

Reduced VAT rates for flowers and plants

Situation 2010



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Frank Bunte
Niels van der Poel

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Bunte, F. and N. van der Poel

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This paper evaluates the impact of a possible rise of the VAT rate applied to ornamentals on turnover and employment in the European ornamental supply chain. The lower VAT rate is applied to flowers and plants in thirteen EU member states. The impact is measured using a partial equilibrium model available at LEI. The model models demand and supply in European horticulture.

This research has been carried out by commission of the Horticultural Board (Productschap Tuinbouw).

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+31 70 3358330
publicatie.lei@wur.nl

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Preface

During the writing of this paper, a new government was being constituted in the Netherlands. Because of the necessity to reduce the government deficit, all political parties present in Dutch parliament reconsidered government policies. Some political parties proposed in their election programmes to abolish the VAT regulation for flowers and plants. Currently, the lower VAT rate applies to flowers and plants rather than the general rate.

Commissioned by the Association of Flower Auctions in the Netherlands and the Horticultural Board, LEI estimated the impact of the VAT regulation on turnover and employment in the European horticultural supply chain. The results are complemented by an analysis of the impact on government revenues. This analysis is an update of the analysis which LEI carried out in 2007, commissioned by the Ministry of Agriculture, Nature and Food Quality and the Ministry of Finance. LEI then concluded that the VAT regulation achieves the goals strived for.



Prof.dr.ir. R.B.M. Huirne
Managing Director LEI

Summary

This paper evaluates the impact of a possible rise of the VAT rate applied to ornamentals on turnover and employment in the ornamental supply chain. The lower VAT rate is currently applied to flowers and plants in 13 EU Member States.

The study considers two scenarios: (1) application of the general (high) tariff to ornamentals in the Netherlands; (2) application of the general tariff in all 13 Member States where the general tariff is not applied at this moment.

Results of scenario (1): rise of the VAT rate in the Netherlands

- Application of the general rate causes a decrease in turnover of €240m in Dutch retail trade, of €152.5m in wholesale trade and of €127.5m in horticulture. Employment falls by 3,200, 360 and 1,660 jobs respectively.
- Tax revenues rise by €91m in the short run and by €168m in the long run. Tax revenues do not rise by €200m, because consumer demand is sensitive to changes in consumer prices. Moreover, in the short run the government loses revenues due to the rise in unemployment.

Results of scenario (2): VAT rise in all 13 EU Member States

- In the Netherlands employment will decrease by 4,000 fte (5,525 jobs) in greenhouse horticulture and by 5,075 jobs in wholesale and retail trade. Turnover in horticulture will decrease by €450m.
- Application of the general VAT rate to flowers and plants in all Member States where the rate is not currently applied, leads to a drop in net sales by €3.5bn in EU retail trade, by €2.7bn in EU wholesale trade and by €1.7bn in EU horticulture. Employment falls by 28,650 fte in EU horticulture and by 30,825 jobs in European distribution.
- Tax revenues in the Netherlands rise by €30m only in the short run, because employment falls dramatically in the export oriented ornamental supply chain.

In scenario (2) the demand for African cut flowers falls by €25m or 5.5% of African cut flower exports. African exporters depend almost completely on the European market. Exports from Asia and South-America fall by €10m.

1 Introduction

Floriculture is an important economic sector in the EU. The ornamental supply chain generates employment for 300,000 full-time equivalents (fte) in European production and 350,000 persons in European wholesale and retail trade.

On the basis of EU Directive 2006/112/EG article 122 the lower VAT tariff may be applied to ornamentals (flowers, potted and garden plants, flower bulbs and nursery material). Currently 13 countries apply the reduced tariff to flowers and plants.

Because of the economic downturn, governments all over the world try to raise government revenues and to cut back government expenses. For this reason some European governments reconsider the lower VAT tariff for flower and plants.

In 2007 the Dutch government evaluated the VAT regulation for ornamentals. LEI carried out an analysis into the effects of the regulation on consumer spending and employment (Bunte et al., 2007). LEI concluded that the regulation is effective, i.e. that the objectives strived for are obtained. On basis of this evaluation the Dutch government decided to continue the regulation. The analysis in this report is an update of the analysis in 2007 (see also Bunte, 2008 and Bunte and Kuiper, 2008).

At this moment, the lower VAT rate for flowers and plants is applied in 13 EU Member States. These states represent 75% of European consumption of flowers and plants and 90% of European production. If these states apply the general VAT tariff to ornamentals, consumer prices will rise in these countries. As a result, consumer demand for flowers and plants will fall. This leads to a decrease in net sales and employment in retail and wholesale trade and in production.

This report estimates the effects of a change in the VAT rate on net sales and employment in European production and distribution of ornamentals. The analysis is performed on the basis of a supply and demand model for horticultural products HORTUS (Bunte and Van Galen 2005). The analysis only applies to the ornamental supply chain. Effects of a possible VAT rise on other sectors are not taken into account.

The report is constructed as follows. Chapter 2 describes the ornamental supply chain, Chapter 3 the methodology used and Chapter 4 the results. The study presents two scenarios: (1) a unilateral rise of the VAT rate by the Netherlands; and (2) a rise of the VAT rate in all 13 Member States concerned. The results describe the impact on turnover, employment, government revenues and developing countries.

2 Ornamental production and distribution in the EU

Ornamental horticulture production and trade constitutes an important supply chain generating employment for 300,000 full time equivalents in ornamental production in the EU25¹ and 350,000 persons employed in European wholesale and retail trade in flowers and plants.

	Production	Wholesale	Retail
	fte	number of people employed	number of people employed
Austria	8,900	700	7,000
Belgium	6,925	1,100	4,850
Czech Rep	3,675	825	3,775
France	30,500	4,975	21,975
Germany	40,975	16,800	63,750
Greece	7,425	1,000	4,450
Ireland	1,750	700	2,100
Italy	55,075	4,025	41,700
Luxemburg	25	10	75
Netherlands	48,425	19,500	31,050
Poland	9,150	1,900	8,800
Portugal	11,150	1,375	6,725
Spain	45,900	6,100	18,300
Rest of the EU	32,075	16,450	64,950
Total	301,950	75,460	279,500

Estimate LEI based on PT and Eurostat data and expert opinions for Austria, Denmark, Finland and Germany.

¹ The analysis in this report is based on HORTUS which has been constructed for the EU25. For this reason, Bulgaria and Romania are not included in the analysis.

Turnover in the European Union amounts to €17bn in production, 28bn in wholesale trade and €38bn in retail trade. The Netherlands are the largest producer by far, but one should not neglect domestic production in France, Germany, Italy and Spain. Dutch production is specialised in cut flowers and flower bulbs, but still sizable in pot plants and nursery stock. Italian and Spanish production is specialised in cut flowers and to a lesser extent pot plants. French production is sizable in all product categories, but specialised in nursery stock. Germany is big in the production of nursery material.

	Production	Wholesale	Retail
Austria	200	500	800
Belgium	525	950	1,100
Czech Rep	125	250	300
France	1,750	3,050	4,875
Germany	2,650	5,100	9,800
Greece	175	300	475
Ireland	125	200	325
Italy	3,075	4,000	6,000
Luxemburg	5	30	45
Netherlands	5,225	7,750	2,300
Poland	165	415	525
Portugal	250	375	600
Spain	1,050	1,500	2,200
Rest of the EU	1,825	4,075	9,150
Total	17,145	28,495	38,495

Estimate LEI based on PT and Eurostat data and expert opinions for Austria, Denmark, Finland and Germany.

Based on EU Directive 2006/112/EC article 122, the lower VAT tariff may be applied to ornamentals (flowers, potted and garden plants, flower bulbs, nursery material). At this moment the lower tariff is applied to ornamentals in 13 Member States (Table 2.3); the EU15 minus the UK and the Scandinavian countries plus Poland and the Czech Republic. These states represent 75% of EU consumption and almost 90% of EU production.

The impact of the VAT regulation on consumer prices of flowers and plants differs from one country to another, because the difference between the lower and the general tariff differ from one country to another. In Ireland and Luxemburg the difference between both tariffs is small (Table 2.3). In Belgium, France,

Germany, the Netherlands and notably Poland the difference is large as is the potential impact on prices.

Table 2.3 VAT rates and price increases in thirteen European countries			
	Lower tariff	General tariff	Price effect
	%	%	% change
Austria	10.0	20.0	9.1
Belgium	6.0	21.0	14.2
Czech Republic	10.0	20.0	9.1
France	5.5	19.6	13.4
Germany	7.0	19.0	11.2
Greece	11.0	23.0	10.8
Ireland	13.5	21.0	6.6
Italy	10.0	20.0	9.1
Luxemburg	6.0	15.0	8.5
Netherlands	6.0	19.0	12.3
Poland	3.0	22.0	18.4
Portugal	13.0	21.0	7.1
Spain	8.0	18.0	9.3

Source: European Commission, taxud.c.1 (2010) 477911 - EN.

3 Methodology

The effects of the VAT increases are estimated using a supply and demand model for ornamental products HORTUS (Bunte and Van Galen 2005). The model assumes that the subsequent stages in the production and distribution chain are characterised by perfect competition. This implies that we assume that there are no actors in the supply chain exercising market power. This assumption is valid given the number and the scale of the firms operating in the chain. The assumption of perfect competition implies that the increase in the VAT rate is completely transmitted into higher consumer prices. Bunte and Kuiper (2008) indeed find that a one percent increase of the producer price also leads to a one percent increase of the consumer price. Based on this result we conclude that pricing in the ornamentals' supply chain is competitive and that VAT rate changes may be expected to be transmitted perfectly. The incidence of the tax burden lies with consumers.

CPB (2003) draws similar conclusions for labour intensive services. Application of the lower VAT rate from 2000 onwards has led to a significant decrease in consumer prices and that this decrease has had a profound effect on both retail turnover and employment.

The effects on sales and employment in the other stages of the production and distribution chain follow from the decrease in consumer demand. The employment results are estimated using productivity indicators for the respective stages in the chain, more in particular turnover per full-time equivalent (fte) for ornamental production and turnover per person employed for wholesale and retail trade. For the production sector, estimates from the FADN-database have been used. For the wholesale and retail sector, estimates based on Eurostat data have been used.

The effect of a price increase on consumption is measured by the price-elasticity of demand. Bunte et al. (2007) find price-elasticities for the Netherlands: -1.1% for cut flowers and pot plants and -1.5% for garden products. For the lowest income quartile, the price elasticities are -1.3% for cut flowers and pot plants and -4.3% for garden products. The price elasticities found indicate that the demand of Dutch consumers for flowers and plants is sensitive to changes in consumer prices.

The price elasticity of demand may also be derived from the temporary increase in the French VAT rate for ornamental products in 1991. The VAT rate increase from 5.5 to 18.6% coincided with a drop in net retail sales of 12.6%

implying a price elasticity of -1.0 (see Exhibit 1). Because consumer expenditures on ornamentals remained more or less constant, the tax-rate increase implied a substantial fall in net sales.

Exhibit 1**A real life experience: the case of France**

In August 1991, the VAT rate applied to ornamentals in France changed from the low to the regular rate: from 5.5% to 18.6%. Retail sales excluding VAT decreased from 17.5bn francs in 1991 to 15.3bn francs in 1992. Retail sales including VAT increased slightly from 18.5 to 18.8bn francs. Consumers spent about the same amount on ornamentals in 1991 and 1992. The government simply took a bigger chunk out of consumer expenses. Because of the decrease of net retail turnover, employment in the ornamental supply chain decreased by 5,000 persons in 1992 and 6,000 persons in 1993. The government raised its VAT revenues, but at the detriment of lower income taxes and probably higher unemployment expenses.

Source: ADAVF (1993).

4 Results

In this section, we elaborate two scenarios: (1) a scenario in which the Netherlands unilaterally changes the VAT rate for flowers and plants from the lower to the general tariff, from 6% to 19%, and (2) a scenario in which all thirteen countries currently applying the lower tariff for flowers and plants switch to the general tariff for flowers and plants. The second scenario is based on the expectation that the Dutch policy with respect to ornamentals will be followed by other EU countries because the Netherlands acts as market leader in ornamental production and trade.

4.1 Scenario 1: Application of the general VAT rate in the Netherlands

If the general VAT tariff is applied to flowers and plants rather than the lower tariff, consumer prices in the Netherlands will rise by 12.25%. As a result, consumer demand for cut flowers and pot plants will fall by 13.5% and demand for bulbs and nursery material will fall by 18.4%. Consumer expenses decrease by 15.0% (Table 4.1). Aggregate retail sales decrease by 10.4%, because a substantial share of ornamentals is bought by enterprises that do not bear VAT.¹ Net turnover falls by €240m and employment by 3,200 jobs.

Production in Dutch floriculture falls slightly. Because Dutch production of ornamentals is export oriented, the impact of a change in the VAT rate in the Netherlands on Dutch production and employment is smaller than in scenario 2. The impact is more or less equal to the percentage change in turnover at the retail level times the share of the Netherlands in the sales of Dutch ornamentals. The impact on production and employment is most significant in primary production of nursery material (including plants for flowerbeds) (-4.0%). Aggregate ornamental production falls by 2.4% (-€127.5m). Employment falls by 1,660 jobs in horticultural production and by 360 other jobs in wholesale.

¹ Twentyfive percent of all cut flowers and pot plants is bought by private enterprise (PT, 2009). Ten percent of all nursery material is bought by private enterprise and 30% by local governments (Bunte et al., 2007).

Table 4.1						
Impact of a rise of the VAT rate in the Netherlands on sales in the horticultural supply chain in the Netherlands						
	Production		Wholesale trade		Consumer expenses	
	€m	%	€m	%	€m	%
Bulbs	-2.5	-0.4	-2.5	-0.4	-5.0	-18.4
Cut flowers	-50.0	-2.3	-60.0	-1.6	-95.0	-13.5
Nursery material	-45.0	-4.0	-55.0	-4.5	-85.0	-18.4
Pot plants	-30.0	-2.0	-35.0	-1.5	-55.0	-13.5
Total	-127.5	-2.4	-152.5	-1.9	-240.0	-15.0

Table 4.2			
Impact of a rise of the VAT rate in the Netherlands on employment in the horticultural supply chain in the Netherlands			
	Production	Wholesale trade	Consumer expenses
Bulbs	-10	-10.0	-50
Cut flowers	-725	-150.0	-1,275
Nursery material	-600	-125.0	-1,150
Pot plants	-325	-75.0	-725
Total	-1,660	-360.0	-3,200

4.2 Scenario 2: Application of the general VAT rate in all EU countries

This section presents the effects of the application of the general VAT rate to flowers and plants in all EU Member States including the 13 states who currently do not apply the general tariff. The VAT-rate increases lead to a fall in turnover throughout the supply chain: a fall of €3,480m in European retail trade, a fall of €2,660m in European wholesale trade and a fall of €1,650m in European ornamental production (Table 4.3). This fall leads to a decline in employment throughout the European horticultural chain: 28,925 fte in European ornamental production, 6,550 persons employed in European wholesale trade and 24,775 persons employed in European retail trade (Table 4.4). Because producer prices decline a little due to the fall in demand, consumer demand is stimulated in the countries already applying the regular VAT tariff (see Table 4.3 and 4.4). Production of ornamentals in the other 12 countries falls. This holds especially for Denmark (-3.6%).

Table 4.3 Impact of a VAT rate increase on turnover in ornamental horticulture in the EU25

	Production		Wholesale		Retail	
	€m	%	€m	%	€m	%
Austria	-20	-9.2	-50	-9.5	-80	-9.6
Belgium	-70	-12.7	-130	-13.6	-170	-15.8
Czech Republic	-10	-9.0	-20	-9.3	-30	-9.4
France	-260	-14.7	-450	-14.6	-720	-14.9
Germany	-320	-12.0	-610	-11.9	-1200	-12.2
Greece	-20	-10.6	-30	-10.8	-50	-10.9
Ireland	-10	-8.4	-20	-7.8	-30	-8.2
Italy	-320	-10.3	-410	-10.2	-610	-10.2
Luxemburg	0	-3.1	0	-8.7	0	-9.1
Netherlands	-450	-8.6	-700	-9.0	-240	-10.4
Poland	-30	-15.9	-70	-18.0	-100	-19.0
Portugal	-20	-6.4	-20	-6.5	-40	-6.4
Spain	-100	-9.3	-140	-9.4	-210	-9.3
Rest of the EU25	-20	-0.9	-20	-0.4	0	0.0
Total	-1,650	-9.4	-2,660	-9.3	-3,480	-9.2

Table 4.4	Impact of a VAT rate increase on employment in ornamental horticulture in the EU25					
	Production		Wholesale		Retail	
	fte	%	number persons	%	number persons	%
Austria	-825	-9.3	-75	-9.5	-675	-9.6
Belgium	-875	-12.7	-150	-13.6	-775	-15.8
Czech Republic	-325	-9.2	-75	-9.3	-350	-9.4
France	-4,500	-14.8	-725	-14.6	-3,275	-14.9
Germany	-4,925	-12.0	-2,000	-11.9	-7,775	-12.2
Greece	-800	-10.6	-100	-10.8	-475	-10.9
Ireland	-150	-8.4	-50	-7.8	-175	-8.2
Italy	-5,700	-10.4	-400	-10.2	-4,275	-10.2
Luxemburg	0	-4.7	0	-8.7	0	-9.1
Netherlands	-4,000	-8.6	-1,875	-9.6	-3,200	-10.4
Poland	-1,475	-16.0	-350	-18.0	-1,675	-19.0
Portugal	-725	-6.6	-100	-6.5	-425	-6.4
Spain	-4,325	-9.4	-575	-9.4	-1,700	-9.3
Rest of the EU25	-300	-1.0	-75	-0.4	0	0.0
Total	-28,925	-9.3	-6,550	-9.5	-24,775	-9.3

4.3 Impact on government revenue in the Netherlands

One of the main reasons to change the VAT rate for ornamentals from the lower rate to the general rate is to raise government income. If one presumes that consumers do not react to the price increase - a standard assumption of the Ministry of Finance - government income rises by €200m in 2008.¹ However, we have seen that the price elasticity of the demand for ornamentals is high. Retail net sales are expected to fall by 10.4%. If demand falls, government does not rise by €200m, but €168m.

Moreover, people get unemployed. As estimated above in scenario 1, a rise of VAT rate in the Netherlands only leads to a rise in unemployment with 5,220 jobs. These people are not likely to find other jobs straightaway as a result of which social security expenses rise by €74m (€14.195 per unemployed). Government revenues rise by €94m only.

¹ The estimate of the Ministry of Finance using a different source is €195m for 2008.

The decrease in demand also has a negative on revenues from income taxes. If we presume that corporate taxes equal 0.5% of turnover in wholesale and retail trade (CBS StatLine) and that income taxation equals 1.0% in horticulture (LEI Binternet), government revenues go down by another €3m leaving a net revenue increase of €91m.

It is not likely that the decrease in government revenues due to unemployment and a reduction of economic activities in the horticultural supply chain continues in the long run, because other sectors will create employment and economic activities when the governments spends more money in other sectors or lends less money. In economic theory the expression the long run is used to indicate the time the economy needs to adjust to for instance changes in the tax structure. Economic theory does not indicate how much time the economy needs to realize a new long run equilibrium. In the short run government revenues rise by €91m and in the long run by €168m.

Finally, part of the extra government revenues will be a redistribution from local governments to the national government (€30m), because local governments will have to pay more VAT for the ornamentals they buy for parks.

If all European countries apply the high VAT rate for ornamentals, unemployment rises by 9,075 persons in the Netherlands. If people do not find employment elsewhere, unemployment benefits rise by €129m (14.195 per unemployed). Tax revenues fall by €9m. This implies that the government earns just €30m. Again, the loss of government revenues due to unemployment and loss of economic activities is not likely to continue for ever. People look for jobs in other sectors. Because the government is able to put more money in other sectors (or needs to lend less money) and people get a job in other sectors, economic activities are promoted with positive effects on government revenues (Bunte and Kuipers, 2008).

4.4 Impact on developing countries

The rise in VAT rates also has a negative impact on the exports of cut flowers from Africa, Asia and Latin America to Europe. Demand for African cut flowers would fall by €25m in terms of auction prices. This amounts to 5.5% of African cut flower exports. Demand for cut flowers from Asia and Latin America would fall by €10m.

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