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Benefit-cost analysis: government compensation vs. consumer tax model

Abstract: We provide a theoretical and empirical comparison of two historic production quota buyouts: the 2002 US Peanut Quota Buyout and the 2004 US Tobacco Quota Buyout. Producer compensation under the US Peanut Quota Buyout came from the treasury while the US Tobacco Buyout was paid for by a consumer tax (i.e., tobacco tax). Given these two buyouts, an important question arises: How does the method of compensation affect distribution and efficiency? Producers, consumers, and society favor a treasury buyout (TB) for several reasons. Producers are compensated considerably more under a TB, consumers are not burdened with the charge of funding the buyout, and society does not face additional efficiency losses due to the buyout.

Keywords: compensation; consumer tax; government buyout; quota values.

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1 Introduction

In benefit-cost analysis, a considerable literature exists on the impact of introducing production quotas, but little is written on the distributional and efficiency effects of removing production quotas, whereby producers are compensated from the treasury. Likewise, this also applies to a production quota buyout in which compensation to producers is paid for through a consumer tax (Just, Hueth, & Schmitz, 2004; Schmitz & Zerbe, 2008).[1]

This article provides a theoretical and empirical analysis of two historic production quota buyouts: the 2002 US Peanut Quota Buyout and the 2004 US

1 The "consumer tax" in our model is a tax on cigarette manufacturers and therefore the impact of this tax on end consumers depends on the extent to which manufacturers pass the tax on to consumers.

Tobacco Quota Buyout. The US Tobacco Buyout was paid for by a consumer tax while the US Peanut Quota Buyout was based on compensation from the treasury. An important question arises: Does the method of compensation affect distribution and societal efficiency? The following analysis 1) examines each of the quota buyouts under varying compensation methods, and 2) determines the economic impact on the government, producers, consumers, and society when the method of compensation is varied.

2 Background

2.1 The US Peanut Quota Buyout

The Peanut Marketing Quota Program was established in the early 1930s (Schmitz, Furtan, & Baylis, 2002). Like other production quota programs, it was designed to foster high and stable prices, thereby supporting the incomes of peanut growers. The 2002 US Farm Program eliminated the peanut program at the beginning of the 2002 crop year (Schmitz, Schmitz, & Rossi, 2006), in part, due to growing WTO concerns. In this article, the dissolution of the peanut program is discussed in terms of a "buyout" because those owning the right to sell peanuts were compensated for the loss of their quota. Under the quota buyout, holders of the peanut quota were compensated at the annual quota value rate of $0.11 per pound ($220 per ton).[2] The peanut poundage upon which the payment was made totaled 2.4 billion pounds. Authorized compensation was paid to quota holders over a 5-year period, whereby quota holders received $0.55 per pound ($1100 per ton). These payments were intended to compensate owners for the loss of an income-producing asset (Schmitz & Schmitz, 2010).

2.2 The US Tobacco Quota Buyout

The US Tobacco Program was terminated under the "Fair and Equitable Tobacco Reform Act" that was signed into law by George W. Bush on October

2 Data obtained through correspondence with Dr. E. L. Dohlman (peanut specialist, USDA/ERS). Professor Stan Fletcher (University of Georgia, highly regarded specialist who works on the economics of US peanut production and marketing) estimated the value of the quota to be in the neighborhood of $0.10 per pound.

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22, 2004. This Act compensated quota owners for the loss of their quota and effectively deregulated US tobacco production and prices (Dohlman, Foreman, & Da Pra, 2009). Final legislation provided all quota owners $7 per pound on the 2002 basic quota, along with an additional $3 per pound (specifically to producers) on the 2002 effective quota. Compensation payments were to be paid for by a tobacco consumption tax and were to be made in 10 equal annual installments of $0.70/lb. to quota holders and $0.30/lb. to producers (Womach, 2005).[3]

2.3 Theory

Schmitz and Schmitz (2010) outline a specific treasury buyout (TB) model – the *value of quota* approach to compensation. They also assess empirically how, in the peanut buyout case, the government, producers, and consumers are affected by both the introduction and removal of production quotas. Additionally, the work of Schmitz et al. (2012) determined the economic impact on producers and consumers when the consumer tax compensation method is employed (i.e., the case in the US Tobacco Quota Buyout).

2.3.1 Quota implementation

Consider the model in Figure 1 where S is the supply schedule and D is the demand schedule. The competitive price is p_0 and the corresponding output is q_0. By introducing a production quota q_1, the price increases to p_1, and as a result, consumers lose (p_1p_0ba). Producers gain [(p_1p_0da)–(dcb)] and now receive the true value of the quota from the market (p_1p_2ca). The deadweight loss created by the quota is (acb). Note that the value of the quota is measured relative to the in-quota price p_1. This quota value is larger than the net gain from the quota when introduced. As the size of the quota increases relative to the starting price p_0, so do the net producer gains from both introducing and removing the quota where producer compensation is provided. Therefore, from a rent-seeking perspective, producers will pursue a strategy to obtain a large quota value size upon which the buyout is based.

3 For the purpose of this article, "quota holders" and "producers" will be collectively referred to as "producers."

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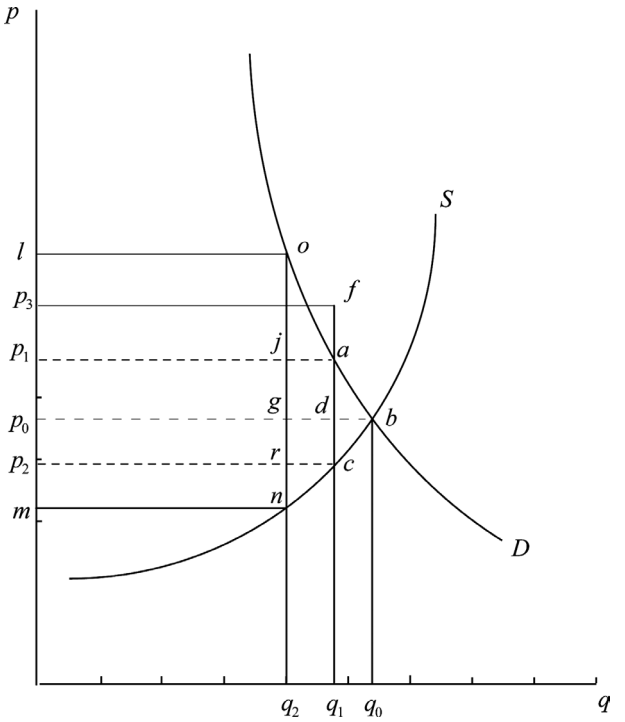

Figure 1 Theoretical quota buyout.

2.3.2 Treasury buyout

2.3.2.1 True quota value

In the TB case, there are several results from removing the quota that differently affect the government, producers, consumers, and society. The government cost of removing the quota is (p_1p_2ca), provided the *true quota value* was used as the basis of compensation. Producers lose (p_1p_0da) and gain (dcb). Since they are compensated the *value of the quota*, they also gain (p_1p_2ca).[4] This results in a net producer gain of (p_0p_2cb). Consumers gain (p_1p_0ba) and there is also a gain to society of (acb) when competitive equilibrium is restored.

4 Schmitz and Schmitz (2011) show the true value of the quota exactly equals the gain to producers when the quota is implemented, plus the gain to producers when the quota is removed. However, this is not the case under a consumer tax buyout (Schmitz, Schmitz, & Haynes, 2012).

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2.3.2.2 Inflated quota value

When an inflated quota value (not considered in Schmitz & Schmitz, 2010), is used, as opposed to a true quota value, as the basis for compensation, (p_3p_2cf) is the new government cost. In this case, producers gain [(p_0p_2cb)+ (p_3p_1af)]. As before, consumers gain (p_1p_2ba) due to quota removal. The gain to society remains the same at (acb) when competitive equilibrium is restored.

In the above analysis and that to follow, equal welfare weights are attached to the various players in society – a practice recommended by Harberger (1978). Politicians often attach political welfare weights that are not one-to-one. Policy outcomes under such circumstances are not first-best. One can easily take our empirical results and derive outcomes based on various welfare weighting schemes.

2.3.3 Consumer tax buyout

2.3.3.1 True quota value

In the consumer tax buyout (CTB) case, (p_1p_2ca) is no longer the government cost; it is now the actual consumption tax value. Unlike the TB case, removing the quota using the *true quota value* does not result in a net producer gain in Period I.[5] In Period II, producers lose [–(p_1p_0da)+(dcb)] which is exactly equal to the producer gain from implementing the quota. There is also no difference to consumers in Period I, as they continue to lose (p_1p_0ba) as they would have if the quota remained in place. In Period II, however, consumers gain the area (p_1p_0ba). Similarly to the consumer tax effect, society does not gain or lose during Period I. There is, however, a gain of (acb) in Period II.

2.3.3.2 Inflated quota value

When the *inflated quota value* ($lmno$) is used as the basis for compensation, there is a net producer gain of (lp_1jo–$jnca$) in Period I. In Period II, at the end of the compensation period, producers lose [–(lp_0go)+gnb] when equilibrium is restored. Consumers are worse off under this compensation method, as they lose (lp_1ao) in Period I. On net, consumers gain [(lp_0b_0)–(lp_1ao)]=(p_1p_0ba) when competitive

5 Given a CTB, Period I refers to the period of compensation before competitive equilibrium is restored and Period II refers to the period when competitive equilibrium is restored (Schmitz et al., 2012). It is important to note that Period I may be comprised of one or more years, depending on the length and type of buyout. Additionally, the results presented in the following empirical section are net yearly estimates.

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equilibrium is restored in Period II, just as they do given the *true quota value*. Therefore, the consumer gains do not depend on the nature of the buyout. Additionally, there is an increasing loss to efficiency (*onca*) during Period I. However, there is an efficiency gain (*onb*) in Period II which results in an overall societal net gain (*acb*).

The following applies the theoretical framework above to both the 2002 US Peanut Quota Buyout and the 2004 US Tobacco Quota Buyout in order to determine how producers and consumers are affected by varying methods of compensation. In the empirical analysis, two scenarios are considered regarding the buyout: 1) the *true quota value* is used for the basis of the buyout or 2) an *inflated quota value* is used as the basis for the buyout.

3 Empirical analysis

3.1 US Peanut Quota Buyout (TB)

The empirical assessment of Schmitz and Schmitz (2010) of the peanut buyout concluded that the annual government cost was roughly $264 million for a period of 5 years (Table 1).[6] Producers gained $53 million per year of compensation from the buyout on net. Additionally, Schmitz and Schmitz (2010) estimate a $236 million consumer gain due to the removal of the quota (Table 1).

Table 1 US Peanut Quota Buyout yearly estimates: treasury buyout vs. consumer tax buyout (true quota value).

Components	Treasury buyout*	Consumer tax buyout
Government cost	264	N/A
Tax amount	N/A	264
Producer net gain Period I	53	0
Producer gain Period II	0	−211
Consumer gain/loss Period I	236	0
Consumer gain/loss Period II	0	236
Efficiency gain/loss Period I	25	0
Efficiency gain/loss Period II	0	25

*The elasticities used are given in Schmitz and Schmitz (2010).

6 As Schmitz and Schmitz (2010) did not account for the possibility of inflated quotas in their analysis of the US Peanut Quota Buyout, the assumption in this article's analysis is that the true quota value was used as the basis for the buyout.

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3.2 US Peanut Quota Buyout (CTB)

Consider the hypothetical case in which compensation to producers would have been in the form of a consumer tax. Under a consumer tax compensation scheme there is no government cost. The producer gain in Period I is zero given a true quota value being used as the basis for the buyout. There is a producer loss of $211 million in Period II. Additionally, in Period I, consumers are neither better nor worse off financially due to, and during, the buyout. In Period II, consumers gain $236 million. In both the TB and CTB scenarios, the removal of the quota results in a $25 million gain in efficiency because the deadweight loss is removed (Table 1).

A significant difference between a TB and a CTB is the timing of the restoration of competitive equilibrium. Given a TB of 5 years, as was the case with US peanuts, competitive equilibrium was restored in the first year of the buyout when the quota was removed. This is because, along with the quota being removed, the deadweight loss is also removed as the government assumes the cost of the buyout. Given a CTB, equilibrium would have been restored in the last year of the buyout because, even though the quota were removed immediately, competitive equilibrium would not have been restored because the consumer tax used to compensate producers would have kept the inefficiency wedge in place.

3.3 US Tobacco Buyout

The following empirical analysis pertains to the 2004 US Tobacco Buyout. Even though there are two major kinds of tobacco grown in the US, Flue-cured and Burley [accounting for over 90% of US production (Serletis & Fetzer, 2008)], payments were equal under the tobacco buyout for quota owners. In our analysis, the production of these two types of tobacco were aggregated and average prices and quantities were used for the period 1999–2003 of $1.88/lb. and 839.4 million pounds, respectively (ERS/USDA, 2005).[7] This was used as the basis for the buyout.

The above data were used to build a model similar to Figure 1. Consider Figure 2 where the *true quota value* is $0.30/lb. and the inflated quota value is $1.00/lb.[8] The competitive price is p_0 ($1.77/lb.) and the corresponding output is q_0 (890 lbs.).

7 This production value accounts for the change in stock size over the 5-year period.

8 We present a *true quota value* of $0.30/lb. as an extreme case to show the possible effects of bidding up quota values through lobbying and other forms of rent-seeking behavior. The average *true quota value* (of Burley and Flue-cured tobacco) during the time of the buyout was likely around $0.53/lb.

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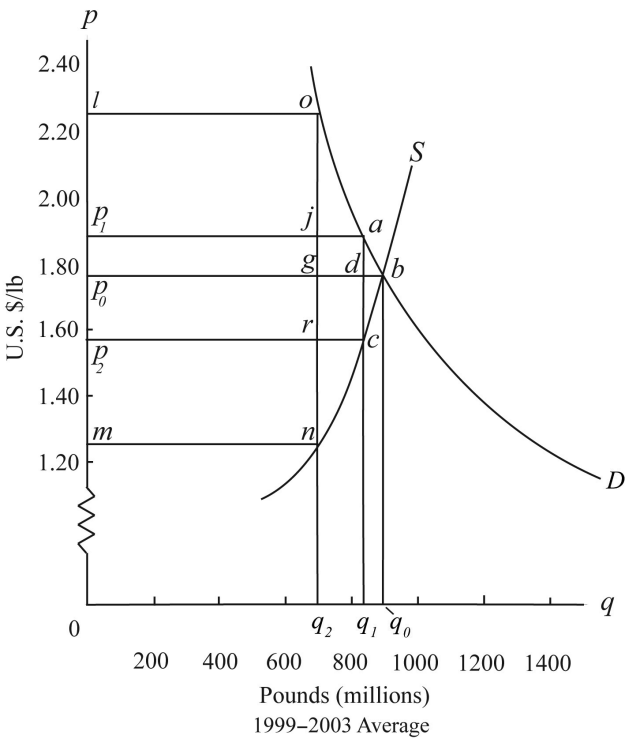

Figure 2 Empirical implementation and removal of quota ($0.30/lb. vs. $1.00/lb. quota).

By introducing a production quota q_1 (839 lbs.), the price increases to p_1 ($1.88/lb.) and as a result, consumers lose $95 million ($p_1p_0ba$). Producers gain $88 million [($p_1p_0da$)–($dcb$)] and now receive the true value of the quota from the market, equaling $252 million ($p_1p_2ca$). The deadweight loss created by the quota is $8 million ($acb$). These results are shown in Table 2.

3.3.1 Consumer tax buyout: true quota value vs. inflated quota value

Since the US Tobacco Buyout was in the form of a consumer tax, on net, removing the quota based on the *true quota value* results in producers gaining nothing in Period I. However, using the *inflated quota value* yields a $202 million, per year, net producer gain over the 10-year compensation period (Period I). At the end of the compensation period, immediately when equilibrium is restored, producers face a net loss of either $88 million under the *true quota value* or $295 million under the *inflated quota value* (Period II). Consumers continue to lose $95 million

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Table 2 US tobacco: economic gains and losses from quota implementation (E_D=–1.1 and E_S=0.7).[9]

Component	Area	1999–2003 Average (US million dollars)
True value of quota	p_1p_2ca	251.8
Net producer gain	$[(p_1p_0da)–(dcb)]$	87.5
Consumer loss	(p_1p_0ba)	95.1
Deadweight loss	(acb)	8.0

per year in Period I, so there is no net change to their welfare under the *true quota value* buyout. However, this value escalates to $292 million per year, given an *inflated quota value* buyout. Consumers immediately regain $95 million when competitive equilibrium is restored (CER) under the *true quota value* buyout or they gain $390 million under the *inflated quota value* buyout (Table 3).

Table 3 US Tobacco Buyout results (consumer tax): true quota value vs. inflated quota value[10] (E_D=–1.1 and E_S=0.7).

True quota value			Inflated quota value		
Component	**Area**	**US million dollars**	**Component**	**Area**	**US million dollars**
Tax value	(p_1p_2ca)	251.8	Tax value	$(lmno)$	700.0
Producer gain Period I	N/A	0	Producer gain Period I	$[(lp_1jo)–(jnca)]$	201.9
Producer loss Period II[11]	$[–(p_1p_0da)+(dcb)]$	–87.5	Producer loss Period II	$[–(lp_0go)+(gnb)]$	–294.6
Consumer loss: Period I	(p_1p_0ba)	0	Consumer loss: Period I	(lp_1ao)	–292.5
Consumer gain: Period II	(p_1p_0ba)	95.1	Consumer gain: Period II	(lp_0bo)	389.5
Efficiency loss Period I	(acb)	0	Efficiency loss Period I	$(onca)$	–87.0
Efficiency gain Period II	(acb)	8.0	Efficiency gain Period II	(onb)	95.0

9 See Appendix for results under varying elasticities.

10 These are yearly estimates for each period. Given the CTB, Period I is comprised of 10 years and Period II is comprised of only 1 year.

11 This refers to net producer loss during the period immediately after the buyout (competitive equilibrium restored).

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Table 4 US tobacco results (treasury buyout): true quota value vs. inflated quota value, yearly estimates (E_D=−1.1 and E_S=0.7).[12]

True quota value			Inflated quota value		
Component	**Area**	**US million dollars**	**Component**	**Area**	**US million dollars**
Government cost Period I	(p_1p_2ca)	251.8	Government cost Period I	(p_3p_2cf)	839.4
Net producer gain Period I	(p_0p_2cb)	164.3	Net producer gain Period I	$[(p_0p_2cb)+(p_3p_1af)]$	751.9
Net consumer gain Period I	(p_1p_0ba)	95.1	Net consumer gain Period I	(p_1p_0ba)	95.1
Efficiency gain	(acb)	8	Efficiency gain	(acb)	8

3.3.2 Treasury buyout: true quota value vs. inflated quota value

Instead of using a consumer tax for the buyout, what if the government paid producers for their loss of tobacco quota? In this case, the government cost of removing the quota, using the *true quota value* ($0.30/lb.), is roughly $252 million per year over Period I. When an *inflated quota value* ($1.00/lb.) is used instead, this amount increases to $839.4 million per year over Period I.

Given a *true quota value,* producers gain $164 million per year of compensation from removing the quota. Given an *inflated quota value,* producers gain $752 million per year of compensation from removing the quota (Table 4). Consumers gain $95 million in both the *true quota value* and *inflated quota value* cases from the removal of the quota. Additionally, in either case, there is an efficiency gain of $8 million due to the removal of the quota (Table 4).

4 Conclusions

There are sharp differences but also similarities between the two different types of buyouts discussed in this article, especially when the buyouts are based on the *true quota values*. Under a TB, producers always gain from the removal of the quota. Under a CTB, producers may lose or gain, depending on the length of the

12 These are also yearly estimates; however, given the TB case, competitive equilibrium is restored immediately upon removal of the quota, as opposed to in the last year of compensation as in the CTB case.

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compensation period. As our theoretical section highlights, in the simplest case, the consumer impacts and efficiency gains from removing the quota are identical between a TB and a CTB.

Under an *inflated quota value*, producers gain the most given a TB. Once again, it is possible for producers to gain from a CTB buyout, but these gains are considerably less than under a TB. Similar to the *true quota value* case, in the simplest scenario, on net, consumers and net efficiency gains are unaffected by a CTB. In the case where there are multiple years of compensation within Period I, consumer losses and net efficiency losses can be significant under a CTB. Importantly, this study shows that different policy instruments can have markedly different distributional consequences but need not affect the size of economic efficiency gains from a policy change.

In the above models, while we did not explicitly account for the cost of collecting revenue from taxpayers in the peanut case to compensate producers, or for the cost of collecting revenue from consumers in the tobacco buyout, we recognize that these costs can be significant because they reduce the size of the benefit-cost ratios (Alston & Hurd, 1990; Moschini & Sckokai, 1994). According to Womach (2005), the cost of the tobacco buyout is covered by assessments on tobacco product manufacturers and tobacco product importers. Womach stated that the assessments (allotted by majority share of the market – with 96% being cigarettes) will be collected by the USDA's Commodity Credit Corporation (CCC) Tobacco Trust Fund on a quarterly basis during each of the 10 fiscal years from FY2005 through FY2014.

In addition, since we compare results before and after the buyouts, we deal with two distinct periods of time; therefore our model is of a static nature. While developing a model of how producers prepare for a buyout in order to receive maximum compensation is the subject of further research, we presently posit that producers engaged in rent-seeking behavior. More specifically, we hold that lobbying and bidding up the value of the quota (via rental rates) prior to the buyout legislation being finalized was key in ensuring a higher basis for compensation.

In both the peanut and tobacco cases, producers received sizeable benefits from production quotas. In both cases when the programs were terminated, producers were compensated for the loss of these benefits from the buyout as if the programs remained in place. The peanut program buyout was paid for with treasury funds, while the tobacco buyout was paid for by assessments on tobacco product consumers. In either case, the Pareto principle was not met when the programs were introduced, nor when they were removed. No compensation was made to the consumers for their losses due to the quota. The question that some may raise is: Why then, should compensation be made to producers due for quota elimination? This is especially true since quota gains persisted for many years. For

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example, as Pasour (2005) points out, a quota is not a property right and, therefore, there is no legal requirement that producers receive compensation when a production quota is terminated. The latter comes about because of effective lobbying on the part of producers. In the tobacco case, for example, politicians supported the termination of the tobacco quota program with compensation to producers for several reasons: 1) historically, federal assistance was needed to stabilize and increase tobacco producer income (this was the reason the quota program was implemented in the first place); 2) there was a belief that once the tobacco quota program was eliminated, producers would need assistance reallocating resources and/or transitioning to a free market system (Womach, 2005); and 3) the termination of the tobacco quota program via a consumer tax would appeal to health advocates (e.g., the American Cancer Society) because it would cause the price of tobacco products to increase, thereby reducing consumer demand (Schmitz, Haynes, Schmitz, & Schmitz, 2013).

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Appendix

This section shows the economic effect of varying the supply and demand elasticities in the above models. The first case uses a slightly more elastic demand curve (E_D=–1.6 as opposed to E_D=–1.1). This seemingly minor change has several implications on the economic results of both implementing and removing the tobacco quota. While the value of the quota does not change, producers, consumers, and society are affected differently by its implementation. More specifically, this increase in demand elasticity translated into a 41% lower net producer gain, 36% lower consumer loss, and 25% higher deadweight loss (Table A1).

Given a TB, the more elastic the demand, the higher the net producer gains and the lower the consumer gains from removing the quota [in both the *true quota value* and *inflated quota value cases* (Table A2)]. However, given a CTB, the

Table A1 Economic gains and losses under quota implementation (E_D=–1.6 and E_S=0.87).

Component	Area	1999–2003 Average (US million dollars)
True value of quota	p_1p_2ca	251.8
Net producer gain	$[(p_1p_0da)–(dcb)]$	51.2
Consumer loss	(p_1p_0ba)	61.1
Deadweight loss	(acb)	10.0

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Table A2 Tobacco buyout (treasury funds) results: true quota value vs. inflated quota value (E_D=–1.6 and E_S=0.87).

True quota value			Inflated quota value		
Component	**Area**	**US million dollars**	**Component**	**Area**	**US million dollars**
Government cost	(p_1p_2ca)	251.8	Government cost	(p_3p_2cf)	839.4
Net producer gain	(p_0p_2cb)	200.6	Net producer gain	[(p_0p_2cb)+(p_3p_1af)]	788.2
Consumer gain	(p_1p_0ba)	61.1	Consumer gain	(p_1p_0ba)	61.1
Efficiency gain	(acb)	9.8	Efficiency gain	(acb)	9.8

Table A3 Tobacco buyout (consumer funds) results: true quota value vs. inflated quota value (E_D=–1.6 and E_S=0.87).

True quota value			Inflated quota value		
Component	**Area**	**US million dollars**	**Component**	**Area**	**US million dollars**
Tax value	(p_1p_2ca)	251.8	Tax value		683.4
Producer gain Period I	N/A	0	Producer gain	[(lp_1jo)–($jnca$)]	131.0
Producer loss Period II	[–(p_1p_0da)+(dcb)]	–51.2	Producer loss Period II	[–(lp_0go)+(gnb)]	–193.2
Consumer loss Period I	(p_1p_0ba)	–61.1	Consumer loss Period I	(lp_1ao)	–278.6
Consumer gain Period II	(p_1p_0ba)	61.1	Consumer gain Period II	(lp_0bo)	344.7

more elastic the demand, the lower the Period I producer gain and the lower the Period I consumer loss from removing the quota (in the inflated case, as there is no net producer gain in the *true quota value* case). After competitive equilibrium is restored (Period II), the producer loss and the consumer gain are both lower under the more elastic demand (Table A3).

The second case uses a slightly more elastic supply curve (E_S=0.98 as opposed to E_S=0.7). Once again, the value of the quota does not change, but the impact on producers, consumers, and society does. In fact, the more elastic the supply curve, the higher the net producer gain, consumer loss, and deadweight loss from implementing the quota (these results as seen in Table A4 were higher than both the original case and the increased demand price elasticity case).

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Table A4 Economic gains and losses under a tobacco quota implementation (E_D=–1.1 and E_S=0.98).

Component	Area	1999–2003 Average (US million dollars)
True value of quota	p_1p_2ca	251.8
Net producer gain	$[(p_1p_0da)–(dcb)]$	111.3
Consumer loss	(p_1p_0ba)	122.9
Deadweight loss	(acb)	12.0

Given a TB, the net producer gain was lower under this scenario of a more elastic supply curve while the consumer gains were higher (Table A5). Given a CTB, the more elastic the supply curve, the higher the net producer gain and the higher the consumer loss from removing the quota. After competitive equilibrium is restored, both the net producer loss and consumer gains were significantly higher than with the original elasticities (Table A6).

Table A5 Treasury buyout results: true quota value vs. inflated quota value.

True quota value			Inflated quota value		
Component	**Area**	**US million dollars**	**Component**	**Area**	**US million dollars**
Government cost	(p_1p_2ca)	251.8	Government cost	(p_3p_2cf)	839.4
Net producer gain	(p_0p_2cb)	140.5	Net producer gain	$[(p_0p_2cb)+(p_3p_1af)]$	728.1
Consumer gain	(p_1p_0ba)	122.9	Consumer gain	(p_1p_0ba)	122.9
Efficiency gain	(acb)	12.0	Efficiency gain	(acb)	12.0

Table A6 Consumer tax buyout results: true quota value vs. inflated quota value.

True quota value			Inflated quota value		
Component	**Area**	**US million dollars**	**Component**	**Area**	**US million dollars**
Tax value	(p_1p_2ca)	251.8	Tax value	$(lmno)$	700.0
Producer gain Period I	N/A	0	Producer gain Period I	$[(lp_1jo)–(jnca)]$	229.1
Producer loss Period II	$[–(p_1p_0da)+(dcb)]$	–111.3	Producer loss Period II	$[–(lp_0go)+(gnb)]$	–341.5
Consumer loss Period I	(p_1p_0ba)	–122.9	Consumer loss Period I	(lp_1ao)	–322.2
Consumer gain Period II	(p_1p_0ba)	122.9	Consumer gain Period II	(lp_0bo)	451.4

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