structurally making a loss. They are tempted to sell or develop their land in order to make a profit that is neither null nor negative. It is even more the case as state measures on income doubly favor land development. First, the state halves the rental income of undeveloped land. Second, through financial incentives, the state indirectly supports landowners that accept the conversion of their land by solar or wind energy developers. Without state intervention, the rental income of undeveloped land would be twice what it currently is and land conversion by the energy sector would for the most part, in terms of pure market economy, not be profitable. Thus, state intervention distorts the income of these two economic activities in such a way that it increases the difference in profitability between them and clearly incites land artificialization.

As the price of an asset, over time, gets closer to the actualized sum of its future income, the situation in France has a major impact on the price of agricultural land. Halving rental income through price regulation combined with high tax rates applied to the remaining rental income, plus high taxation of the agricultural land itself that is for the most part independent of income, result in prices for agricultural land that are extremely low in France. A hectare of agricultural land is worth on average 6 000 € when it is free of tenancy (4 500 € when leased), compared to 10 000 € in Poland, 12 000 € in Spain and Greece, 17 000 € in Slovenia, 18 000 € in Denmark, 21 000 € in Germany, 23 000 € in Ireland, 25 000 € in the UK, 30 000 € in Switzerland and 63 000 € in the Netherlands³⁰.

This price difference means that foreigners are in an advantageous position to buy agricultural land in France³¹. And most importantly, the slowing down of urbanisation when the price of agricultural land is high cannot take effect in France³⁶. Even if other factors come into play, the very low price of agricultural land in France helps its artificialisation.

High taxation despite regulated rental prices

Regulated rental prices, which are half what they should be under market conditions, should be taxed at a lower rate than the normal tax rate to take into account the loss of income imposed by the state before taxation. Even more so that it is the same governing body, i.e., the state, that both decides, administratively, to lower an income and sets its taxation rate. Even so, in France, not only is rural rental income not taxed at a lower rate than the normal rate, it is taxed at the marginal rate, which is higher than the normal rate applied to other categories of unregulated income. Indeed, income from financial assets is unregulated. Their long-term gross rate of return is much higher than that of undeveloped land (three to four times higher). Since 2018, the normal taxation rate of income from financial assets is a fixed rate of 30 % (a single flat tax).

²⁹ General Inspectorate of Finance - General Food, Agriculture and Rural Areas Council (*Inspection Générale des Finances - Conseil Général de l'Alimentation, de l'Agriculture et des Espaces Ruraux* (IGF-CGAAER)). (2013). Les outils financiers de portage des terres agricoles pour favoriser la transmission et l'installation dans la perspective de la transposition de la Directive AIFM. Rapport n° 2012M09002. N° 12119.

³⁰ Eurostat, 2017-2019.

³¹ Except for specific cases where rental income per hectare or land price per hectare differ from the average. For instance: vineyards that produce protected designation of origin (PDO) or grand cru wines. We can see that this type of land is less urbanised. See for instance PERES Stéphanie. (2009). La résistance des espaces viticoles à l'extension urbaine Le cas du vignoble de Bordeaux. *Revue d'Économie Régionale & Urbaine*, 155-177. <https://doi.org/10.3917/revu.091.0155>

With regulation, rental prices of agricultural land are half what they should be in France (140 €/ha compared to 250 – 300 €/ha). Nevertheless, this land is taxed as if its income had not already been halved. In other words, the rent due under market conditions is halved by the state from the start. Yet the lessor

does not benefit from a tax rate that is halved or reduced on this halved income. They are even not taxed ³²at a normal or flat rate (single flat tax). They are taxed at the marginal rate of income tax, which can reach 62.2 %. The state ensures that the taxpayer earns 50 instead of 100, but taxes them as if they had earned 100.

The regulation of rental prices of agricultural land is motivated by a desire to lower the cost of access to land for tenant farmers and boost their income. To this end, it has been rather successful at meeting these objectives. However, is there not a contradiction between cutting the income of landowners by 50 % for mainly social reasons and, despite that, levying social security contributions on the remaining 50 % after an initial levy of 50 % for social reasons? In other words, the lessor pays 58.6 % of their theoretical market rent in social security contributions³⁶.

It seems illogical to tax a regulated and halved income more than an unregulated income. On an income from financial assets of 100 €, the taxpayer will pay income tax at a rate of 30 %. They keep 70 € or 70 % of their income. On 100 € from rural rental income, the taxpayer receives 50 € and must pay income tax + social security contributions that can go up to 62.2 % (plus the additional taxes due) on the remaining 50 €. A halved income is taxed at a rate that can be more than twice the tax rate applied to an unregulated income.

Fall in revenue and tax increases: agricultural land in France is subject to a “scissors effect”

In France, since the 1950s, rental prices of agricultural land have increased more slowly than inflation. They are going down by 1.2 to 1.3 % each year in constant euros³³. More recently, between 1999 and 2019, the gross rental income of agricultural land has fallen by nearly half³⁴.

In particular, the price of agricultural land, which had gone up between 1953 and 1978, has gone down ever since. After 1978, the valuation of land prices failed to compensate the loss in rural rental income. Between 1979 and 1982, land prices have gone down in constant euros by 30 %. From 1983 to 1996, they have even gone down in current euros. Since 1997, they are slowly going up again. However, today, the average real price of one hectare of agricultural land is still lower by over a third than its value in 1978 and is not worth more than what it was in 1965³⁵. Thus, half a century later, the price has remained the same.

In terms of global performance (income and capital gain or loss), if agricultural land was profitable until the 1970s, this is no longer the case since the 1980s³⁶. In the 1980s and 1990s, agricultural land was making a double loss: in terms of income and by erosion of its value³⁷ (i.e., capital loss).

This negative trend could have been compensated in net rate of return by a reduction in the taxation of agricultural land. Yet, the opposite has occurred. The taxation of agricultural land has gone up in four ways, even though the global gross rate of return of this land was decreasing. First, existing taxes on agricultural land have

³² % + (50 % of 17.2 = 8.6) = 58.6 %

³³ DESRIERS Maurice. (2013, April). Un essai de synthèse statistique sur le foncier agricole en France. *Pour*. n° 220. Pp. 77-88. ; PLUCHET Alain. (1994). *Rapport fait au nom de la Commission des Affaires économiques et du Plan sur le projet de loi relatif au prix des fermages*. Senate. Appendix to the minutes of the meeting of July 6, 1994. They are lower today than in the 1970s. They are sometimes even falling in current euros. For instance, since the introduction in 1994 of a new method for determining the rural land lease index, rental prices have gone up in current euros twelve times but have gone down fourteen times, in particular for consecutive years between 2000 and 2007 and between 2016 and 2018. See the rural land lease indices since 1994.

³⁴ JEGOUZO Loïc. (2020). *Les marchés fonciers ruraux en 2019 : vive activité des marchés fonciers ruraux*. Fonciers en débat. Data from Terres d'Europe - SCAFR, the Banque de France and SSP.

³⁵ National Federation of the Land Development and Rural Establishment Companies (Fédération Nationale des Sociétés d'Aménagement Foncier et d'Établissement Rural (FNSAFER)). (2019). *Le prix des terres*; French Ministry of Agriculture. (1984). *Le prix des terres agricoles en 1983*. Central Department of Statistics (Service Central des Enquêtes et Etudes Statistiques). Study n°234.

³⁶ Multiple studies ; see for instance : MALPOT Jean-Jacques & PAQUEL Véronique. (1995). *Le patrimoine de rapport des ménages et ses performances*. Économie et Statistique. N° 281. Pp. 31-39.

³⁷ Capital loss is greater if the land is leased: a rural land lease lowers the value of agricultural land by about 25 %.

seen their rates rise multiple times³⁸. Second, even without a rise in tax rates, revaluation of the rental cadastral value has led to an increase in tax due. Third, new taxes on rural

property and income have been introduced and their rates have risen rapidly³⁹: for instance, social security contributions on rural rental income have risen from 0 % in 1990 to 1.1 % in 1991 to 17.2 % in 2018. Finally, the tax bands of certain taxes (inheritance tax, wealth tax, and to a lesser extent income tax) have been frozen since 2012, leading to a higher taxation of agricultural land since the different bands have not been adjusted to inflation.

As rental prices of agricultural land do not take into account the increases in existing taxes or the introduction of new taxes, the taxation of agricultural land has gone up more rapidly in France than its gross income, leading to a “scissors effect” and accentuating even more its negative profitability.

The effective impact of a tax depends on the ability of one taxpayer to pass down all or part of this tax to another taxpayer. However, measures in France prevent tax increases on agricultural land being passed down to farmers. The situation is actually the opposite since, on the one hand, rental prices are set by regulation without taking into account the increase in the tax burden, and on the other hand, when temporary or long-term tax reliefs are put in place (for instance, for land tax), rules stipulate that it must be passed down to the tenant.

To facilitate the access of farmers to agricultural land owned by non-farmers, i.e., the “carrying” of the land by someone else for their benefit of the farmer, a set of rules were put in place after the war. These rules ensured a low but positive return on agricultural land. At that time, rental prices were comparatively higher than today. The price of agricultural land was going up. Globally, the taxation of agricultural land was lower, assume taxes did not exist (social security contributions, wealth tax).

The entire system has crumbled bit by bit.

First, the price of agricultural land has fallen since 1978. Then, rental prices have declined. Finally, taxation of, on the one hand, the agricultural land itself, and on the other, rural rental income, has gone up, despite the erosion of the latter.

The introduction of a wealth tax in 1981, even with a reduced rate for agricultural land, contributed to the tax burden on agricultural land at a time when its value and rate of return were decreasing. Its replacement with a wealth tax on real estate in 2018 has increased the relative taxation of agricultural land compared to that of financial assets, concomitantly with a rise in other taxes applied to agricultural land (general social contributions, capital gains tax (real estate), frozen tax bands). Nevertheless, in 1981, the particular nature of agricultural land was taken into account and wealth tax was applied to only a fraction of the land’s value. However, following the introduction in 1990 of social security contributions on rural rental income, and their successive increases, the fact that these taxes were applied to an income that was halved by the state was not taken into account. In other words, the application of social security contributions to rural rental income since the 1990s has been done without considering the fact that this income had already been halved for social reasons.

Landowners were faced with a situation where, with the erosion and disappearance of net profitability from land leasing, the only available exit strategy to gain a net positive return from their asset was to change its use by developing it.

Fiscal policies are in contradiction with the objectives to curb land artificialization

The fiscal policies in place since 1945 have facilitated the access of farmers to land and reduced the cost of access. Very low rental prices have given them an important competitive advantage over their European

³⁸ Capital gains tax on real estate in 2005, 2009, 2011, 2012, 2013, 2017; income tax in 2010, 2012, 2014; inheritance tax in 2011 and 2014; land tax and tax for the cost of the chamber of agriculture: continuously.

³⁹ Wealth tax in 1981; generalized social contribution (CSG) in 1991, went up in 1993, 1997, 1998, 2005 and 2017; contribution for the reimbursement of the social debt (CRDS) in 1996; social security contribution in 1998, went up in 2011 and 2012; additional social security contribution in 2004; contribution to the active solidarity income (RSA) in 2009, transformed into the solidarity contribution and went up in 2013 and 2019.

counterparts. The system, by enforcing low rental prices, spares them the expenses associated with buying and owing undeveloped land. Therefore, farmers do not have to use their savings to that end and avoid debt associated with land acquisition. The aim of this policy was, on the one hand, to increase

the income from farming activity and, on the other, to allow farmers to invest not in property but to modernize and increase the efficiency of their farms.

What are the drawbacks of this policy?

First, the tax reforms that began in 1945, followed by the evolution of rental prices and their indices, and subsequent tax increases, have contributed to making a system that wanted to be fair when it was first introduced after the war, to no longer be fair today, and have made agricultural land unprofitable.

Second, generally speaking, providing support for farmers' incomes with low rents that are heavily taxed has had negative perverse effects on the farmers themselves. On the one hand, this policy negatively impacts the income of retired farmers. And yet, there are more retired farmers than working farmers (1 250 000 vs. 469 000 farmers that pay for pension provisions⁴⁰). Once they have stopped working, farmers often keep the land they own to complement their low pension with rental income. However, as gross rental income is low and heavily taxed, the net income from renting agricultural land is very low. Furthermore, the very low rental prices and high taxation of agricultural land incite retired farmers who no longer benefit from the tax reduction applicable to working farmers to sell or develop their land to fund their retirement, and not lease their land to preserve farming activities. Higher post-tax rental incomes would provide them with a regular income (not a lump sum) and would help prevent the artificialization of agricultural land. If fiscal policies wanted to be coherent with the objectives of increasing the spending power of retired farmers and control land artificialization (a target of the Climate and Resilience Act 2021 (loi climat et resilience)), then they should not discourage tenant farming.

In addition, when the system was put in place in 1945, environmental and biodiversity considerations did not exist. Neither did the issues of land artificialization and urban sprawl. 75 years on, at a time when these issues are now center-stage, it is strange that the system is not at least reevaluated with them in mind.

This reevaluation would be all the more justified that a fall in rural rental income goes against the demands for payment for environmental services provided. The drift of the system in place contributes to the negative profitability of agricultural land, which leads to land artificialization, when one of the objectives of the current agricultural policy is to slow it down, or even stop it.

The null or negative rate of return of agricultural land in France because of low regulated rental prices and high taxation seems in contradiction with the objectives of the Zero Net Artificialization for 2050 plan and the Climate and Resilience Act 2021, which aims to halve the artificialization rate by 2031.

Furthermore, although farmers have benefitted from this system and their overall situation has improved, their situation remains unsatisfactory. One of the reasons is that the added value derived from agriculture that, before the war, benefited farmers and landowners, nowadays benefits those downstream (supermarkets, transformation, logistics, conditioning, transport) and upstream (agricultural inputs and equipment) of farm production. Where is the progress for farmers if the added value, they were able to benefit from after the tax reforms of 1945 is now going to other players in the sector?

This situation makes farmers dependent on both the suppliers of agricultural inputs and equipment, a sector dominated by a few suppliers, and the rest of the supply chain, which is also dominated by a few companies, who can dictate the prices paid to farmers and even the production methods to be used. As a result, agricultural produce is bought by supermarkets at a low price, which leads farmers to invest even more in equipment and inputs to increase production. This cycle goes against the development of short supply chains and local farming activity.

⁴⁰ 44 Mutualité sociale agricole. (2020). *Les chiffres clés de la MSA*. <https://statistiques.msa.fr/chiffres-cles-msa/>

From an environmental point of view, and biodiversity in particular, this could even be a setback. Indeed, how this value is distributed has a number of consequences. A large part of the savings that result from affordable land tenancies has been, and still is, invested in modernizing farm infrastructure and intensifying production. This process was certainly useful in 1945 and in the following decades, when most farms were not mechanized. However, in recent years, it has led to costly and sometimes excessive overequipping and over-intensification of production, which bring down the farmers' profit margins.

- Income from the land goes down, leading to negative profitability of agricultural land and thus to pressures for land use changes (artificialization).
- A large part of the agricultural income, rather than going towards paying for environmental services provided by agricultural ecosystems and for keeping this land undeveloped (pre-war situation), goes towards structures and processes that are detrimental to biodiversity (inputs, farm machinery that causes soil compaction, land artificialization for the distribution of goods and logistics), and leads to a reduction in agricultural land.

Before the war, some of the added value went to landowners and farmers, whose activities meant the land remained undeveloped. Nowadays, it is directed towards those whose activity requires land artificialization (supermarkets, logistics, etc.), or who produce inputs that are detrimental to farmland (mechanized farming and soil compaction due to the use of increasingly heavy machinery, spraying of herbicides/pesticides and synthetic fertilizers), and neighboring natural spaces (conversion of nearby land into agricultural land to absorb the cost of expensive machinery, pesticide residues or nitrates in rivers, on the coast, down into the sea, and in natural spaces next to cultivated fields). Part of the added value gained from the work of farmers allows the downstream sector, which buys up land, to artificialize agricultural land. Thus, part of a farmer's income is used, paradoxically, to reduce the amount of the most important element for production: the land.

This trend is not really in accordance with the interests of farmers. It goes against the objectives inscribed in the law to control land artificialization. It is detrimental to biodiversity. By increasing the distance between housing areas and supermarkets, it also goes against policies to mitigate climate change.

RECOMMENDATIONS

- 1) We could not find any previous detailed comparative study of taxation of agricultural land in Europe. Consequently, data was hard to come by and verify. Given the large land area used for agriculture (36 % of the land surface) in Europe, the EU's long-standing Common Agricultural Policy regulating many components of agricultural policy and representing 32 % of the EU's budget, the economic weight of the agricultural sector, the importance of the rural land market, the many European directives that apply to agriculture, in particular in relation to the environment, such a comparison would seem pertinent. It is surprising that neither Eurostat, the European Environment Agency, the Directorate General for Agricultural and Rural Development (DG AGRI), the OECD, nor important agricultural nations like France, keep up-to-date records. It seems important that the concerned institutions produce these comparative data and keep them up-to-date.
- 2) Current tax measures related to agricultural land and its income have multiple flaws when it comes to biodiversity. First, they do not seem to slow down the rate of land artificialization and the associated changes in land use. It is true that tax measures are not solely responsible and other factors contribute to this trend. However, tax measures can, sometimes, incite land artificialization at the expense of biodiversity, climate change mitigation and the agricultural landscape itself. These objectives, as well as the fall in the gross rate of return of agricultural land, were not, or inadequately, considered in successive tax reforms. We see no mention of these issues in the impact study of the draft budget bill and the draft budget bill for social security of 2018, which led to an increase in the taxation of agricultural land and its income, when at the same time the government, who drafted these bills, had fixed a Zero Net Artificialization objective. Likewise, the + 3.4 % revaluation of the cadastral rental value of undeveloped land in 2022 has not led to a similar revaluation of the rural rent index. On the contrary,

the latter has fallen by more than 3 % between 2015 and 2021 in nominal terms and even more so in real terms⁴¹. This reinforces the scissors effect mentioned previously. It increases the tax burden on agricultural land without taking into account the rise in tax rates. Furthermore, tax measures targeting agricultural land do not seem to encourage environmentally friendly practices (practices that are best for conserving biodiversity, storing more carbon or reconciling crop production with the conservation of the dwindling biodiversity of open spaces).

It seems timely to review the taxation of agricultural land, especially in the context of the Green Deal, the European and national strategies for biodiversity, the efforts to mitigate and adapt to climate change, and the government-set objectives to control land artificialization.

- 3) Only a few tax relief measures in France are related to the environment (exemption from land tax for five years for agricultural land in wet areas, possible exemption from land tax for five years for organically farmed land). This exemption period is relatively short, although renewal may be possible. Increasing the length of the exemption period would make these measures more attractive.
- 4) Some tax relief, in particular for land tax, is granted by decision of the local authorities, which means it is not automatic or may not be available everywhere in the country. At least partial compensation from the state or a nationwide adjustment measure would reduce this problem.
- 5) As for national relief from land tax (local authorities have no say in its application), the fiscal measure in place was that the state would compensate local councils for the loss in fiscal revenue. However, the introduction in 2009 of a reduction factor that has gone up progressively has led to a very significant decrease in state compensation. The resulting loss in fiscal revenue can be significant for certain councils in rural areas. This non-compensation rule could be reviewed or attenuated, especially for small councils in rural areas.
- 6) Some fiscal measures can be detrimental to certain ecosystems. This is the case, for example, of temporary exemptions from land tax for reforestation when they are applied to agricultural environments that are rich in biodiversity and/or becoming scarce such as natural prairies, including wet grassland. These measures could be reviewed or made more selective.
- 7) Farmers specifically benefit from lower tax rates. Their income from agricultural land is declared as agricultural income (*bénéfices agricoles*) and not income from real estate. When they buy agricultural land, property sales tax is applied at a rate of 0.7 %, which is ten times lower than the normal rate. They are often exempt from capital gains tax on real estate. They are exempt from wealth tax. The transfer of agricultural holdings, including land, benefits from the “Dutreil pact”, which entitles partial exemption of donation rights, on up to 75% of the value of the company.

We can question the purpose and reasoning behind these differential rates.

Indeed, in France, over 80 % of agricultural land is leased, thus farmers do not own the land. The government policy since the war has been to relieve farmers of some the burden of land expenses. First, the aim was to allow farmers to invest in farm machinery and modernize their farms. Second, since undeveloped land is not profitable, it is more advantageous for farmers to rent than to buy. Thus, buying agricultural land represents a suboptimal situation for farmers. For this reason, policies that ensure very low rental prices have been put in place to facilitate access to agricultural land.

⁴¹ The evolution of the rural rent index in real terms is -0,62 % in 2016, -4,02 % in 2017, -4,89 % in 2018, 0,26 % in 2019, 0,05 % in 2020, 0,51 % in 2021.

From an environmental point of view, the distinction does not really seem justified. Indeed, no account whatsoever is taken of the biodiversity richness of the land or of the agricultural practices in place, which can have a positive or negative impact on biodiversity and even carbon storage. In addition, it leads to taxing the same type of natural habitat (e.g., permanent grassland used for intensive rearing, land in agroforestry systems or organically farmed) in two different ways depending on who owns it: less taxed if the owner is a farmer, highly taxed if the owner leases their land. This difference is not motivated by environmental considerations as it applies to the same habitat. Finally, it can lead to taxing much less a field where grain crop is intensively grown using high quantities of pesticides/herbicides and synthetic fertilizers, and that is ploughed annually and left bare in winter, if it is owned by a farmer than a field of equivalent size of permanent grassland used for extensive rearing, or in agroforestry systems or farmed organically, if the owner leases the land.

Tax measures with explicit environmental considerations could consist of taxing land according to its ecological value, the environmental services rendered, and rewarding eco-friendly practices that would preserve, or even improve, the ecological value and the delivery of the ecosystem services of that land. Differential taxation based on the scarcity of the natural habitat, the level and diversity of the ecosystem services provided or that could be provided (e.g., carbon storage, flood retention, heatwave mitigation...), and the agricultural practices used, would be more efficient than discriminating between landowners.

- 8) It has been proposed several times that ecosystems, or at least certain ecosystems, be considered as green infrastructures⁴². Infrastructures deliver products or services, have a long lifespan, require investments, must cover their costs... If we consider certain agricultural land (for example agricultural land in wet areas, prairies...) to be natural infrastructures that deliver multiple services (ecosystem services, nature-based solutions), the aim of their taxation should be to facilitate the delivery of these different services or even increase and diversify these services. This entails attracting investments for the maintenance, restoration and development of the capacity to provide ecosystem services and nature-based solutions, which requires a stable and incentive fiscal framework that attracts investments and allows at least minimal profits for the investor. This objective and how to achieve it seem in contradiction with the current function of most agricultural land, which is to maximize the delivery of one type of product – namely agricultural produce – even at the expense of the other services.

However, this conflict does not mean that the contradiction between these two objectives, and the problems it generates, should not at the very least be discussed.

- 9) There are three different ways that current tax measures could incite the conversion of grassland to arable land. First, for historical reasons, the cadastral rental value⁴³ of grassland and prairies, and thus their average land tax per hectare, is generally higher than that of arable land. However, the rental price per hectare is generally lower for grassland than for arable land. Thus, for grassland, income is generally lower and land tax is higher, and so the net income is even lower. Second, the conversion of grassland to arable land generates tax savings. Indeed, after a prairie is converted to arable land, it is reclassified according to the land category nomenclature and a lower land tax will apply. Finally, the conversion of grassland to arable land generates an increase in the value of the land (+ 40 % on average)⁴⁴. This represents a substantial capital gain. In economic terms, this is normal as it represents the increase in price and profitability of the land once it can be used for crop production, and covers the conversion costs (ploughing), which allowed this increase in value. However, in practice, it is remunerating – and thus providing an

⁴² European Commission. (2013). Green Infrastructure (GI) - Enhancing Europe's Natural Capital. Communication from the commission to the European parliament, the council of the European economic and social committee and the committee of the regions; Comté interministériel de l'évaluation des politiques publiques. (1994). Les zones humides. Rapport de l'instance d'évaluation. La Documentation française.

⁴³ Which is unrelated to the price or rate of return of agricultural land.

⁴⁴ FNSAFER 2019: on average, the price of one hectare of untenanted grassland in 2018 was 4 580 €, compared to 7 540 € for one hectare of untenanted arable land.

incentive for – the loss of ecological value, ecosystem services rendered and the capacity of the land to deliver these in the future.

Both the landowner and farmer of grassland have, generally, something to gain from its conversion to arable land. This situation represents a strictly inverse example of both the theory of externalities and payment for ecosystem services. Economic theory argues that spillover from positive externalities should benefit those who produced them. Here, those that destroy or reduce them are remunerated. In the same vein, payment for environmental services schemes, which is an increasingly popular tool, remunerate those who provide these services. Here, not only are the landowner and farmer of grassland, who provide more ecosystem services, less remunerated than the landowner and farmer of arable land, who produce far less ecosystem services, but also those who significantly reduce the delivery of ecosystem services (and therefore nature-based solutions), by converting grassland into arable land, are also remunerated for their actions.

Taxation therefore provides an indirect incentive for the destruction of grassland. Of course, other factors also contribute to the disappearance of grassland. In addition, the conversion of grassland to arable land is more regulated nowadays. Nevertheless, grassland provides far superior ecosystem services than arable land. Grassland biodiversity is significantly higher than that of arable land. Grassland soil is covered in winter. Grasslands mitigate the effects of floods and even overflowing rivers. Grassland soil store as much carbon per hectare as forest soil and significantly more than that of arable land or vineyards⁴⁵. Furthermore, from an economic perspective, the livestock sector in France is in greater difficulty than the grain crop sector. The income of livestock farmers is lower than that of crop farmers⁴⁶.

The higher taxation of grassland compared to arable land does not therefore seem justified, neither in terms of biodiversity and mitigation of climate change nor in terms of risk, social considerations, water management, landscape, income from agricultural production and from agricultural land. The disappearance of grasslands and the extent of the services they provide plead in favor of their exemption from land tax. This measure would benefit the farmer's income, but also have positive effects on biodiversity, carbon storage and flood mitigation. This exemption would not impact the fiscal revenue of local councils where few plots of grassland remain. However, it could be a problem for local councils where there are still many pastures. The importance of grassland would justify that the state compensates this loss of revenue, at least in councils where, for instance, the share of land tax revenue from grassland represents over 10 % of the overall revenue or 20 % of the land tax revenue. If the state considers that it cannot afford these expenses, it should at least envisage to not tax grassland more than arable land. The revaluation of the cadastral rental values being a lengthy, complex and ever-postponed task, we cannot rely on it in the short term. A less precise but rapid method would be to introduce an abatement of for instance 20 % on land tax for all grassland.

The conversion of grassland to arable land should not generate a fiscal advantage, as it generally entails a reduction in ecosystem services rendered, but a penalty, to discourage this biological impoverishment. Land tax on grassland converted to arable land could be increased by a certain percentage. Alternatively, this conversion could be taxed on the price of one ton of carbon multiplied by the number of tons of carbon stored in one hectare of grassland and the number hectares of converted grassland (C price x tons of C x no. ha)⁴⁷. At the very least, this conversion should not generate any reduction in tax.

⁴⁵ ARROUAYS Dominique *et al.* (2002). Stocker du carbone dans les sols agricoles de France ? Rapport d'expertise collective. INRA. Reprising the data of GIS Sols PELLERIN Sylvain *et al.* (2020). Stocker du carbone dans les sols français. The INRA's scientific report considers that in the 0 – 30 cm layer, grassland soil contains slightly more carbon than forest soil, whether considering the minimal, maximal, mean or median values.

⁴⁶ The average net farming income is 1 390 €/month. However, it is 1 100 €/month for cattle farmers, 620 €/month for sheep, goat and horse farmers, 2 790€/month for wine growers and 2 500€/month for crop producers: BELHAKEM Nadia, BOREY Grégoire, DUFEUTRELLE Julie. (2019, novembre). Des revenus agricoles élevés mais des disparités importantes. INSEE Première, n°1781.

⁴⁷ Tax calculations could also take into account not only the amount of carbon released from grassland conversion but also the amount of carbon that could have been absorbed over x number of years if the land had remained unconverted. The former is a carbon emission tax, the latter is taxing non-absorption. In both cases, however, such a tax only takes into account the negative externality of carbon emission and nonabsorption, and not the loss of other ecosystem services.

-
- 10) Avoiding the negative profitability of agricultural land can be achieved in two ways: either increase the gross rental income, or decrease taxation of that income and of agricultural land. From the point of view of biodiversity, and more globally, of the environment, results from either would be similar, as it would for retired farmers and landowners. For farmers in activity, the second option is preferable. For the state, the first solution is preferable to maintain fiscal revenue. Either way, maintaining a very low gross income from agricultural land and its very high taxation is not sustainable, nor is it compatible with the objectives of the Zero Net Artificialization plan, the National Biodiversity Strategy, the Climate Plan...

Would it not be preferable to reduce the taxation of agricultural land so that farmers can continue to benefit from low rental prices and landowners can keep their assets without systematically making a loss, and make a low but positive profit without having to convert their land? This would not penalize the income of farmers, who would still not bear the cost of agricultural land and, with their savings, be able to invest in new farming practices (precision agriculture, new sectors that are better adapted to climate change, buy insurance for crop production and retirement...). This would slow down the artificialization of agricultural land, in accordance with the Zero Net Artificialization objective.

- 11) Research has shown that certain agricultural practices had a positive effect on biodiversity, including crop diversification, smaller plot size, organic farming, high field border diversity, extensive rearing on permanent grassland, having soil covered in winter, agroforestry⁴⁸. Generally speaking, it seems desirable that tax measures encourage practices that benefit biodiversity and do not penalize the landowners/farmers that apply these practices.

- 12) Agroforestry seems excluded from the fiscal advantages in place for agriculture or forestry. This is because the French tax system is based on the cadastral parcel (land unit) and that hedges, isolated or aligned trees and crops are often within the same cadastral parcel. This does not seem justified either in terms of biodiversity, landscape, carbon storage or even in terms of agricultural production. In areas crisscrossed with hedges and trees (bocages) or in agroforestry systems, the border and diversification effects are strong⁴⁹. Hedge planting and conversion to agroforestry are recommended practices for increasing carbon storage in agricultural soils. Besides, agricultural land is more taxed than forest.

It appears desirable to consider two types of reforms. First, lower the taxation of agricultural land enclosed by hedgerows or converted to agroforestry. Second, modify the status of land tenancy on this point. For instance, the lessor could plant a line of trees (or grove) over a surface that is less than, for instance, 5 % of the UAA of their agricultural land, with a proportional decrease in rental income but benefiting from lower taxation of such ecologically improved land (e.g., a reduction in land tax or income tax).

- 13) The law on agricultural orientation of January 5, 2006 introduced a "green lease" (bail rural à clauses environnementales (BRE)). It allows, by mutual agreement of the landlord and tenant, clauses for the conservation of biodiversity, landscape, soil, water resources... to be added to the terms and conditions of a rural land lease. Few green leases have been signed so far. One of the reasons is that green leases are not subject to the guaranteed minimal rental price that is fixed by prefectural decree in each department. Although regulated rental prices for agricultural land are already very low in France, the prices for green leases are even lower. Often, they are not

⁴⁸ See: SIRAMI Clélia *et al.* (2019). Increasing crop heterogeneity enhances multitrophic diversity across agricultural regions. *PNAS*. 116(33). 16442-16447.; HASS Annika *et al.* (2018). Landscape configurational heterogeneity by small-scale agriculture, not crop diversity, maintains pollinators and plant reproduction in western Europe. *Proceedings of the Royal Society B. Biological Sciences*. 285(1872). 20172242.; France Stratégie. (2020). Les performances économiques et environnementales de l'agroécologie.

⁴⁹ BEILLOUIN Damien *et al.* (2021). Positive but variable effects of crop diversification on biodiversity and ecosystem services. *Global Change Biology*. doi.org/10.1111/gcb.1547. The authors show that, among the different types of agricultural diversification, forestry was the most effective both in terms of production and ecosystem services rendered, including carbon storage.

slightly lower but considerably lower. Green leases can fetch as little as 10 or 20 € /ha⁵⁰. The tenant must respect the environmental clauses, but in exchange pays a very low rent. The landowner accepts a very low rental income and receives nothing in compensation.

The landowner therefore consents, by their own accord, to making a financial sacrifice for the general good. Despite this, they are still taxed at the marginal rate. Although they earn 10, 20 or 30 € /ha, i.e., 10 to 20 % of the regulated rental price (and 5 to 10 % of the market rental price), the same tax rates apply. They pay the same land tax, the tax for the cost of the chamber of agriculture, property transfer tax, capital gains tax, inheritance tax, social security contributions..., and are taxed at the marginal rate of income tax. Green leases are a mutual agreement where each party, tenant and landowner, freely accept to make an effort for the environment and biodiversity. However, neither the state nor local authorities consent to any effort by forgoing certain taxes on the land and its income under a green lease agreement. If we want to promote green leases, it would be fair and desirable that they benefit from tax relief. Land under a green lease agreement could be exempt from land tax and/or income tax/social security contributions.

- 14) In California, the Williamson Act and the Open Space Act allow the conservation of agricultural land by reducing the tax burden on this land, which could otherwise lead to their urbanization. A similar system could be experimented in France, in particular along the coast, in inner coastal areas and around cities.

Acknowledgements

David Alvarez Garcia, Gabriela Blatter, Jürg Brinkmann, Thomas Brooks, Kristijan Civic, Leopold De Buman, Eric de Brabanter, Thomas Defoort, Dominique Defrance, Thierry De L'Escaille, Tilmann Disselhoff, Naïk Faucon, Santiago Garcia, Andreas Gärtner, Victoria Gonzales Vela, Victor Gutierrez Lopez, Mathias Haerynck, Ivan Hascic, Jean-Pierre Hupez, James Joicey, Konstantin Kostopoulos, Emmanuelle Mikosz, Nicolas Nederlandt, Xavier Niel, Patrick Nuvelstijn, Basil Oberholzer, Stefania Petrosill, Jan Plesnik, Gaetan Poelman, Peter Prast, Ignasi Puig, Jofre Rodrigo, Stefan Schatzmann, Andreas Skatvold Eide, Aedan Smith, Brendan Wall, Gemma Weir, Sirina Withana, Ana Xavier

⁵⁰ CEREMA. (2015). Le bail rural environnemental et le paysage agro-environnemental.

References

- European environment agency. (2019). Land and soil in Europe - Ever-sprawling urban concrete? Article.
- ALVANIDES Seraphim, GARROD Guy, OUESLATI Walid. (2015). Determinants of urban sprawl in European cities. *Urban Studies*. DOI: 10.1177/0042098015577773.
- APPIAH Divine et al. (2014). Determinants of peri urbanization and land use change patterns in peri-urban Ghana. *Journal of Sustainable Development*. DOI : 10.5539/jsd.v7n6p95.
- ARROUAYS Dominique et al. (2002). Stocker du carbone dans les sols agricoles de France ? Rapport d'expertise collective. INRA.
- AZADI Hossein et al. (2016). Agricultural Land Conversion Drivers in Northeast Iran: Application of Structural Equation Model. *Applied Spatial Analysis and Policy*. DOI: 10.1007/s12061-015-9160-4. BARRATT Lynne, MAROULI Christina, RACINSKA Inga (2015, September). Current status, challenges and opportunities. *Life & Land Stewardship*.
- BEILLOUIN Damien et al. (2021). Positive but variable effects of crop diversification on biodiversity and ecosystem services. *Global Change Biology*. Doi.org/10.1111/gcb.1547
- BELHAKEM Nadia, BOREY Grégoire, DUFEUTRELLE Julie. (2019, novembre). Des revenus agricoles élevés mais des disparités importantes. INSEE. INSEE Première. N°1781.
- CEREMA. (2015). Le bail rural environnemental et le paysage agro-environnemental.
- CHAMPEAUX Ophélie, POIVERT Lucile. (2017, juin). Le cadre juridique des prélèvements sur le capital. Conseil des Prélèvements obligatoires.
- CHANEL Olivier, DELATTRE Laurence, NAPOLÉONE Claude. (2014). Determinants of local public policies for farmland preservation and urban expansion: A French illustration. *Land Economics*. University of Wisconsin Press, 2014, 90 (3), pp.411-433.
- CMS law-tax-future. (2018, March). Real estate transaction costs and taxes in Europe. CMS guide.
- COLSAET Alice, LAURENS Yann, LEVREL Harold. (2018). What drives land take and urban land expansion? A systematic review. *Land use Policy*. 78. Pp.339-349.
- Comité interministériel de l'évaluation des politiques publiques. (1994). Les zones humides. Rapport de l'instance d'évaluation, La Documentation française
- Commissione per le spese fiscali. (2019, ottobre). Rapporto annuale sulle spese fiscali. Ministero dell'Economia e delle Finanze.
- European Commission. (2020). Bringing nature back into our lives - EU 2030 biodiversity strategy. Factsheet. Brussels.
- European Commission. (2013). Green Infrastructure (GI) - Enhancing Europe's Natural Capital. Communication from the commission to the European parliament, the council of the European economic and social committee and the committee of the regions.
- European Commission. (2012). Guidelines on best practice to limit, mitigate or compensate soil sealing. Working document.
- Conseil des impôts. (1986). Huitième rapport au président de la République. JORF. 4063. 443 p.
- Conseil des prélèvements obligatoires. (2018, janvier). Les prélèvements obligatoires sur le capital des ménages.
- Cour des comptes. (2011, mars). Rapport public thématique : les prélèvements fiscaux et sociaux en France et en Allemagne.
- Crédit Suisse. (2020, January). Overview of cantonal inheritance and gift taxes. SMMI 4250100401.
- Deloitte. (2018-2020). International tax – countries highlight.
- DENG Xiangzheng, HUANG Jikun, ROZELLE Scott, UCHIDA Emi. (2008). Growth, population and industrialization, and urban land expansion of China. *Journal of Urban Economics*. DOI : 10.1016/j.jue.2006.12.006.
- DESRIERS Maurice. (2013, avril). Un essai de synthèse statistique sur le foncier agricole en France. *Pour*. N° 220. Pp. 77-88.
- Direction générale des finances publiques. (2018). Éléments de référence nationale de fiscalité directe locale 2017 pour 2018. Service des collectivités locales.
- EMMERSON Carl, FARQUHARSON Christine, JOHNSON Paul. (2019, October). The IFS Green budget. Institute for Fiscal Studies.

EMMERSON Carl, STOCKTON Isabel. (2019). Fiscal targets and policy: which way next? Institute for Fiscal Studies. The IFS Green Budget.

Environmental Protection Agency. "What is open space/green space?".
<https://www3.epa.gov/region1/eco/uep/openspace.html>

Ernst & Young (EY). (2012). Cross-country review of taxes on wealth and transfers of wealth. Based on Framework Contract No TAXUD/2012/CC/117. Revised final report.

Ernst & Young (EY). (2014). Worldwide Estate and Inheritance Tax Guide.

Ernst & Young (EY). (2019). Worldwide Personal Tax and Immigration Guide 2019–20.

Eurofast. (2019). Croatia tax card.

European Commission. (2011). Taxation trends in the European Union: Iceland and Norway. Data for the EU Member States.

European Commission. (2019, October). Housing taxation: a new database for Europe. Working papers on taxation and structural reforms N° 08/2019.

European Environment Agency. (2010). Land in Europe: prices, taxes and use patterns. ISSN 17252237EEA Technical report N° 4/2010.

European Environment Agency. (2019). Land take and net land take. Statistics.
<https://www.epa.gov/newenglandhc>

Eurostat - database

FARLEY Watson, WILLIAMS. (2018, July). Briefing real estate investment in Germany.

Finance Institute. (2018). Taxation of agriculture in Poland and other EU. Management International Conference.

FOSSE Julien. (2019, July). Objective "zero net artificialization": which levers should be used to protect soils? France Stratégie. Article.

France Stratégie. (2020). The economic and environmental performance of agroecology. Article.

GODART Marie-Françoise et RUELLE Christine. (2019). Réduisons l'artificialisation des sols en Wallonie. Une information – Un projet de territoire – Des mesures applicables. Conférence Permanente du Développement Territorial. 86p.

GOMEZ Florence, GUDEFIN Philippe. (2019, janvier). Rapport particulier n°1 : Panorama de la fiscalité environnementale en France. Conseil des prélèvements obligatoires.

GUASTELLA Gianni, PAREGLIO Stefano, SCKOKAI Paolo. (2017). A spatial econometric analysis of land use efficiency in large and small municipalities. Land Use Policy. DOI: 10.1016/j.landusepol.2017.01.023.

HASS Annika et al. (2018). Landscape configurational heterogeneity by small-scale agriculture, not crop diversity, maintains pollinators and plant reproduction in western Europe. Proceedings of the Royal Society B. Biological Sciences. Feb 14. 285(1872). 20172242.

IGF-CGAAER. (2013). Les outils financiers de portage des terres agricoles pour favoriser la transmission et l'installation dans la perspective de la transposition de la Directive AIFM. Rapport n° 2012M09002. N° 12119.

IPBES. (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. IPBES Secretariat. Bonn. Germany. 56 pages.

JEGOUZO Loïc. (2020, octobre). Les marchés fonciers ruraux en 2019 : vive activité des marchés fonciers ruraux. Fonciers en débat. D'après des données de Terres d'Europe - SCAFR, de la Banque de France et SSP.

JERING Almut & al. (2013, June). Sustainable use of global land and biomass resources. Umweltbundesamt.

JIANG Li, ZHANG Yonghui. (2016). Modelling urban expansion and agricultural land conversion in Henan province, China: An integration of land use and socioeconomic data. Sustainability (Switzerland). DOI: 10.3390/su8090920.

JOHNSON Paul, LEVELL Peter. (2010). Environmental Policy Proposals. Institute for fiscal studies. Election Briefing note No. 14 (IFS BN101).

JOYCE Robert, XU Xiaowei. (2019). Options for cutting direct personal taxes and supporting low earners. Institute for Fiscal Studies. The IFS Green Budget.

Le gouvernement du grand-duché du Luxembourg. (2007, mai). Plan d'action. Ministère de l'environnement.

Le gouvernement du grand-duché du Luxembourg. (2007, mai). Rapport final. Ministère de l'environnement.

Le gouvernement du grand-duché du Luxembourg. (2018). Rapport d'activité 2018. Ministère du Développement durable et des Infrastructures Département de l'environnement.

Le gouvernement du grand-duché du Luxembourg. (2020). Volume 1 : Projet de Budget.

MALICKA Lenka. (2017). The role of immovable property taxes in the EU countries: taxes on land, buildings and other structure in sub-national tax revenues under the conditions of tax decentralization. Volume 65143 n°4.

MALPOT Jean-Jacques & PAQUEL Véronique. (1995). Le patrimoine de rapport des ménages et ses performances. Économie et Statistique. N° 281. Pp. 31-39.

MARHESCU Tamas. Poland. FAO. <https://www.fao.org/3/w7170E/w7170e0e.htm>

Ministère de l'Agriculture. (1984). Le prix des terres agricoles en 1983. Service central des enquêtes et études statistiques. Étude n°234.

Ministère de la Transition Écologique. (2021). Artificialisation des sols. <https://www.ecologie.gouv.fr/artificialisation-des-sols>

OCDE – database. <https://data.oecd.org/fr/>

OECD. (2006). Tax policy studies: taxation of capital gains of individuals. Policy considerations and approaches No. 14.

OECD. (2018). The Role and Design of Net Wealth Taxes in the OECD. OECD Tax Policy Studies. No.26. OECD. Paris.

OECD. (2018). Revenue statistics 1965 – 2017. Interpretative guide.

OECD. (2019). Revenue statistics 1965-2018, special feature: identifying environmentally related taxes in revenue statistics. OECD Publishing, Paris. https://www.oecd-ilibrary.org/taxation/revenue-statistics-2019_0bbc27da-en

OECD. (2020). Taxation in Agriculture. OECD. Paris.

PAULSEN Kurt. (2014). Geography, policy or market? New evidence on the measurement and causes of sprawl (and infill) in US metropolitan regions. Urban Studies. DOI : 10.1177/0042098013512874.

PELLERIN Sylvain et al. (2020). Stocker du carbone dans les sols français. Rapport scientifique de l'étude. INRA.

PENDALL Rolf. (1999). Do land-use controls cause sprawl? Environment and Planning B: Planning and Design. Vol 26. N°4. Pp 555-571. Doi : [10.1068/b260555](https://doi.org/10.1068/b260555).

PERES Stéphanie. (2009). La résistance des espaces viticoles à l'extension urbaine Le cas du vignoble de Bordeaux. Revue d'Économie Régionale & Urbaine, 155-177. <https://www.cairn.info/revue-d-economieregionale-et-urbaine-2009-1-page-155.htm?ref=doi>.

PLUCHET Alain. (1994). Rapport fait au nom de la Commission des Affaires économiques et du Plan sur le projet de loi relatif au prix des fermages. Sénat. Annexe au procès-verbal de la séance du 6 juillet 1994. SAINTENY Guillaume. (2011, octobre). Les aides publiques dommageables à la biodiversité. Centre d'Analyse Stratégique

Service public fédéral des finances de Belgique. (2019). Memento fiscal.

SIRAMI Clélia et al. (2019). Increasing crop heterogeneity enhances multitrophic diversity across agricultural regions. PNAS. 116(33). 16442-16447.

Site de la Commission Européenne. Common agricultural policy funds. https://agriculture.ec.europa.eu/common-agricultural-policy/financing-cap/cap-funds_en

SKOU ANDERSEN Mikael et al. (2014). Study on environmental fiscal reform potential in 12 EU member states. DG-Environment, Final Report, Eunomia. No07.0307/ETU/2013/SI2.664058/ENV.D.2 STROVOLIDIS George. (2013). A comparative study on real estate property – taxation in Europe. UIPI. World Bank. (2021). World Development Indicators: 3.1 Rural environment and land use. Last updated date 02/17/2021. <https://wdi.worldbank.org/table/3.1>

APPENDIX 1 - AGRICULTURAL LAND IN EUROPE

Table 1: Agricultural land area and percentage of leased farmland

Land use			
Agricultural area	Average agricultural holding size (ha)	Leased farmland (% of the total UAA)	

	UUA (% of the total land area) 2016	2013	2015
Austria	31.8 %	19	33 %
Belgium	44 %	35.9	72 %
Bulgaria	40.3 %	17.6	86 %
Croatia	27.6 %	9.2	49 %
Cyprus	12.1 %	3.2	75 %
Czech Republic	43.8 %	131.5	78 %
Denmark	60.9 %	68.3	32 %
Estonia	21.9 %	51.9	62 %
Finland	6.6 %	41	36 %
France	54 %	59	82 %
Germany	46.78 %	58.6	67 %
Greece	34.5 %	6.4	57 %
Hungary	50.2 %	9.5	61 %
Ireland	69.4 %	35	18 %
Italy	41.8 %	12.5	53 %
Latvia	29.9 %	23.6	48 %
Liechtenstein	32 %	?	?
Lithuania	44.8 %	17	50 %
Luxembourg	50.5 %	62.8	54 %
Malta	35.4 %	1.2	82 %
Netherlands	43.2 %	26.6	39 %
Norway	2.9 %	26	73 %
Poland	46.1 %	10.1	26 %
Portugal	39.5 %	13.8	21 %
Romania	52.4 %	3.4	56 %
Slovakia	38.5 %	80.2	91 %
Slovenia	24.1 %	6.7	31 %
Spain	45.9 %	24.1	38 %
Sweden	6.7 %	44.9	56 %
Switzerland	25.3 %	20.3	47 %
United Kingdom	67 %	91.1	42 %

Source: Eurostat (data from 2013, 2015 and 2016)

Table 2: Proportion of the utilized agricultural area (UAA) under organic farming or given over to permanent grassland

	Organic farming (% of the UAA)	UAA (in ha, x 1,000)	Arable land (% of the UAA)	Permanent grassland (% of the UAA)
Austria	25.33 %	2652.22	49.98 %	47.46 %
Belgium	6.85 %	1358.7	63.56 %	34.99 %
Bulgaria	2.34 %	5037.47	68.73 %	27.96 %
Croatia	7.19 %	1504.45	54.69 %	40.29 %
Cyprus	4.98 %	125.35	76.90 %	1.24 %
Czech Republic	15.19 %	3523.66	70.67 %	28.15 %
Denmark	11.09 %	2626	91.18 %	7.87 %
Estonia	22.33 %	988.41	69.40 %	29.26 %
Finland	13.48 %	2273.8	98.73 %	1.03 %
France	9.5 %	29024.18	62.74 %	33.11 %
Germany	7.75 %	16666	70.39 %	28.51 %
Greece	10.26 %	5153.38	29.47 %	41.36 %
Hungary	5.71 %	5309.52	81.17 %	14.89 %
Ireland	1.63 %	4524.15	9.76 %	90.19 %
Italy	15.16 %	13150.2	52.58 %	28.84 %
Latvia	14.79 %	1959.4	67.30 %	32.25 %
Liechtenstein	37.7 %	?	?	?
Lithuania	8.14 %	2974.99	74.28 %	24.44 %
Luxembourg	4.42 %	131.59	47.22 %	51.58 %
Malta	0.47 %	11.58	79.70 %	0 %
Netherlands	3.75 %	1814.45	55.72 %	42.57 %
Norway	4.59 %	981.82	81.45 %	18.21 %
Poland	3.49 %	14550.35	75.98 %	21.50 %
Portugal	8.16 %	3591.42	25.59 %	52.26 %
Romania	2.86 %	13825.61	64.85 %	32.17 %
Slovakia	10.31 %	1915.73	70.42 %	27.06 %
Slovenia	10.35 %	479.82	36.31 %	57.89 %
Spain	9.66 %	24371.66	49.33 %	29.77 %
Sweden	20.43 %	3004.78	84.54 %	15.35 %
Switzerland	16.27 %	1512.1	26.49 %	71.64 %
United Kingdom	2.62 %	17529	34.75 %	65.04 %

Source: Eurostat. 2019

APPENDIX 2 - LAND TAX APPLIED TO AGRICULTURAL LAND IN EUROPE

Land tax	Tax base	Tax measures specific to agricultural land
Germany	Cadastral value	Exemption
Austria	Cadastral value	Tax based capped at 30 % of the market value
Belgium (Flanders)	Cadastral value	
Belgium (Wallonia)	Cadastral value	
Bulgaria	Cadastral value	Exemption
Croatia		
Cyprus		
Czech Republic	Cadastral value (price per m ² set by municipal decree) "Arable land" category: 75 % of the highest value (reference price or sale price) "Pastures": 25 %	Exemption at the municipality's discretion Newly acquired agricultural land exempt for 5 years
Denmark	Market value	Property value tax (national): tax base less than the market value
	Market value	Land tax (municipal): reduced rates of 0.12 to 0.72 % (vs. normal rates of 1.6 to 3.4 %).
Estonia	Cadastral value	Reduced rate (2 % maximum vs. 2.5 % for other types of property)
Finland	Cadastral value	Exemption
France	Cadastral rental value	<p><u>Need to apply:</u> Exemption for a period of 50 years for truffle tree orchards planted after 2004</p> <p><u>Automatic:</u> Reduced rate (50 to 100 %) for a period of 5 years for agricultural grassland and moorland in wet areas Permanent exemption of agricultural land in Corsica and belonging to the following categories: bare land, meadows, pastures, orchards, vineyards, moorland, lakes, salt lakes</p> <p><u>Subject to the approval of the local authority (optional):</u> Exemption for a period of 15 years for truffle tree orchards planted after 2004 Exemption for a period of 8 years maximum for newly planted walnut orchards Permanent exemption for olive groves Exemption for a period of 5 years for organically farmed land</p>

		Exemption for a period of 8 years for fruit tree orchards, fruit cultivation and vineyards
Germany	Cadastral value	Exemption
Greece	Cadastral value	
Hungary	Adjusted market value	Exemption
Ireland	Market value	Exemption
Italy	Theoretical income of the property (less than the market value)	Exemption
Latvia	Cadastral value	Exemption
Liechtenstein	Market value	
Lithuania ⁵¹	Market value	Municipal tax: Exemption National tax: 35 % reduction for cultivated land, i.e. a tax rate of 0.0065 to 2.6 % (normal rate: 0.01 – 4 %) Exemption for a period of 3 years for land bought for farming
Luxembourg	Cadastral value	
Malta		
Netherlands	Market value	Exemption
Norway	Cadastral value (between -20 % et -50 % of the market value)	Exemption of land owned by independent farmers
Poland	Land area multiplied by a coefficient that depends on the location and class of the agricultural land	Exemption Exemption: class V, VI, Viz (classes with low soil quality) land bought within an exchange or to merge property, land bought to create or increase the size of an agricultural holding (temporary derogation), wooded land, arable land, prairies and pastures, organically farmed land
Portugal	Cadastral value	
Romania	Cadastral value	
Slovakia	Cadastral value	Exemption of land owned by independent farmers
Slovenia		
Spain	Cadastral value	50 % of the market value

⁵¹ In Lithuania, there are two land taxes: a municipal tax (from which agricultural land is exempt) and a national tax (to which can be applied a conditional exemption or reduction).

Sweden	75 % of the registered market value	Exemption
Switzerland	Capitalised earnings value	

United Kingdom		
----------------	--	--

APPENDIX 3 - INCOME TAX APPLIED TO AGRICULTURAL LAND IN EUROPE

Income Tax	Tax rate	Rank*
Austria	Exemption: up to 75 000 € of global taxable income (applies to all taxpayers) Otherwise: 0 – 55 %	22
Belgium	Exemption: - "career-long" and "long term" rural land leases - rural land leases with a first tenancy period of at least 18 years Otherwise: 25 – 50 % of the cadastral value (much less than the rental income)	20
Bulgaria	Exemption of income from rural land leases	1
Croatia	12 – 40 %	16
Cyprus	0 – 35 %	15
Czech Republic	15 % + a 7 % solidarity contribution above 61 499 €	6
Denmark	12.11 – 15 % + municipal tax (mean: 24 %) Total income tax is capped at 52.02 %	21
Estonia	20 %	5
Finland	30 – 34 %	14
France	17.2 – 75 % ⁵²	23
Germany	0 – 45 %	19
Greece	15 – 55 %	22
Hungary	Exemption of income from rural land leases (³ 5 year tenancy agreement) Otherwise: 15 % + a 14 % solidarity contribution above 2 752 €	12
Ireland	Exemption of a part of the income from rural land leases (from 18 000 to 40 000 € depending on the duration of tenancy) Otherwise: 20 – 40 %	16
Italy	23 – 43 % + additional regional tax (1.23 - 3.33 %) + additional municipal tax (0 - 0.9 %)	17
Latvia	23 %	7
Liechtenstein		1

⁵² The tax rate combines income tax and social security contributions.

Lithuania	15 – 20 %	5
Luxembourg	0 - 43.60 %	18
Malta	15 %	2
Netherlands	Exemption	1
Norway	22 %	6
Poland	8.5 – 20 %	5

Portugal	28 %	11
Romania	16 %	3
Slovakia	19 – 25 %	8
Slovenia	27.5 %	10
Spain	19 %	4
Sweden	30 %	13
Switzerland	0 – 26 % (varies between cantons)	9
United Kingdom	20 – 45 %	19

APPENDIX 4 - INHERITANCE TAX APPLIED TO AGRICULTURAL LAND IN EUROPE

Inheritance tax	Fiscal measures and tax rates	Rank
Austria		1
		2
Belgium (Flanders)	3 – 65 % (A draft bill (2021) to exempt agricultural land under lease from inheritance tax is being examined)	2
Belgium (Wallonia)	A 30 to 55 % reduction for "long term" rural land leases (10 % less if the lessor is over 35 years old) A 50 to 75 % reduction for "career-long" rural land leases (10 % less if the lessor is over 35 years old) Exemption is granted if leased land is transferred to the spouse or a descendant (with no obligation to actively farm) (< 150 ha) Exemption is granted if leased land is transferred to the spouse or a descendant (> 150 ha) Otherwise: 0 – 80 %	19
Bulgaria	0.4 - 6.6 %	6
Croatia	5 %	5
Cyprus		1
Czech Republic		1
Denmark	15 – 36.25 %	15
Estonia		1

Finland	0 – 33 % A tax reduction is possible if the taxes endanger the preservation of the agricultural land or the maintenance of an economic activity In that case: the use value and not the market value is used for tax calculation purposes	14
France	Agricultural land under long term lease: rights are calculated on a quarter of the value up to 300 000 € and on 50 % of the value above that, i.e. a tax rate of 1.25 to 30 % Otherwise: 5 – 60 %	13
Germany	An 85 % reduction for agricultural land owned for 5 years 100 % reduction if owned for 7 years and more i.e. a tax rate of 0 - 7.5 % Otherwise: 7 – 50 %	7
Greece	1 – 40 %	16
Hungary	4.5 % for agricultural land 2.25 % if the beneficiary is a farmer	4
Ireland	3.3 % (a 90 % reduction of the market value of the land)	3
Italy	4 – 8 %	8
Latvia		1
Liechtenstein		1
Lithuania	5 – 10 %	9
Luxembourg	6 – 15 %	11
Malta		1
Netherlands	10 – 40 %	17
Norway		1
Poland	Exemption	1
Portugal	10.8 %	10
Romania		1
Slovakia		1
Slovenia	Exemption	1

Spain	<p>0 – 17 % depending on the situation.</p> <p>Exemption for agricultural land that is transferred to a young farmer or a farm employee to operate a priority holding³.</p> <p>Exemption for the transfer of agricultural land to a priority farmer so that their holding meets the minimum area criterion to qualify as a priority holding.</p> <p>A 90 % reduction for the transfer of an entire holding that becomes a priority holding. A 75 % reduction for the transfer of agricultural land or part of a farm to a priority farmer (lessor or farmer).</p> <p>A 75 % reduction for the transfer of agricultural land or part of a farm to a non-priority farmer (lessor or farmer).</p> <p>A 50 % reduction for the transfer of agricultural land to a non-priority farmer so that their holding meets 50 % of the minimum area criterion to qualify as a priority holding.</p> <p>Otherwise: 7.65 – 34 %</p>	12
Sweden		1
Switzerland	0 – 45 % (varies between cantons)	18
United Kingdom	Exemption	1

APPENDIX 5 - PROPERTY SALES TAX APPLIED TO AGRICULTURAL LAND IN EUROPE

Property sales tax	Fiscal measures and tax rates	Rank
Austria	<p>2 – 4.6 %</p> <p>Tax base capped at 30 % of the market value</p> <p>Reduced rate: 2 % for a sale between immediate family members</p>	10
Belgium (Flanders)	0 – 10 %	17
Belgium (Wallonia + Brussels)	0 - 12.5 %	18
Bulgaria	Exemption	1
Croatia	3 %	7
Cyprus	3.15 – 8.15 %	15
Czech Republic		1
Denmark	0.6 %	2
Estonia		1
Finland	4 %	9

France	8 % Reduced rate, not for buying agricultural land, but if the buyer is a farmer.	14
Germany	3.5 – 6.5 %	12
Greece	Exemption for the acquisition of agricultural land provided the land is part of an agricultural holding and is farmed directly. Otherwise: 3 %	1
Hungary	0 – 4 %	9
Ireland	Exemption of land under ³ 6 year tenancy agreement Consanguinity relief : 1 % applied to land transfer between related persons (lease or farmed directly) Otherwise: 0 – 7.5 %	13
Italy	9 % if the buyer is a farmer (vs. 15 % for the general regime)	16
Latvia	2 %	5
Liechtenstein	0.6 %	2
Lithuania		1
Luxembourg	Reduced rate of 1.2 %	3
Malta	5 %	11
Netherlands	Exemption for the acquisition of land for agriculture	1
Norway	2.5 %	6
Poland	Exemption	1
Portugal	Exemption for the acquisition of property for agricultural activity in less developed areas Otherwise: 0 – 5 %	11
Romania	0 – 3 %	7
Slovakia		1
Slovenia	Exemption for transfers of agricultural land for land mergers Otherwise: 0 – 2 %	5
Spain	0 – 4 % depending on the situation. Exemption for agricultural land that is transferred to a young farmer or a farm employee to operate a priority holding ³ . Exemption for the transfer of agricultural land to a priority farmer so that their holding meets the minimum area criterion to qualify as a priority holding. A 90 % reduction for the transfer of an entire holding that becomes a priority holding. A 75 % reduction for the transfer of agricultural land or part of a farm to a priority farmer (lessor or farmer). A 75 % reduction for the transfer of agricultural land or part of a farm to a non-priority farmer (lessor or farmer). A 50 % reduction for the transfer of agricultural land to a non-priority farmer so that their holding meets 50 % of the minimum area criterion to qualify as a priority holding. Otherwise: 0 – 8 %	9
Sweden	1.5 %	4
Switzerland	0 – 3.3 %	8

United Kingdom	5	%	11
----------------	---	---	----

APPENDIX 6 - CAPITAL GAINS TAX ON REAL ESTATE APPLIED TO AGRICULTURAL LAND IN EUROPE

Capital gains tax on real estate	Tax rate (undeveloped land)	Duration of ownership to qualify for exemption	Rank
Austria	Exemption	-	1
Belgium	Exemption	-	1
Bulgaria	10 %	5 years	4
Croatia	24 %	2 years	10
Cyprus	20 %	None	7
Czech Republic	15 %	5 years	5
Denmark	0 – 42 %	None	15
Estonia	20 %	None	7

Finlande	0 – 30 000 €: 30 % > 30 000 €: 34 %	None	13
France	36.2 %: 0 – 6 years Abatements: 6 – 21 years: 7.65 % / year 22 nd year: 5.6 % > 22 years: 9 % (social security contributions) Taxpayers whose wealth tax is capped (taxes should not exceed 75 % of the income) do not qualify for progressive abatements, even after 30 years.	30 years Taxpayers whose wealth tax is capped never qualify for exemption	14
Germany	0 – 9 408 €: 0 % 9 408 – 57 051 €: 14 % 57 051 - 270 500 €: 42 % > 270 500 €: 45 %	10 years	17
Greece		None	1
Hungary	15 %	15 years (abatement after 5 years: 10 % / year)	5
Ireland	3.3 % (a 90 % reduction compared to the normal rate of 33 %)	None	2
Italy	0 – 15 000 €: 23 % 15 001 – 28 000 €: 27 % 28 001 - 55 000 €: 38 % 55 001 – 75 000 €: 41 % 75 001 - 999 999 999 €: 43 %	5 years	16
Latvia	20 %	5 years	7
Liechtenstein	0 – 24 %	-	10
Lithuania	15 %	10 years	5

Luxembourg	0 – 42 %	Reduced rate 2 years after buying the property: ¼ of the global rate i.e. a maximum of 10.5 %.	15
Malta	8 %	None	3
Netherlands	Exemption	-	1
Norway	0 % / 22 % The sale of agricultural holdings between immediate family members is exempt for capital gains tax when the holding is owned by the family for at least 10 years (leased or farmed directly)	None	8
Poland	19 %	5 years	6

Portugal	<p>Rates are the same as that of income tax but only 50 % of the capital gains are taxed:</p> <p>0 - 7 112 €: 7.25 % 7 112 – 10 732 €: 11.5 % 10 732 – 20 322 €: 28.5 % 20 322 – 25 075 €: 17.5 % 25 075 – 36 967 €: 18.5 % 36 967 – 80 882 €: 22.5 % > 80 882 €: 24 %</p> <p>After 2 years of ownership: inflation is exempt</p>	None	10
Romania	10 %	None	4
Slovakia	0 – 37 163.36 €: 19 % > 37 163.36 €: 25 %	5 years	11
Slovenia	27.5 %	20 years 5 - 10 years: 20 % 10 - 15 years: 15 % 15 - 20 years: 10 %	12
Spain	0 – 6 000 €: 19 % 6 000 – 50 000 €: 21 % > 50 000 €: 23 %	None	9
Sweden	22 %	None	8
Switzerland	0 – 60 % (varies between cantons) For example: the Canton of Neuchâtel: 10 – 30 % the Canton of Vaud: 7 – 30 %	0 - 2 years: surcharge of 50 % After 4/5 years ownership: abatement of 50 – 70 % (varies between cantons) For example : the Canton of Neuchâtel: progressive abatement of 6 to 60 % after 5 years of ownership the Canton of Vaud: the tax rate decreases over time. 30 % the first year, 7 % after 24 years of ownership	18
United Kingdom	0 – 58 765 €: 10 % > 58 765 €: 20 %	None	7

APPENDIX 7 - WEALTH TAX APPLIED TO AGRICULTURAL LAND IN EUROPE

Wealth tax	Actual tax rate	Tax relief measures
------------	-----------------	---------------------

France	<p>0 – 0.75 %</p> <p>Otherwise: 0 – 1.5 %</p> <p>Taxation threshold: 1.3 million euros, but tax is calculated on the fraction of estate over 800 000 €</p>	<p>Long term rural land leases:</p> <p>- Exemption of 75 % up to 101 897 €</p> <p>- Exemption of 50 % over 101 897 €</p>
Norway	0 – 0.2125 %	Exemption of 75 % of the tax base
Spain	<p>0 – 3.5 %</p> <p>Rates are set by the Spanish autonomous regions.</p> <p>For example:</p> <p>In certain regions: 0 %</p> <p>La Rioja: 0.05 – 0.625 %</p> <p>Navarre: 0,16 – 2 %</p> <p>Taxation threshold: 2 million euros</p> <p>Abatement of 700 000 €</p> <p>(The tax rate of the taxpayer's place of residence applies)</p>	Exemption of land owned as family business
Switzerland	<p>0 – 0.9 % (varies between cantons)</p> <p>The wealth tax cannot exceed 1 % of the taxable estate.</p> <p>For example:</p> <p>the Canton of Neuchâtel: 0 – 0.36 %</p> <p>the Canton of Obwalden: 0.02 %</p> <p>the Canton of Vaud: 0.024 – 0.339 %</p>	The land value is underestimated: capitalised value and not the market value
Other countries	None	