Food and Agricultural Policy Research Institute

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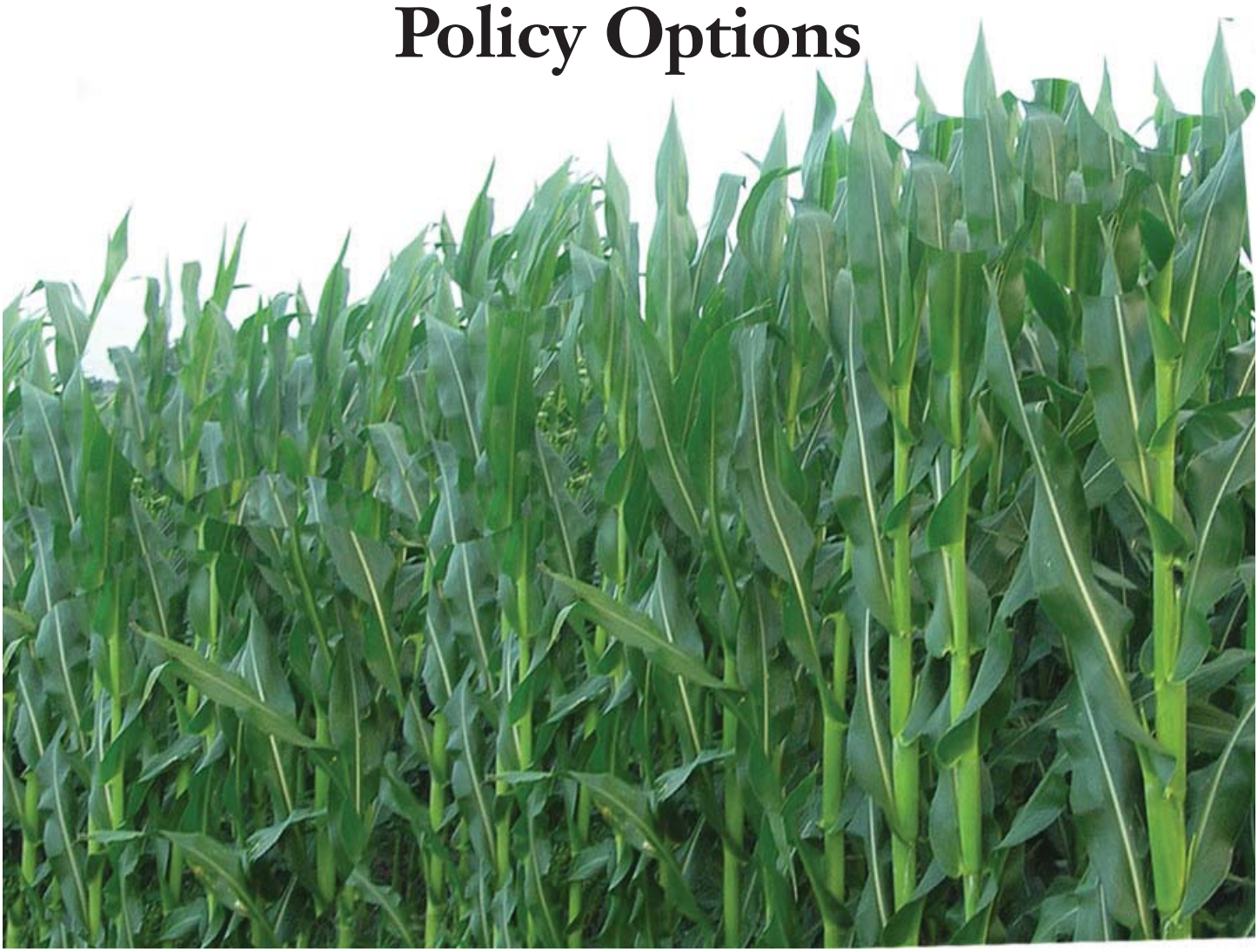
FAPRI-MU Report #06-08

Biofuels

Impact of Selected Farm Bill Provisions and other Biofuel Policy Options



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Summary

Biofuel policies and petroleum market developments can have large impacts on biofuel and agricultural markets. This report examines consequences of selected biofuel policies in the Food, Conservation and Energy Act (FCEA, the 2008 farm bill), as well as other policies that support the US biofuel sector.

The point of departure for the analysis is the stochastic baseline for US agricultural markets prepared by the Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri (MU) in early 2008.

The farm bill extends the $0.54 per gallon ethanol tariff through 2010, but reduces the ethanol blender's credit from the current $0.51 per gallon to $0.45 per gallon in 2009 and 2010.

- The extension of the ethanol tariff raises US ethanol prices (table 1). The reduction in the tax credit, in contrast, reduces producer prices for ethanol and raises consumer prices. The net effect of these changes is a small increase in ethanol producer prices and production.

- With only small effects on ethanol production, these two farm bill provisions result in marginal increases in prices for corn and other agricultural commodities. For example, the provisions raise average 2009/10 corn prices by $0.06 per bushel.

The analysis indicates that the impacts of biofuel policies are very dependent on the policy and market context.

- The Energy Independence and Security Act of 2007 (EISA) establishes mandated levels of use for various classes of biofuels. These mandates can be very important when they are binding, typically when petroleum prices are low or crop supplies are limited. The mandates may have little market impact when high petroleum prices contribute to high biofuel prices and production levels.

- Under a variety of market circumstances, the ethanol tariff is likely to have a large impact on ethanol imports, but only a modest effect on domestic ethanol producer prices and production and on agricultural markets. When EISA mandates for use of "advanced biofuels" are binding, even the level of ethanol imports may not be greatly affected by changes in the ethanol tariff.

- Tax credits for production of ethanol and biodiesel, likewise, may have large or small impacts on biofuel and agricultural markets, depending on the circumstance. When use mandates are not binding, the tax credits encourage biofuel use and production, resulting in higher prices for corn, soybean oil and other agricultural commodities. However, when EISA mandates are binding, the credits have only modest impacts on biofuel and agricultural market outcomes, although they do affect consumer and taxpayer costs.

Because the point of departure for this analysis is a baseline prepared in early 2008, it does not incorporate recent developments in energy and agricultural markets or other provisions of the 2008 farm bill. Sorting the stochastic results by petroleum prices suggests just how sensitive results of the various scenarios are to market circumstances.

Table 1. Summary of results, 2011-2017 average changes from reference scenarios (except as noted)

	See page	Biofuel production		Producer prices			Net farm income	Food expend.
		Ethanol	Biodiesel	Ethanol	Corn	Soybeans		
Reference: Pre farm bill provisions		Percent	Percent	Percent	Percent	Percent	Bil. dollars	Bil. dollars
Farm bill provisions (2009/10 effects)	9	4.2	-0.2	3.3	1.7	0.5	0.32	0.11
Reference: Current policies extended								
Reduce tax credit to $0.45	13	-0.6	0.0	-0.4	-0.2	-0.1	-0.10	-0.07
Let ethanol tariff expire	17	-8.3	0.5	-5.2	-2.5	-1.0	-1.11	-0.87
Let ethanol tax credit expire	21	-2.6	0.2	-1.7	-0.7	-0.5	-0.48	-0.32
Let biodiesel tax credit expire	25	0.0	-9.4	0.0	-0.1	-1.0	-0.35	-0.03
Let all credits and tariffs expire	29	-11.9	-8.6	-7.4	-3.6	-2.6	-2.07	-1.35
Remove EISA biofuel use mandates	33	-20.5	-46.0	-12.8	-6.2	-6.7	-3.83	-2.00
Remove EISA mandates and let all credits and tariffs expire	37	-43.0	-63.4	-29.2	-14.1	-11.6	-7.50	-4.70
Reference: No EISA mandates, tariffs and credits all expire								
Extend ethanol tariff	41	2.3	-0.4	1.1	0.5	0.2	0.12	0.17
Extend ethanol tax credit	45	35.8	-7.0	21.4	8.1	3.2	2.86	2.26
Extend biodiesel credit	49	-0.1	58.3	0.1	0.3	2.1	0.54	0.19
Extend all credits and tariffs	53	39.4	47.5	23.2	9.2	5.5	3.67	2.70
Impose EISA mandates	57	54.5	149.8	30.8	12.2	10.1	5.43	3.35
Impose EISA mandates and extend all credits and tariffs	61	75.4	173.4	41.3	16.4	13.1	7.50	4.70
Reference: Same (no EISA mandates, tariffs and credits all expire) but with high petroleum prices								
Extend all credits and tariffs	65	32.1			9.9			
Impose EISA mandates	65	10.9			3.8			
Impose EISA mandates and extend all credits and tariffs	65	33.9			10.4			

Introduction

The Energy Independence and Security Act (EISA, the 2007 energy bill) made a number of important changes in US biofuel policy. Previous legislation had set minimum levels of required biofuel use, but EISA increased the overall use mandate and established new mandates for various classes of biofuels. An earlier report[1] by the Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri–Columbia (MU) provided preliminary estimates of the impacts of selected EISA provisions relative to a set of baseline projections prepared in early 2007.

Market and policy developments warrant an updated look at biofuel policy issues. Since the 2007 FAPRI–MU baseline projections were prepared, petroleum prices have sharply increased. The 2008 FAPRI–MU baseline[2] reflects market information available in January 2008 and incorporates EISA provisions in its projections for biofuel and agricultural markets.

The Food, Conservation and Energy Act (FCEA, the 2008 farm bill) makes a number of changes in US biofuel policies. Two of those changes are examined in this report:

1. The $0.54 per gallon tariff on imports of ethanol from non-Caribbean countries is extended through 2010. Under previous legislation, this tariff was due to expire at the end of 2008.

2. The $0.51 per gallon tax credit available to those who blend ethanol with gasoline is reduced to $0.45 per gallon in 2009 and 2010. The tax credit is still scheduled to expire at the end of 2010.

The report also examines a variety of other issues related to US biofuel policy. The point of departure for the analysis is the 2008 FAPRI–MU stochastic baseline. The stochastic baseline is a set of 500 potential outcomes for agricultural and biofuel markets that share common policy assumptions, but that differ because of assumptions about the weather, petroleum prices, and a range of other factors that affect the supply and demand for agricultural and biofuel products.

The report examines a variety of scenarios that differ only in their assumptions about biofuel policies (table 2):

1. **Pre farm bill provisions**. The scenario assumes EISA provisions are in place, that the ethanol tariff expires at the end of 2008, and that the ethanol tax credit is $0.51 per gallon through 2010.

2. **Selected farm bill provisions**. The scenario also assumes EISA provisions are in place, that the ethanol tariff is extended until the end of 2010 and that the ethanol tax credit is reduced to $0.45 per gallon in 2009 and 2010.

[1] "The Energy Independence and Security Act of 2007: Preliminary Evaluation of Selected Provisions," FAPRI-MU Report #01-08, available at http://www.fapri.missouri.edu/outreach/publications/2008/FAPRI_MU_Report_01_08.pdf.
[2] "US Baseline Briefing Book: Projections for Agricultural and Biofuel Markets," FAPRI-MU Report #03-08, available at http://www.fapri.missouri.edu/outreach/publications/2008/FAPRI_MU_Report_03_08.pdf.

3. **EISA, credits, tariffs extended indefinitely**. The scenario assumes provisions of EISA and that biofuel tariffs and tax credits are maintained at their 2008 levels indefinitely.

4. **Credit reduced to $0.45/gallon**. The scenario assumes provisions of EISA and that biofuel tariffs and tax credits are maintained at their 2008 levels indefinitely, except the ethanol tax credit is reduced to $0.45 per gallon in 2009 and subsequent years.

5. **Tariff expires as scheduled**. The scenario assumes provisions of EISA and that biofuel tax credits are maintained at their 2008 levels indefinitely, but that the ethanol tariff expires at the end of 2008, as was scheduled prior to enactment of the farm bill.

6. **Ethanol credit expires as scheduled**. The scenario assumes provisions of EISA and that the ethanol tariff and the biodiesel tax credit are maintained at their 2008 levels indefinitely, but that the ethanol tax credit is maintained at $0.51 per gallon until it expires at the end of 2010, as provided prior to enactment of the farm bill.

7. **Biodiesel credit expires as scheduled.** The scenario assumes provisions of EISA and that the ethanol tariff and tax credit are maintained at their 2008 levels indefinitely, but that the biodiesel tax credit expires at the end of 2008 as scheduled.

8. **EISA, credits and tariffs expire**. The scenario assumes provisions of EISA remain in place, and that all biofuel tax credits and tariffs expire as scheduled prior to enactment of the farm bill (the end of 2008 for the ethanol tariff and the biodiesel tax credit and at the end of 2010 for the ethanol tax credit).

9. **No EISA, credits and tariffs extended**. The scenario assumes that biofuel tax credits and tariffs are maintained at their 2008 levels indefinitely, but that the biofuel use mandates of EISA are not enforced.

10. **No EISA, credits and tariffs expire**. The scenario assumes biofuel tax credits and tariffs expire as scheduled prior to enactment of the farm bill and that the biofuel use mandates of EISA are not enforced. This removes all biofuel support policies by the end of 2010.

11. **Ethanol tariff extended**. The scenario assumes biofuel tax credits expire as scheduled prior to enactment of the farm bill and the biofuel use mandates of EISA are not enforced, but that the ethanol tariff is extended indefinitely.

12. **Ethanol tax credit extended**. The scenario assumes the ethanol tariff and the biodiesel tax credits expire at the end of 2008 and the biofuel use mandates of EISA are not enforced, but that the ethanol tax credit is maintained at the 2008 level indefinitely.

13. **Biodiesel tax credit extended.** The scenario assumes the ethanol tariff and tax credit expire as scheduled prior to enactment of the farm bill and the biofuel use mandates of EISA are not enforced, but that the biodiesel tax credit is maintained at the 2008 level indefinitely.

Table 2. Scenario assumptions

	Pre farm bill provisions	Selected farm bill provisions	EISA, credits, tariffs extended indefinitely	Credit reduced to $0.45/gallon	Tariff expires as scheduled	Ethanol credit expires as scheduled	Biodiesel credit expires as scheduled
EISA mandates enforced?							
Yes	X	X	X	X	X	X	X
No							
Ethanol tax credit/gallon							
$0.51 to 2010, 0 from 2011 on	X					X	
$0.45 to 2010, 0 from 2011 on		X					
$0.51 extended indefinitely			X		X		X
$0.45 from 2009 on				X			
Ethanol specific tariff/gallon							
$0.54 in 2008, 0 from 2009 on	X				X		
$0.54 to 2010, 0 from 2011 on		X					
$0.54 extended indefinitely			X	X		X	X
Biodiesel credit/gallon							
$1.00 in 2008, 0 from 2009 on							X
$1.00 extended indefinitely	X*	X*	X	X	X	X	

* The biodiesel credit is set to expire at the end of 2008 under current law. The farm bill-related scenarios focus on changes in ethanol tariffs and tax credits, assuming biodiesel credits are extended indefinitely.

	EISA, credits and tariffs expire	No EISA, credits and tariffs extended	No EISA, credits and tariffs expire	Ethanol tariff extended	Ethanol tax credit extended	Biodiesel tax credit extended
EISA mandates enforced?						
Yes	X					
No		X	X	X	X	X
Ethanol tax credit/gallon						
$0.51 to 2010, 0 from 2011 on	X		X	X		X
$0.45 to 2010, 0 from 2011 on						
$0.51 extended indefinitely		X			X	
$0.45 from 2009 on						
Ethanol specific tariff/gallon						
$0.54 in 2008, 0 from 2009 on	X		X		X	X
$0.54 to 2010, 0 from 2011 on						
$0.54 extended indefinitely		X		X		
Biodiesel credit/gallon						
$1.00 in 2008, 0 from 2009 on	X		X	X	X	
$1.00 extended indefinitely		X				X

The report presents a series of pairwise comparisons of these scenarios to isolate impacts of particular policies or combinations of policies (table 3).

Table 3. Scenario comparisons

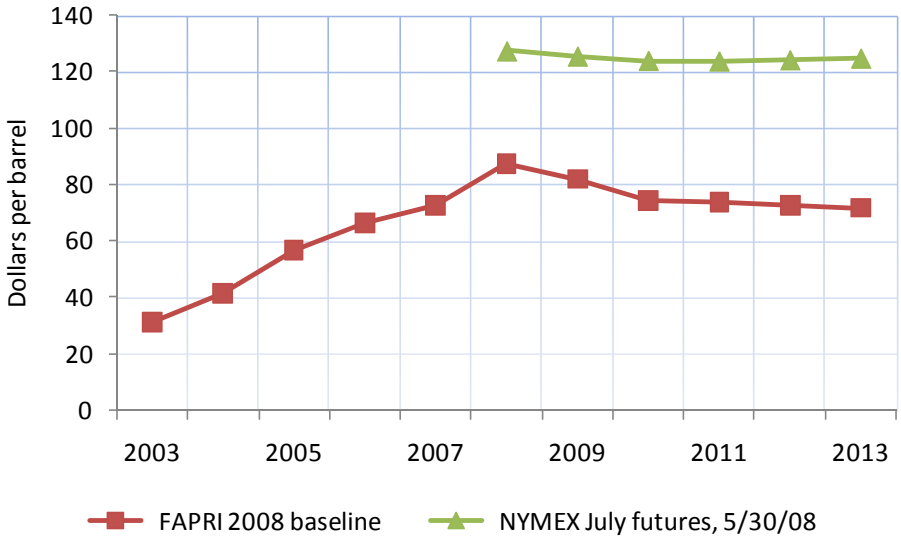
Baseline	Scenario	Measures impacts of	Page	Table
Pre farm bill provisions	Selected farm bill provisions	Farm bill changes in ethanol tariffs and tax credits	9	4
EISA, credits, tariffs extended indefinitely	Credit reduced to $0.45/gallon	Reducing the ethanol tax credit from $0.51 to $0.45	13	5
EISA, credits, tariffs extended indefinitely	Tariff expires as scheduled	Allowing the ethanol tariff to expire	17	6
EISA, credits, tariffs extended indefinitely	Ethanol credit expires as scheduled	Allowing the ethanol tax credit to expire	21	7
EISA, credits, tariffs extended indefinitely	Biodiesel credit expires as scheduled	Allowing the biodiesel tax credit to expire	25	8
EISA, credits, tariffs extended indefinitely	EISA, credits and tariffs expire	Allowing all biofuel tax credits and tariffs to expire	29	9
EISA, credits, tariffs extended indefinitely	No EISA, credits and tariffs extended	Removing EISA mandates	33	10
EISA, credits, tariffs extended indefinitely	No EISA, credits and tariffs expire	Removing EISA mandates and allowing biofuel tax credits and tariffs to expire	37	11
No EISA, credits and tariffs expire	Ethanol tariff extended	Extending the ethanol tariff if no other biofuel policies are in place	41	12
No EISA, credits and tariffs expire	Ethanol tax credit extended	Extending the ethanol tax credit if no other biofuel policies are in place	45	13
No EISA, credits and tariffs expire	Biodiesel tax credit extended	Extending the biodiesel tax credit if no other biofuel policies are in place	49	14
No EISA, credits and tariffs expire	No EISA, credits and tariffs extended	Extending biofuel credits and tariffs if no other biofuel policies are in place	53	15
No EISA, credits and tariffs expire	EISA, credits and tariffs expire	Continuing EISA provisions if no other biofuel policies are in place	57	16
No EISA, credits and tariffs expire	EISA, credits, tariffs extended indefinitely	Continuing current biofuel policies relative to a no biofuel policy baseline	61	17

A major point of the analysis is that the impacts of various biofuel policy measures depend on what other policies are in place and the market context. Tax credits, tariffs, and mandates can be very important or almost irrelevant, depending on the context.

The question of market context is addressed through stochastic simulation. The results reported are averages of 500 stochastic outcomes. The comparisons addressing the changes in the farm bill focus on results for 2009 and 2010, the years directly affected by the legislated changes in the ethanol tariff and tax credit. For all the other comparisons, tables report average results for the 2011-2017 period.

The 2008 FAPRI–MU baseline is more current than the 2007 baseline used as the point of reference in the earlier report providing preliminary estimates of EISA effects. However, market and policy conditions are changing rapidly, and even the 2008 baseline already seems out of date in many respects. For example, futures prices for petroleum in late May 2008 were far above the levels assumed in the January 2008 baseline (figure 1). If these high prices persist, it will result in more biofuel production and make it less likely that EISA use mandates will be binding, all else equal. If the same scenarios examined in this report were conducted against a more current baseline, the impacts would likely be considerably different.

Figure 1. Petroleum price, West Texas Intermediate



Model results are very sensitive to petroleum price assumptions. The 500 outcomes of the stochastic analysis consider a wide range of possible petroleum prices. While the average of these West Texas Intermediate (WTI) petroleum prices declines from less than $87 per barrel in 2008 to less than $71 per barrel in 2017, at least some of the prices considered are much higher. Over the 2011-2017 period, the average refiner's acquisition price for petroleum (a price that is typically a few dollars per barrel below the WTI price) is $67 per barrel across all 500 outcomes, but $107 per barrel when considering only the 50 outcomes with the highest average petroleum prices. The final set of comparisons in the report illustrates how the impacts of various biofuel policy options depend on the price of petroleum (page 65).

Many modifications have been made in the model used to generate these results to accommodate biofuel policy changes and market developments. While the model has been considerably improved by these modifications, further refinements are constantly underway. Conducting these policy experiments has revealed some of the strengths and weaknesses of the existing model. For example, the results for distillers grains prices in many of the scenarios appear suspect—prices appear too sensitive to the level of distillers grain production, and not sensitive enough to the prices of competing feedstuffs. What has been learned from this exercise will be used to improve the model.

Effects of selected farm bill biofuel provisions

The 2008 farm bill includes a number of provisions that modify the way support is provided to the biofuels sector. For example, a new tax credit is provided to cellulosic ethanol producers, payments are made to producers of advanced biofuels, and funding is provided for biofuel research. The farm bill makes no changes in EISA mandates for biofuel use.

This analysis focuses on two provisions in Title XV of the bill:

1. Extension through 2010 of the $0.54 per gallon tariff on imports of ethanol from countries such as Brazil that do not qualify for special preferences. The tariff previously was due to expire at the end of 2008.

2. The reduction of the ethanol blender's tax credit from the current $0.51 per gallon to $0.45 per gallon in 2009 and 2010. The credit is still set to expire at the end of 2010.

Continuing the tariff and reducing the tax credit have offsetting effects on ethanol producer prices (table 4 and figures 2-5).

- If the tariff had expired at the end of 2008 and the tax credit continued, there would have been a strong incentive for Brazil to increase its exports of ethanol to the US in 2009. Net imports under this pre farm bill scenario exceed 2 billion gallons in 2009/10.

- Continuing the tariff at current levels discourages direct imports from Brazil, although there will continue to be imports from Caribbean countries that have the right to export ethanol to the US duty-free.

- Reducing the tax credit would reduce the price blenders would be willing to pay ethanol producers, all else equal.

- Results indicate that the continuation of the tariff has a larger impact than the modest reduction in the tax credit. By reducing imports, the extension of the tariff raises the price of ethanol by more than enough to offset the effect of reducing the tax credit.

- The 3.3 percent increase in the producer price of ethanol in 2009/10 contributes to a 4.2 percent increase in ethanol production relative to the pre farm bill scenario.

- The increase in ethanol production increases demand for corn, raising corn prices by 1.7 percent in 2009/10. Higher corn prices contribute to higher prices for soybeans, wheat, and other competing crops.

- Livestock sector effects are small in the short run.

- Higher crop prices translate into increased crop receipts that are partially offset by increases in crop and livestock production expenses. Net farm income increases by $0.32 billion in 2009 relative to the pre farm bill scenario.

- Consumer food expenditures increase by $0.11 billion in 2009 because of the increase in farm commodity prices.

Figure 2. Ethanol policy assumptions, 2009 and 2010

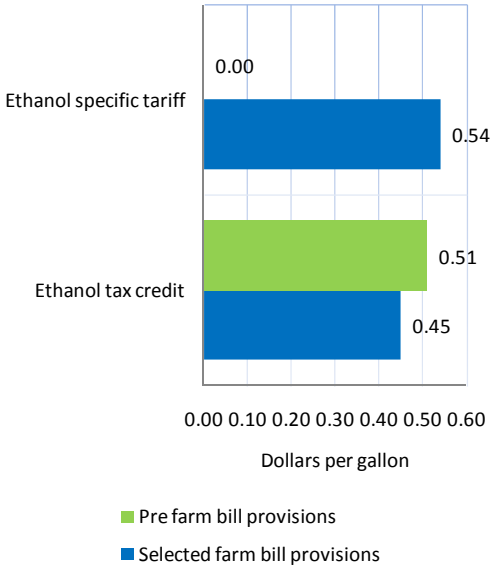


Figure 3. Ethanol supply and use, 2009/10

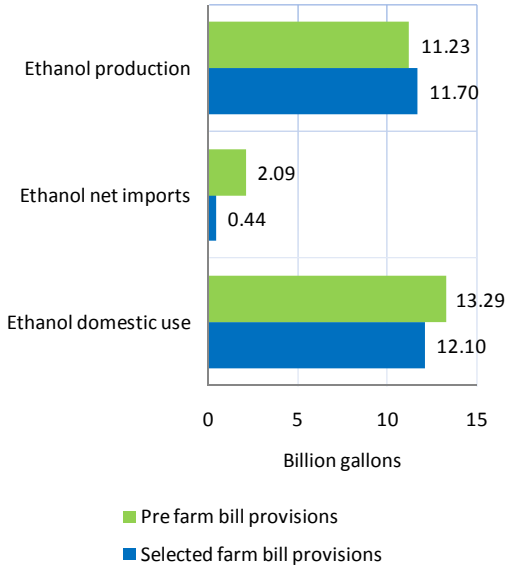


Figure 4. Ethanol and crop producer prices, 2009/10 change from pre farm bill scenario

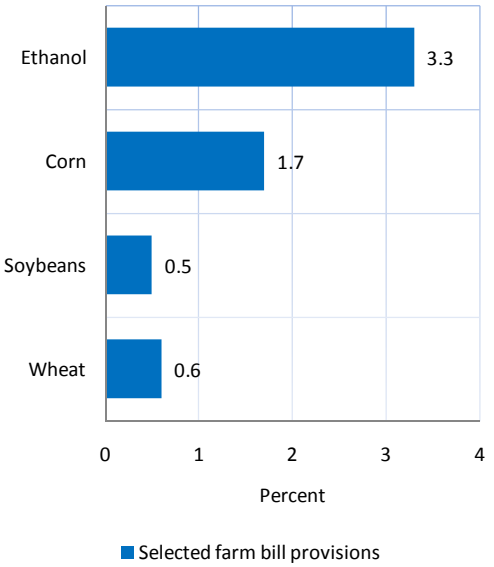


Figure 5. Farm income and consumer food expenditures, 2009 change from pre farm bill scenario

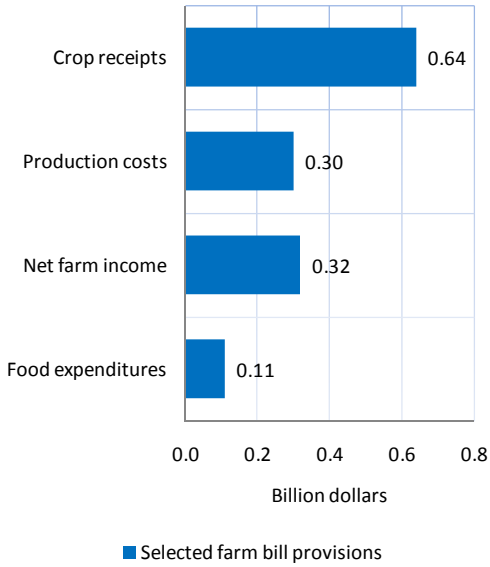


Table 4a. Effects of selected farm bill biofuel provisions*

	Pre farm bill provisions	Selected farm bill provisions	Absolute difference	Percentage difference
Tax and tariff provisions				
Ethanol tax credit		(Dollars per gallon)		
2008	0.51	0.51	0.00	0.0%
2009 and 2010	0.51	0.45	-0.06	-11.8%
Ethanol specific tariff				
2008	0.54	0.54	0.00	0.0%
2009 and 2010	0.00	0.54	0.54	n.a.
Ethanol sector results				
Ethanol production		(Billion gallons)		
2008/09	10.88	11.05	0.17	1.5%
2009/10	11.23	11.70	0.47	4.2%
Ethanol net imports				
2008/09	1.53	0.47	-1.06	-69.3%
2009/10	2.09	0.44	-1.65	-79.0%
Ethanol domestic disappearance				
2008/09	12.30	11.39	-0.90	-7.3%
2009/10	13.29	12.10	-1.19	-9.0%
Ethanol rack price, Omaha		(Dollars per gallon)		
2008/09	1.92	1.95	0.04	1.9%
2009/10	1.80	1.86	0.06	3.3%
Dry mill returns over operating costs				
2008/09	0.32	0.35	0.02	7.3%
2009/10	0.21	0.24	0.03	14.3%
Corn sector results				
Corn acreage planted		(Million acres)		
2009	92.08	92.38	0.30	0.3%
Corn production		(Billion bushels)		
2009	13.13	13.17	0.04	0.3%
Corn ethanol use				
2008/09	3.91	3.97	0.06	1.5%
2009/10	4.02	4.19	0.17	4.2%
Corn feed use				
2008/09	5.53	5.50	-0.03	-0.5%
2009/10	5.46	5.40	-0.06	-1.1%
Corn exports				
2008/09	2.15	2.14	-0.01	-0.7%
2009/10	2.30	2.25	-0.04	-1.9%
Corn farm price		(Dollars per bushel)		
2008/09	3.87	3.90	0.03	0.7%
2009/10	3.85	3.92	0.06	1.7%

* In the scenario labeled "Pre farm bill provisions," the ethanol specific tariff expires at the end of 2008 but EISA and other biofuel policies in effect in 2008 remain in place indefinitely. Figures represent an average of stochastic outcomes.

Table 4b. Effects of selected farm bill biofuel provisions, continued*

	Pre farm bill provisions	Selected farm bill provisions	Absolute difference	Percentage difference
Crop sector prices				
Corn farm price		(Dollars per bushel)		
2008/09	3.87	3.90	0.03	0.7%
2009/10	3.85	3.92	0.06	1.7%
Soybean farm price				
2008/09	10.58	10.58	0.00	0.0%
2009/10	9.75	9.80	0.05	0.5%
Wheat farm price				
2008/09	5.28	5.29	0.01	0.2%
2009/10	5.20	5.23	0.03	0.6%
Soymeal price, 48% protein		(Dollars per ton)		
2008/09	276.00	275.98	-0.02	0.0%
2009/10	245.69	246.40	0.71	0.3%
Meat and milk production, 2009		(Billion pounds)		
Beef production	26.82	26.82	0.00	0.0%
Pork production	22.79	22.79	0.00	0.0%
Broiler production	36.89	36.88	-0.01	0.0%
Milk production	192.98	192.96	-0.01	0.0%
Livestock and dairy prices, 2009		(Dollars per hundredweight)		
Steers, Nebraska direct	91.91	91.94	0.03	0.0%
Barrows & gilts, 51-52% lean	47.17	47.20	0.03	0.1%
Broilers, 12-city wholesale	74.17	74.22	0.05	0.1%
All milk	17.16	17.16	0.00	0.0%
Farm income measures, 2009		(Billion dollars)		
Crop receipts	164.23	164.87	0.64	0.4%
Livestock receipts	136.02	136.05	0.03	0.0%
Government payments	10.17	10.16	0.00	0.0%
Production costs	276.49	276.79	0.30	0.1%
Net farm income	83.45	83.77	0.32	0.4%
		(Dollars per acre)		
Value of farm real estate, Jan. 1, 2010	2,616	2,620	3.98	0.2%
		(Billion dollars)		
Farm program outlays, fiscal year 2009	10.34	10.33	-0.01	-0.1%
Consumer food expenditures, 2009	843.28	843.39	0.11	0.0%

* In the scenario labeled "Pre farm bill provisions," the ethanol specific tariff expires at the end of 2008 but EISA and other biofuel policies in effect in 2008 remain in place indefinitely. Figures represent an average of stochastic outcomes.

Effects of reducing the ethanol tax credit to $0.45 per gallon

As indicated in the previous section, the farm bill reduction in the ethanol tax credit, and the extension of the ethanol tariff, have offsetting near-term effects on biofuel production and agricultural markets. To isolate the impact of the reduction in the tax credit and to examine longer-run effects, a scenario that reduces the ethanol tax credit to $0.45 per gallon for the indefinite future is compared to a scenario that maintains the tax credit at $0.51 per gallon.

Reducing the tax credit has only small impacts on markets (table 5 and figures 6-9).

- The $0.06 per gallon reduction in the ethanol blender's tax credit reduces the incentive to blend ethanol with gasoline. All else equal, this would reduce the demand for ethanol and lower ethanol producer prices.

- Assuming EISA remains in place, however, use of ethanol cannot drop below levels implied by EISA use mandates. Given the assumptions of the analysis, these use mandates are binding in many of the stochastic outcomes.

- When EISA use mandates are binding, lowering the tax credit for ethanol use does not reduce ethanol consumption. Instead, it shifts part of the burden of the mandate away from taxpayers and toward suppliers of blended fuels and ultimately fuel consumers.

- The reported average effects reflect a mix of outcomes where EISA mandates are binding and where they are not. When mandates are not binding, reducing the tax credit does reduce the demand for ethanol and, therefore, ethanol prices.

- All of the average effects reported are very small. Producer prices for ethanol over the 2011-2017 period fall relative to the constant policy scenario by an average of just $0.01 per gallon.

- The slight reduction in producer prices for ethanol results in less than a one percent reduction in ethanol production and net imports.

- The slight decline in ethanol production results in marginally lower corn prices, crop receipts, net farm income, and consumer food expenditures.

Figure 6. Ethanol policy assumptions, 2011-2017

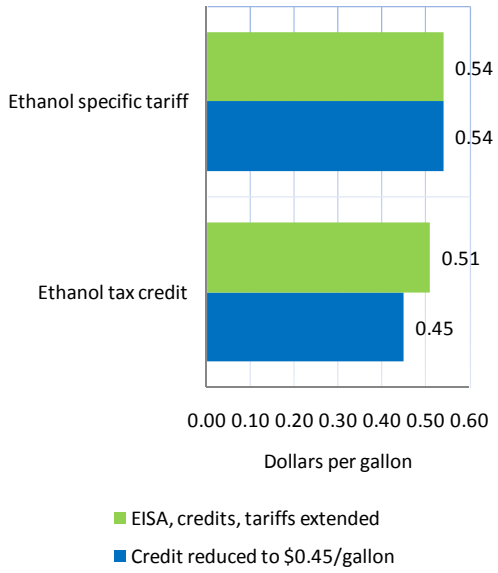


Figure 7. Ethanol supply and use, 2011-2017 average

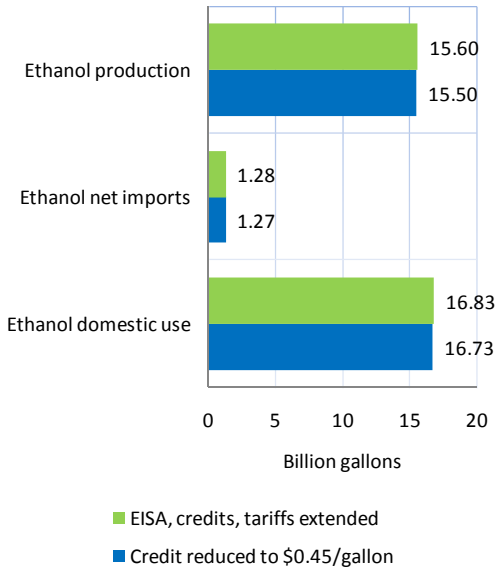


Figure 8. Ethanol and crop producer prices, 2011-2017 average change from 2008 policy scenario

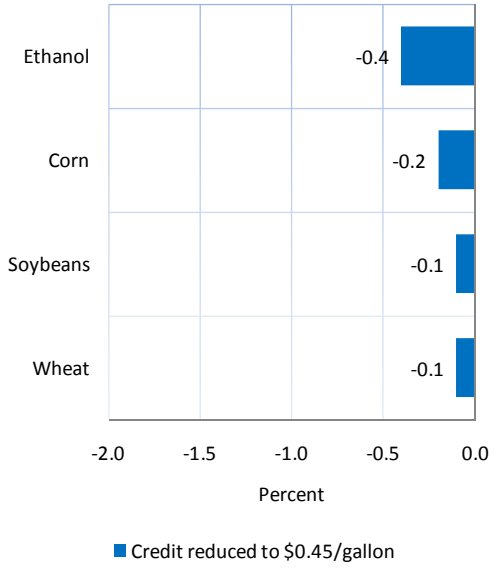


Figure 9. Farm income and consumer food expenditures, 2011-2017 average change from 2008 policy scenario

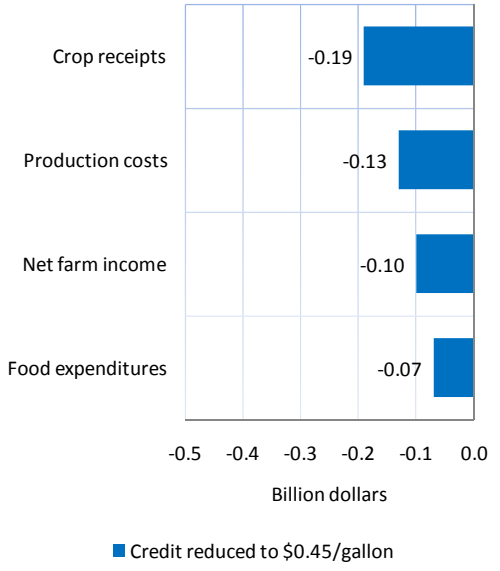


Table 5a. Effects of reducing the ethanol tax credit from $0.51 per gallon to $0.45 per gallon*

	EISA, credits, tariffs extended indefinitely	Credit reduced to $0.45/gallon	Absolute difference	Percentage difference
Tax and tariff provisions		(Dollars per gallon)		
Ethanol tax credit	0.51	0.45	-0.06	-11.8%
Biodiesel tax credit (pre-consumer oils)	1.00	1.00	0.00	0.0%
Ethanol specific tariff	0.54	0.54	0.00	0.0%
Biofuel sector results		(Billion gallons)		
Ethanol production	15.60	15.50	-0.10	-0.6%
Ethanol net imports	1.28	1.27	-0.01	-0.7%
Ethanol domestic disappearance	16.83	16.73	-0.10	-0.6%
Biodiesel production	1.11	1.11	0.00	0.0%
		(Dollars per gallon)		
Ethanol price, conventional rack, Omaha	1.99	1.98	-0.01	-0.4%
Ethanol effective retail price	1.89	1.90	0.00	0.2%
Dry mill returns over operating costs	0.36	0.36	0.00	-1.2%
Biodiesel rack price	5.11	5.11	0.00	-0.1%
Biodiesel returns over operating costs	0.12	0.12	0.00	0.2%
Corn sector supply and use		(Billion bushels)		
Corn production	14.60	14.58	-0.02	-0.1%
Corn ethanol use	5.08	5.05	-0.03	-0.6%
Corn feed use	5.41	5.41	0.01	0.1%
Corn exports	2.68	2.68	0.01	0.3%
Soybean sector supply and use		(Billion bushels)		
Soybean production	3.14	3.14	0.00	0.1%
Soybean crush	2.13	2.13	0.00	0.0%
Soybean exports	0.83	0.83	0.00	0.2%
		(Billion pounds)		
Soyoil biodiesel use	7.52	7.52	0.00	0.1%
Soyoil other domestic use	15.80	15.80	0.00	0.0%
Soyoil exports	1.08	1.08	0.00	-0.1%
Crop planted acreage		(Million acres)		
Corn	95.31	95.19	-0.11	-0.1%
Soybeans	70.57	70.61	0.05	0.1%
Wheat	56.99	57.00	0.01	0.0%
9 other crops plus hay	94.20	94.21	0.01	0.0%
Conservation reserve area	29.80	29.82	0.02	0.1%
12 crops + hay + CRP	346.86	346.83	-0.03	0.0%
Crop sector prices		(Dollars per bushel)		
Corn farm price	3.94	3.94	-0.01	-0.2%
Soybean farm price	10.25	10.24	-0.01	-0.1%
Wheat farm price	5.46	5.45	-0.01	-0.1%
		(Cents per pound)		
Upland cotton farm price	62.09	62.08	-0.01	0.0%
Soybean oil market price, Decatur	57.94	57.89	-0.05	-0.1%
		(Dollars per ton)		
Soymeal price, 48% protein	222.41	222.25	-0.16	-0.1%
Distillers grain price, Indiana	134.11	134.56	0.45	0.3%

*Assumes EISA and other 2008 policies remain in place. Figures represent average of stochastic results for 2011-2017.

Table 5b. Effects of reducing the ethanol tax credit from $0.51 per gallon to $0.45 per gallon, continued*

	EISA, credits, tariffs extended indefinitely	Credit reduced to $0.45/gallon	Absolute difference	Percentage difference
Meat and milk production		(Billion pounds)		
Beef production	28.36	28.36	0.00	0.0%
Pork production	23.93	23.94	0.01	0.0%
Broiler production	39.20	39.20	0.01	0.0%
Milk production	206.44	206.45	0.01	0.0%
Livestock and dairy prices		(Dollars per hundredweight)		
Steers, Nebraska direct	92.39	92.37	-0.02	0.0%
Barrows & gilts, 51-52% lean	52.95	52.91	-0.03	-0.1%
Broilers, 12-city wholesale	76.85	76.81	-0.04	-0.1%
All milk	16.87	16.86	0.00	0.0%
Farm income		(Billion dollars)		
Crop receipts	179.78	179.59	-0.19	-0.1%
Livestock receipts	146.32	146.28	-0.04	0.0%
Government payments	10.66	10.66	0.00	0.0%
Rent to non-operator landlords	15.27	15.23	-0.04	-0.3%
Other production expenses	287.93	287.84	-0.09	0.0%
Total production expenses	303.20	303.07	-0.13	0.0%
Other net farm income	54.16	54.14	-0.01	0.0%
Net farm income	87.72	87.61	-0.10	-0.1%
		(Dollars per acre)		
Value of farm real estate	3,001	2,999	-2.58	-0.1%
Farm program outlays		(Billion dollars)		
Marketing loans (crop year basis)	0.30	0.30	0.00	0.2%
Countercyclical payments (crop year)	0.50	0.50	0.00	0.2%
Net CCC outlays (fiscal year basis)	9.92	9.92	0.00	0.0%
		(Billion dollars)		
Consumer food expenditures	951.05	950.98	-0.07	0.0%

*Assumes EISA and other 2008 policies remain in place. Figures represent average of stochastic results for 2011-2017.

Effects of allowing the ethanol tariff to expire

Prior to enactment of the 2008 farm bill, the $0.54 per gallon ethanol tariff was scheduled to expire at the end of 2008. To measure the impacts of allowing the ethanol tariff to expire, a scenario that allows the tariff to expire is compared to a scenario that maintains the tariff indefinitely.

Allowing the ethanol tariff to expire results in more imports and reduced US ethanol production (table 6 and figures 10-13).

- When the ethanol tariff is eliminated, ethanol imports from Brazil become attractive. Ethanol net imports more than double over the 2011-2017 period if tariffs expire as compared to the case where they are extended.

- EISA places a floor under biofuel use that is often binding after 2010 under an extension of 2008 policies. Without the tariff, imports become a more affordable way to satisfy the use mandates. When the mandates are binding, the increase in ethanol imports largely displaces domestic ethanol production rather than increasing total biofuel consumption.

- If petroleum prices are high enough and corn supplies are large enough, ethanol consumption may exceed the use mandates. In cases where the mandates are not binding, eliminating the ethanol tariff results in both an increase in ethanol consumption and a reduction of domestic ethanol production.

- Averaging across a range of possible outcomes, allowing the tariff to expire reduces the producer price of ethanol by $0.10 per gallon. This reduction in ethanol prices reduces producer returns and contributes to the 1.3 billion gallon average reduction in ethanol production.

- Reduced production of ethanol lowers demand for corn, resulting in a 2.5 percent average reduction in corn prices. Soybean and wheat prices both fall by about one percent.

- Lower prices for corn and soybean meal lower livestock production costs. This results in small increases in livestock, poultry and dairy production and lower prices for meat and milk. Price reductions average less than one percent.

- Crop receipts decline by an average of $2.1 billion and livestock receipts also decline by $0.5 billion. Lower costs for feed and rental payments to nonoperator landlords contribute to a $1.6 billion reduction in average annual farm production expenses. Net farm income declines by an average of $1.1 billion.

- Lower commodity prices contribute to a modest $0.9 billion reduction in consumer food expenditures.

Figure 10. Ethanol policy assumptions, 2011-2017

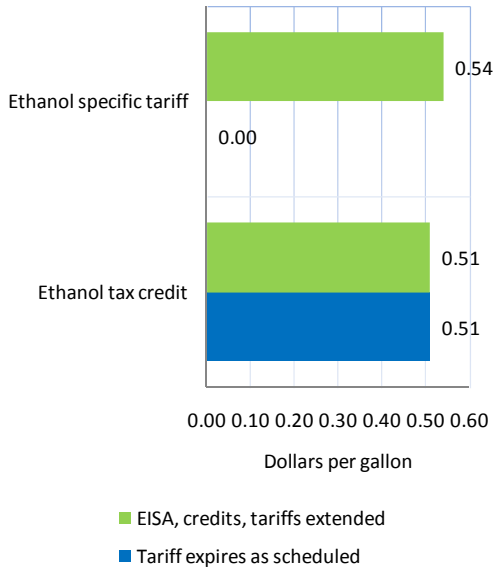


Figure 11. Ethanol supply and use, 2011-2017 average

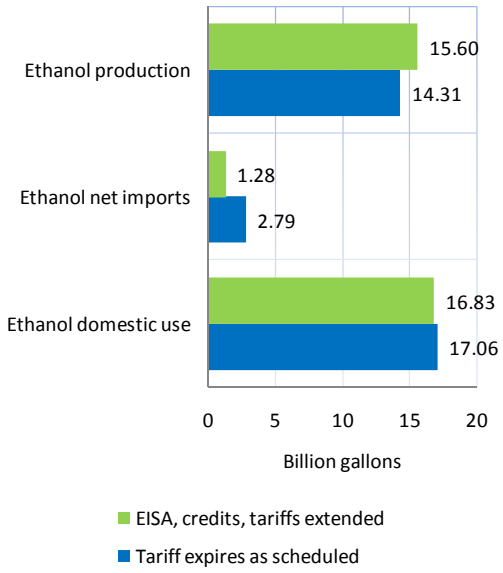


Figure 12. Ethanol and crop producer prices, 2011-2017 average change from 2008 policy scenario

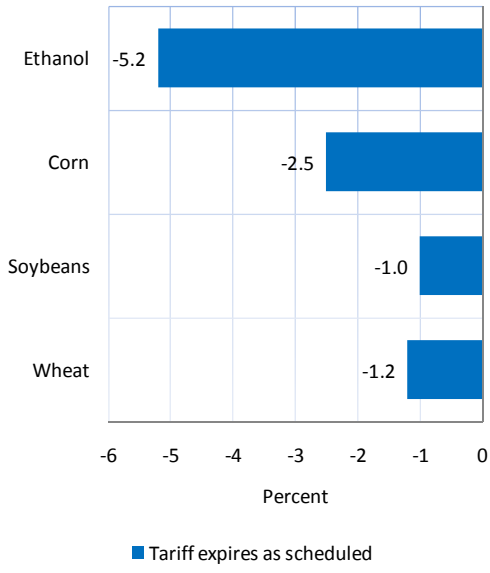


Figure 13. Farm income and consumer food expenditures, 2011-2017 average change from 2008 policy scenario

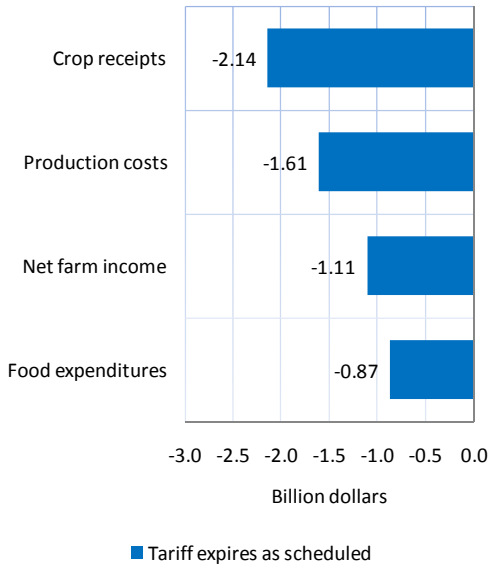


Table 6a. Effects of allowing the ethanol tariff to expire*

	EISA, credits, tariffs extended indefinitely	Tariff expires as scheduled	Absolute difference	Percentage difference
Tax and tariff provisions		(Dollars per gallon)		
Ethanol tax credit	0.51	0.51	0.00	0.0%
Biodiesel tax credit (pre-consumer oils)	1.00	1.00	0.00	0.0%
Ethanol specific tariff	0.54	0.00	-0.54	-100.0%
Biofuel sector results		(Billion gallons)		
Ethanol production	15.60	14.31	-1.29	-8.3%
Ethanol net imports	1.28	2.79	1.51	118.2%
Ethanol domestic disappearance	16.83	17.06	0.22	1.3%
Biodiesel production	1.11	1.11	0.01	0.5%
		(Dollars per gallon)		
Ethanol price, conventional rack, Omaha	1.99	1.89	-0.10	-5.2%
Ethanol effective retail price	1.89	1.88	-0.01	-0.5%
Dry mill returns over operating costs	0.36	0.31	-0.05	-14.5%
Biodiesel rack price	5.11	5.08	-0.04	-0.7%
Biodiesel returns over operating costs	0.12	0.13	0.00	2.2%
Corn sector supply and use		(Billion bushels)		
Corn production	14.60	14.40	-0.21	-1.4%
Corn ethanol use	5.08	4.68	-0.40	-7.9%
Corn feed use	5.41	5.50	0.09	1.7%
Corn exports	2.68	2.78	0.10	3.8%
Soybean sector supply and use		(Billion bushels)		
Soybean production	3.14	3.16	0.02	0.7%
Soybean crush	2.13	2.14	0.01	0.3%
Soybean exports	0.83	0.85	0.01	1.7%
		(Billion pounds)		
Soyoil biodiesel use	7.52	7.56	0.05	0.6%
Soyoil other domestic use	15.80	15.83	0.04	0.2%
Soyoil exports	1.08	1.07	-0.01	-1.2%
Crop planted acreage		(Million acres)		
Corn	95.31	93.96	-1.35	-1.4%
Soybeans	70.57	71.06	0.49	0.7%
Wheat	56.99	57.07	0.08	0.1%
9 other crops plus hay	94.20	94.29	0.09	0.1%
Conservation reserve area	29.80	30.06	0.27	0.9%
12 crops + hay + CRP	346.86	346.44	-0.43	-0.1%
Crop sector prices		(Dollars per bushel)		
Corn farm price	3.94	3.85	-0.10	-2.5%
Soybean farm price	10.25	10.15	-0.11	-1.0%
Wheat farm price	5.46	5.39	-0.07	-1.2%
		(Cents per pound)		
Upland cotton farm price	62.09	61.93	-0.16	-0.3%
Soybean oil market price, Decatur	57.94	57.44	-0.50	-0.9%
		(Dollars per ton)		
Soymeal price, 48% protein	222.41	221.08	-1.33	-0.6%
Distillers grain price, Indiana	134.11	140.08	5.97	4.5%

*Assumes EISA and other 2008 policies remain in place. Figures represent average of stochastic results for 2011-2017.

Table 6b. Effects of allowing the ethanol tariff to expire, continued*

	EISA, credits, tariffs extended indefinitely	Tariff expires as scheduled	Absolute difference	Percentage difference
Meat and milk production		(Billion pounds)		
Beef production	28.36	28.36	0.00	0.0%
Pork production	23.93	24.02	0.09	0.4%
Broiler production	39.20	39.30	0.11	0.3%
Milk production	206.44	206.57	0.13	0.1%
Livestock and dairy prices		(Dollars per hundredweight)		
Steers, Nebraska direct	92.39	92.11	-0.28	-0.3%
Barrows & gilts, 51-52% lean	52.95	52.50	-0.45	-0.9%
Broilers, 12-city wholesale	76.85	76.34	-0.51	-0.7%
All milk	16.87	16.84	-0.03	-0.2%
Farm income		(Billion dollars)		
Crop receipts	179.78	177.64	-2.14	-1.2%
Livestock receipts	146.32	145.79	-0.53	-0.4%
Government payments	10.66	10.70	0.04	0.4%
Rent to non-operator landlords	15.27	14.80	-0.47	-3.1%
Other production expenses	287.93	286.79	-1.13	-0.4%
Total production expenses	303.20	301.59	-1.61	-0.5%
Other net farm income	54.16	54.07	-0.09	-0.2%
Net farm income	87.72	86.60	-1.11	-1.3%
		(Dollars per acre)		
Value of farm real estate	3,001	2,971	-29.99	-1.0%
Farm program outlays		(Billion dollars)		
Marketing loans (crop year basis)	0.30	0.31	0.01	3.0%
Countercyclical payments (crop year)	0.50	0.51	0.01	2.4%
Net CCC outlays (fiscal year basis)	9.92	9.97	0.05	0.5%
		(Billion dollars)		
Consumer food expenditures	951.05	950.18	-0.87	-0.1%

*Assumes EISA and other 2008 policies remain in place. Figures represent average of stochastic results for 2011-2017.

Effects of allowing the ethanol tax credit to expire

The ethanol blender's tax credit is currently $0.51 per gallon, although the 2008 farm bill reduces the rate to $0.45 per gallon. To measure the impacts of allowing the ethanol tax credit to expire, a scenario that allows the credit to expire as scheduled in 2010 is compared to a scenario that maintains the tax credit indefinitely.

Allowing the ethanol tax credit to expire slightly reduces the consumption of ethanol (table 7 and figures 14-17).

- Allowing the ethanol blender's tax credit to expire means, all else equal, that ethanol blenders would have to charge more to ethanol consumers and pay less to ethanol producers.

- If the price of ethanol blends at the retail level is largely determined by gasoline prices, one might expect much of the adjustment to be reflected in lower producer prices for ethanol.

- EISA mandates dramatically change the picture. Since the mandates require a certain level of biofuel consumption, producer prices of ethanol must be adequate to encourage enough supplies to meet the mandate.

- When the mandates are binding, the main effect of allowing the tax credit to expire is to shift the burden of the mandate from taxpayers (because of the fiscal cost of the tax credit) to gasoline consumers (who will pay a higher cost for fuel than they would with the tax credit in place).

- Because the EISA use mandates are binding most of the time after 2010, the estimated net impact on ethanol producer prices is modest. The average producer price of ethanol over the 2011-2017 period falls just $0.03 per gallon from the level that results from extending 2008 policies indefinitely. The price paid by ethanol consumers rises by $0.04 per gallon.

- With only a modest reduction in average ethanol prices, ethanol production declines by just 2.6 percent. Lower ethanol production results in modest reductions in prices for corn and other crops.

- Livestock sector impacts are small, given the modest reduction in prices for corn and soybean meal.

- Crop receipts decline by an average of $0.9 billion and net farm income falls by $0.5 billion.

- Lower commodity prices contribute to a slight $0.3 billion reduction in consumer food expenditures.

- Results of eliminating the ethanol tax credit would be much larger if EISA mandates were not in place or were not binding. Binding mandates and tax credits provide redundant support—removing one of the two has only a modest impact on biofuel production, but removing both simultaneously has much larger impacts.

Figure 14. Ethanol policy assumptions, 2011-2017

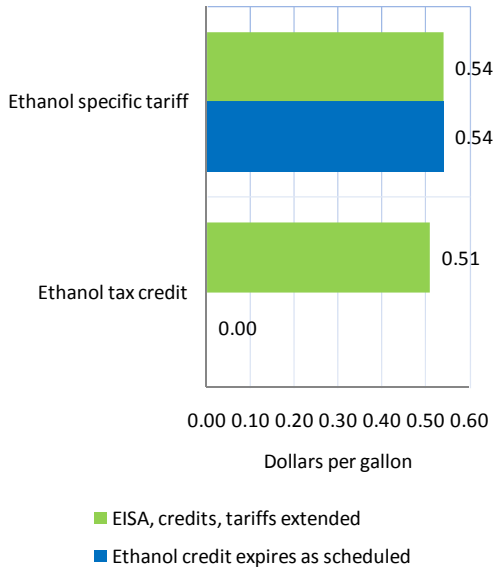


Figure 15. Ethanol supply and use, 2011-2017 average

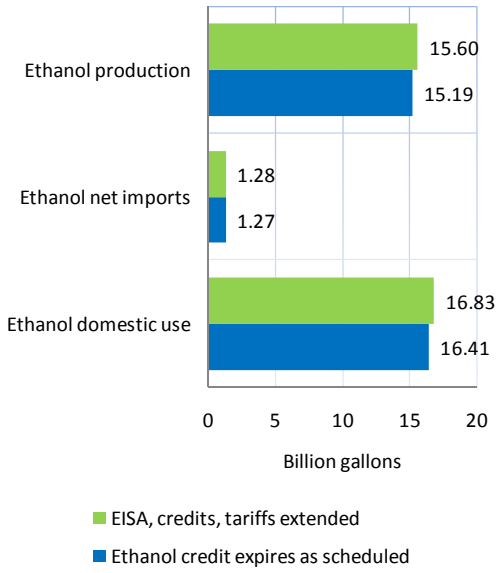


Figure 16. Ethanol and crop producer prices, 2011-2017 average change from 2008 policy scenario

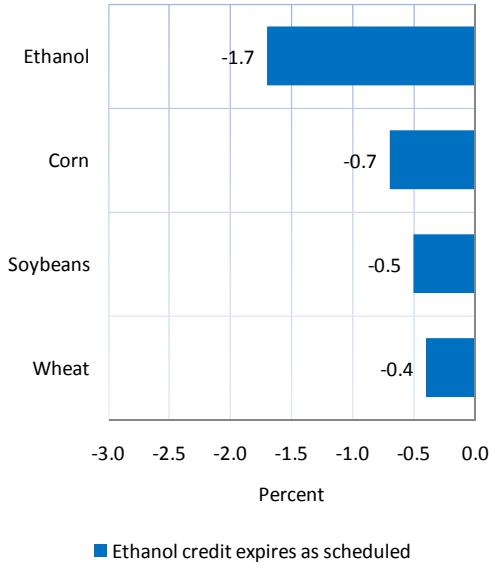


Figure 17. Farm income and consumer food expenditures, 2011-2017 average change from 2008 policy scenario

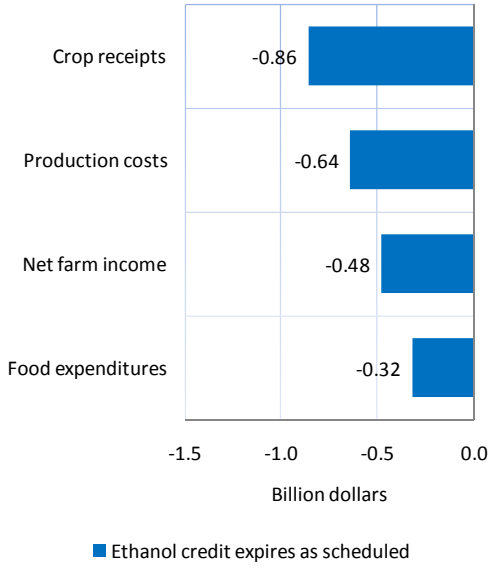


Table 7a. Effects of allowing the ethanol tax credit to expire*

	EISA, credits, tariffs extended indefinitely	Ethanol credit expires as scheduled	Absolute difference	Percentage difference
Tax and tariff provisions		(Dollars per gallon)		
Ethanol tax credit	0.51	0.00	-0.51	-100.0%
Biodiesel tax credit (pre-consumer oils)	1.00	1.00	0.00	0.0%
Ethanol specific tariff	0.54	0.54	0.00	0.0%
Biofuel sector results		(Billion gallons)		
Ethanol production	15.60	15.19	-0.41	-2.6%
Ethanol net imports	1.28	1.27	-0.01	-0.6%
Ethanol domestic disappearance	16.83	16.41	-0.42	-2.5%
Biodiesel production	1.11	1.11	0.00	0.2%
		(Dollars per gallon)		
Ethanol price, conventional rack, Omaha	1.99	1.96	-0.03	-1.7%
Ethanol effective retail price	1.89	1.93	0.04	1.9%
Dry mill returns over operating costs	0.36	0.34	-0.02	-4.9%
Biodiesel rack price	5.11	5.10	-0.02	-0.3%
Biodiesel returns over operating costs	0.12	0.12	0.00	0.8%
Corn sector supply and use		(Billion bushels)		
Corn production	14.60	14.52	-0.09	-0.6%
Corn ethanol use	5.08	4.94	-0.14	-2.7%
Corn feed use	5.41	5.43	0.03	0.5%
Corn exports	2.68	2.71	0.04	1.3%
Soybean sector supply and use		(Billion bushels)		
Soybean production	3.14	3.15	0.01	0.3%
Soybean crush	2.13	2.13	0.00	0.1%
Soybean exports	0.83	0.84	0.01	0.7%
		(Billion pounds)		
Soyoil biodiesel use	7.52	7.54	0.02	0.2%
Soyoil other domestic use	15.80	15.81	0.02	0.1%
Soyoil exports	1.08	1.08	-0.01	-0.5%
Crop planted acreage		(Million acres)		
Corn	95.31	94.75	-0.56	-0.6%
Soybeans	70.57	70.80	0.23	0.3%
Wheat	56.99	57.03	0.04	0.1%
9 other crops plus hay	94.20	94.23	0.03	0.0%
Conservation reserve area	29.80	29.91	0.11	0.4%
12 crops + hay + CRP	346.86	346.72	-0.15	0.0%
Crop sector prices		(Dollars per bushel)		
Corn farm price	3.94	3.91	-0.03	-0.7%
Soybean farm price	10.25	10.20	-0.05	-0.5%
Wheat farm price	5.46	5.43	-0.02	-0.4%
		(Cents per pound)		
Upland cotton farm price	62.09	62.02	-0.07	-0.1%
Soybean oil market price, Decatur	57.94	57.73	-0.21	-0.4%
		(Dollars per ton)		
Soymeal price, 48% protein	222.41	221.68	-0.73	-0.3%
Distillers grain price, Indiana	134.11	136.10	2.00	1.5%

*Assumes EISA and other 2008 policies remain in place. Figures represent average of stochastic results for 2011-2017.

Table 7b. Effects of allowing the ethanol tax credit to expire, continued*

	EISA, credits, tariffs extended indefinitely	Ethanol credit expires as scheduled	Absolute difference	Percentage difference
Meat and milk production		(Billion pounds)		
Beef production	28.36	28.36	0.00	0.0%
Pork production	23.93	23.96	0.03	0.1%
Broiler production	39.20	39.24	0.04	0.1%
Milk production	206.44	206.49	0.04	0.0%
Livestock and dairy prices		(Dollars per hundredweight)		
Steers, Nebraska direct	92.39	92.29	-0.09	-0.1%
Barrows & gilts, 51-52% lean	52.95	52.79	-0.16	-0.3%
Broilers, 12-city wholesale	76.85	76.66	-0.19	-0.3%
All milk	16.87	16.86	-0.01	-0.1%
Farm income		(Billion dollars)		
Crop receipts	179.78	178.92	-0.86	-0.5%
Livestock receipts	146.32	146.13	-0.19	-0.1%
Government payments	10.66	10.67	0.01	0.1%
Rent to non-operator landlords	15.27	15.08	-0.19	-1.3%
Other production expenses	287.93	287.48	-0.45	-0.2%
Total production expenses	303.20	302.56	-0.64	-0.2%
Other net farm income	54.16	54.07	-0.08	-0.2%
Net farm income	87.72	87.24	-0.48	-0.5%
		(Dollars per acre)		
Value of farm real estate	3,001	2,988	-13.13	-0.4%
Farm program outlays		(Billion dollars)		
Marketing loans (crop year basis)	0.30	0.30	0.00	1.0%
Countercyclical payments (crop year)	0.50	0.50	0.00	1.0%
Net CCC outlays (fiscal year basis)	9.92	9.94	0.02	0.2%
		(Billion dollars)		
Consumer food expenditures	951.05	950.72	-0.32	0.0%

*Assumes EISA and other 2008 policies remain in place. Figures represent average of stochastic results for 2011-2017.

Effects of allowing the biodiesel tax credit to expire

The blender's credit for biodiesel made from pre-consumer fats and oils is currently $1.00 per gallon. To measure the impacts of allowing the biodiesel tax credit to expire, a scenario that allows the credit to expire as scheduled in 2008 is compared to an extension.

Allowing the biodiesel tax credit to expire reduces biodiesel production and use (table 8 and figures 18-21).

- All else equal, allowing the biodiesel tax credit to expire would mean that biodiesel blenders would have to charge more to biodiesel consumers and pay less to biodiesel producers.

- As in the case of the ethanol blender's credit, were it not for EISA use mandates, one would expect the expiration of the biodiesel tax credit to result in sharply lower producer prices for biodiesel.

- Because EISA mandates require a billion gallons of biodiesel consumption by 2012, producer prices of biodiesel must be adequate to encourage sufficient production to meet the mandate.

- The biodiesel use mandate is expected to be binding in almost all cases. Thus, the main effect of allowing the tax credit to expire is to shift the burden of paying for the mandate from taxpayers to blended diesel fuel consumers, as with ethanol credit expiration.

- The only reason the removal of the biodiesel credit has any significant effect on biodiesel producer prices is because of biodiesel trade with Europe. Removing the credit makes US biodiesel less competitive in European markets, and net exports of biodiesel (not shown in the table) sharply decline.

- The average producer price of biodiesel is reduced by an average of 5.6 percent. The profitability of biodiesel production declines, even though the price of soybean oil also declines by more than five percent.

- Lower soybean oil prices reduce the profitability of crushing soybeans. The resulting reduction in soybean crush reduces soybean prices but increases soybean meal prices.

- The increase in soybean meal prices means that production costs increase for chicken and hog producers, in spite of slightly lower corn prices. This results in a slight reduction in broiler and pork production and a slight increase in meat prices.

- Crop receipts decline by an average of $0.6 billion and feed and other production costs increase. Livestock receipts increase, but net farm income still falls by $0.4 billion.

- Consumer food expenditures decline marginally, as higher prices for meats are more than offset by lower prices for vegetable oils and other products.

- As with ethanol, impacts would be much larger if EISA mandates were not binding.

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Figure 18. Biofuel policy assumptions, 2011-2017

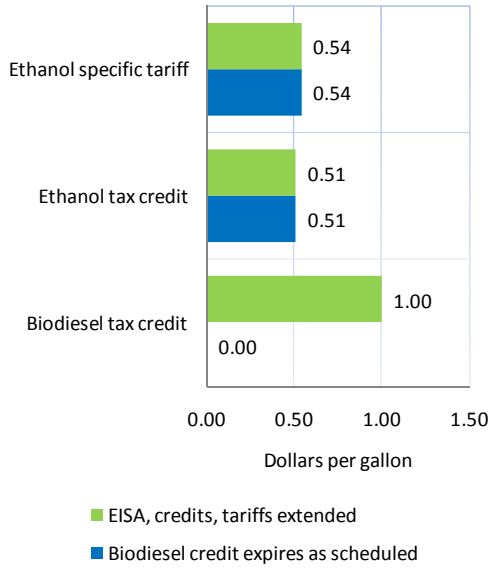

Figure 19. Biofuel supply and use, 2011-2017 average

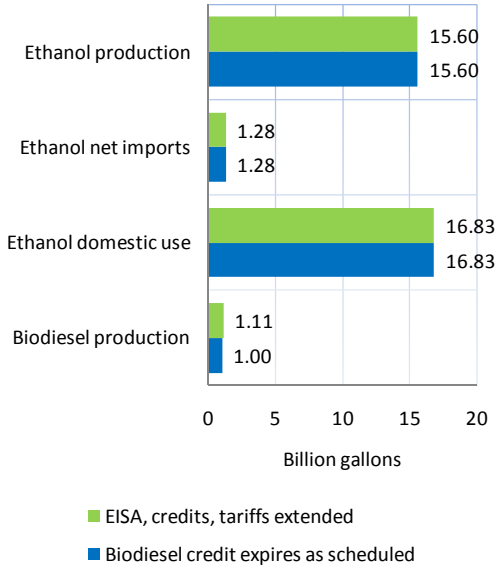

Figure 20. Biodiesel and crop producer prices, 2011-2017 average change from 2008 policy scenario

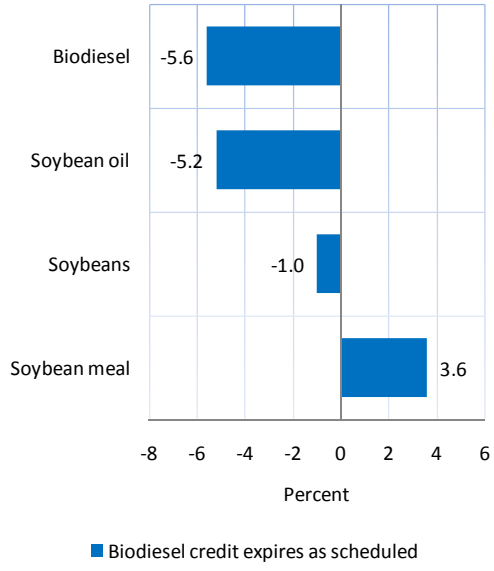

Figure 21. Farm income and consumer food expenditures, 2011-2017 average change from 2008 policy scenario

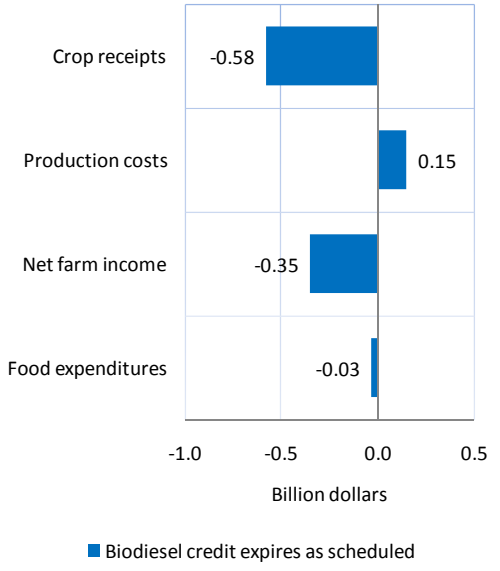

Table 8a. Effects of allowing the biodiesel tax credit to expire*

	EISA, credits, tariffs extended indefinitely	Biodiesel credit expires as scheduled	Absolute difference	Percentage difference
Tax and tariff provisions		(Dollars per gallon)		
Ethanol tax credit	0.51	0.51	0.00	0.0%
Biodiesel tax credit (pre-consumer oils)	1.00	0.00	-1.00	-100.0%
Ethanol specific tariff	0.54	0.54	0.00	0.0%
Biofuel sector results		(Billion gallons)		
Ethanol production	15.60	15.60	0.00	0.0%
Ethanol net imports	1.28	1.28	0.00	-0.1%
Ethanol domestic disappearance	16.83	16.83	0.00	0.0%
Biodiesel production	1.11	1.00	-0.10	-9.4%
		(Dollars per gallon)		
Ethanol price, conventional rack, Omaha	1.99	1.99	0.00	0.0%
Ethanol effective retail price	1.89	1.89	0.00	0.0%
Dry mill returns over operating costs	0.36	0.36	0.00	0.4%
Biodiesel rack price	5.11	4.83	-0.29	-5.6%
Biodiesel returns over operating costs	0.12	0.07	-0.05	-43.6%
Corn sector supply and use		(Billion bushels)		
Corn production	14.60	14.63	0.03	0.2%
Corn ethanol use	5.08	5.08	0.00	0.0%
Corn feed use	5.41	5.44	0.03	0.6%
Corn exports	2.68	2.67	0.00	-0.1%
Soybean sector supply and use		(Billion bushels)		
Soybean production	3.14	3.12	-0.02	-0.6%
Soybean crush	2.13	2.12	-0.01	-0.5%
Soybean exports	0.83	0.82	-0.01	-1.1%
		(Billion pounds)		
Soyoil biodiesel use	7.52	6.74	-0.78	-10.4%
Soyoil other domestic use	15.80	16.06	0.26	1.7%
Soyoil exports	1.08	1.49	0.40	37.2%
Crop planted acreage		(Million acres)		
Corn	95.31	95.52	0.21	0.2%
Soybeans	70.57	70.11	-0.46	-0.6%
Wheat	56.99	57.07	0.08	0.1%
9 other crops plus hay	94.20	94.14	-0.06	-0.1%
Conservation reserve area	29.80	29.88	0.08	0.3%
12 crops + hay + CRP	346.86	346.72	-0.14	0.0%
Crop sector prices		(Dollars per bushel)		
Corn farm price	3.94	3.94	-0.01	-0.1%
Soybean farm price	10.25	10.15	-0.10	-1.0%
Wheat farm price	5.46	5.45	-0.01	-0.2%
		(Cents per pound)		
Upland cotton farm price	62.09	62.17	0.08	0.1%
Soybean oil market price, Decatur	57.94	54.91	-3.03	-5.2%
		(Dollars per ton)		
Soymeal price, 48% protein	222.41	230.38	7.97	3.6%
Distillers grain price, Indiana	134.11	134.17	0.06	0.0%

*Assumes EISA and other 2008 policies remain in place. Figures represent average of stochastic results for 2011-2017.

Table 8b. Effects of allowing the biodiesel tax credit to expire, continued*

	EISA, credits, tariffs extended indefinitely	Biodiesel credit expires as scheduled	Absolute difference	Percentage difference
Meat and milk production		(Billion pounds)		
Beef production	28.36	28.36	0.00	0.0%
Pork production	23.93	23.90	-0.03	-0.1%
Broiler production	39.20	39.04	-0.15	-0.4%
Milk production	206.44	206.39	-0.05	0.0%
Livestock and dairy prices		(Dollars per hundredweight)		
Steers, Nebraska direct	92.39	92.58	0.20	0.2%
Barrows & gilts, 51-52% lean	52.95	53.18	0.24	0.4%
Broilers, 12-city wholesale	76.85	77.51	0.66	0.9%
All milk	16.87	16.88	0.01	0.1%
Farm income		(Billion dollars)		
Crop receipts	179.78	179.20	-0.58	-0.3%
Livestock receipts	146.32	146.74	0.43	0.3%
Government payments	10.66	10.66	0.00	0.0%
Rent to non-operator landlords	15.27	15.12	-0.15	-1.0%
Other production expenses	287.93	288.23	0.31	0.1%
Total production expenses	303.20	303.35	0.15	0.1%
Other net farm income	54.16	54.11	-0.05	-0.1%
Net farm income	87.72	87.36	-0.35	-0.4%
		(Dollars per acre)		
Value of farm real estate	3,001	2,989	-11.96	-0.4%
Farm program outlays		(Billion dollars)		
Marketing loans (crop year basis)	0.30	0.29	0.00	-0.7%
Countercyclical payments (crop year)	0.50	0.49	0.00	-0.6%
Net CCC outlays (fiscal year basis)	9.92	9.92	0.00	0.0%
		(Billion dollars)		
Consumer food expenditures	951.05	951.02	-0.03	0.0%

*Assumes EISA and other 2008 policies remain in place. Figures represent average of stochastic results for 2011-2017.

Effects of allowing the ethanol tariff and biofuel tax credits to expire

Before enactment of the farm bill, the ethanol tariff and the biodiesel tax credit were set to expire at the end of 2008 and the ethanol tax credit was due to expire at the end of 2010. The farm bill extends the ethanol tariff through 2010 and modifies the ethanol tax credit for 2009 and 2010, but does not change the scheduled expiration date. To measure the impacts of allowing these policies to expire, a scenario that allows the credits and tariff to expire as previously scheduled is compared to a scenario that maintains them indefinitely.

Allowing these policies to expire has important implications for biofuel and agricultural markets (table 9 and figures 22-25).

- Allowing the ethanol tariff to expire makes imported ethanol more competitive in the US market. Allowing the tax credits to expire reduces biofuel producer prices and raises prices to biofuel consumers.

- These policies interact with each other. By reducing the wholesale price of ethanol, for example, the expiration of the ethanol tax credit reduces the incentive to import ethanol when the tariff expires.

- All of these impacts are strongly affected by the assumed continued presence of EISA biofuel use mandates. When the mandates are binding, the wholesale price of ethanol must be adequate to encourage the supplies needed to satisfy the mandated levels of use.

- Eliminating the ethanol tax credit may have little effect on ethanol producer prices. If ethanol wholesale prices do not decline very much, the expiration of the ethanol tariff will have a larger impact on ethanol imports than if ethanol prices fell more when the credit expires.

- The net effect is a doubling of ethanol net imports and a 12 percent reduction in ethanol production. Because ethanol consumption is largely determined by the EISA mandates under most of these outcomes, average consumption declines by just 3 percent.

- Lower biodiesel production reduces the demand for soybean oil, reducing soybean oil prices and crushing margins. Reduced soybean crush demand reduces soybean prices and the supply of soybean meal, driving up the price of soybean meal.

- Corn prices fall by 3.6 percent on average over 2011-2017, and soybean and wheat prices fall by smaller percentages. Higher soybean meal prices partially offset the impact of lower corn prices in terms of livestock feed costs.

- While pork production expands slightly, broiler production (which depends more on soybean meal than does pork production) is essentially unchanged. Livestock, poultry, and dairy prices all decline marginally.

- Crop receipts decline by an average of $3.9 billion, farm production expenses fall by $2.4 billion, and net farm income declines by $2.1 billion.

- Lower commodity prices reduce consumer food expenditures by $1.4 billion.

Figure 22. Biofuel policy assumptions, 2011-2017

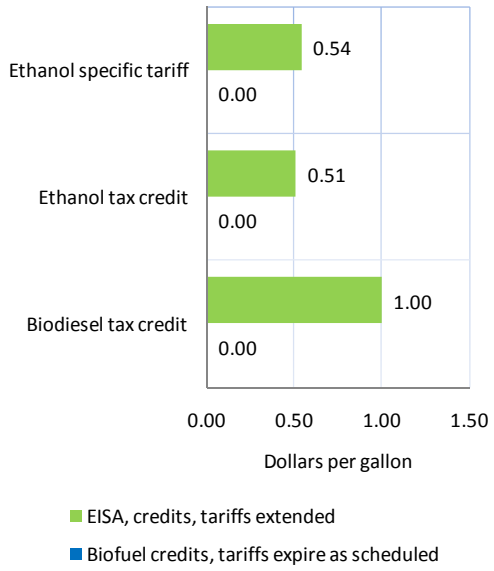

Figure 23. Biofuel supply and use, 2011-2017 average

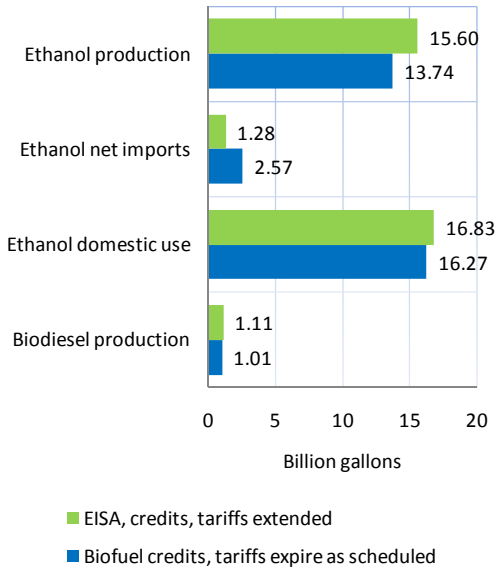

Figure 24. Ethanol and crop producer prices, 2011-2017 average change from 2008 policy scenario

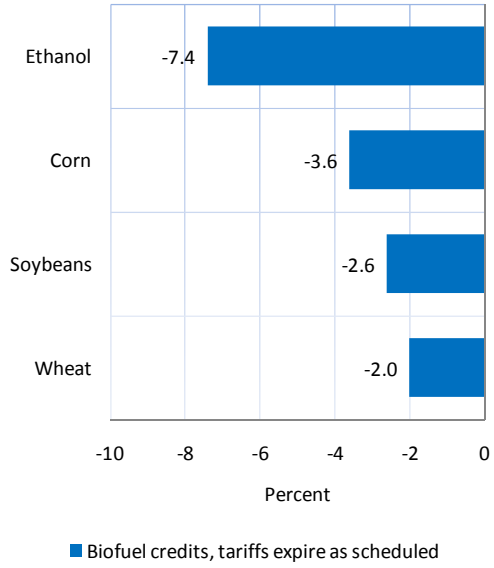

Figure 25. Farm income and consumer food expenditures, 2011-2017 average change from 2008 policy scenario

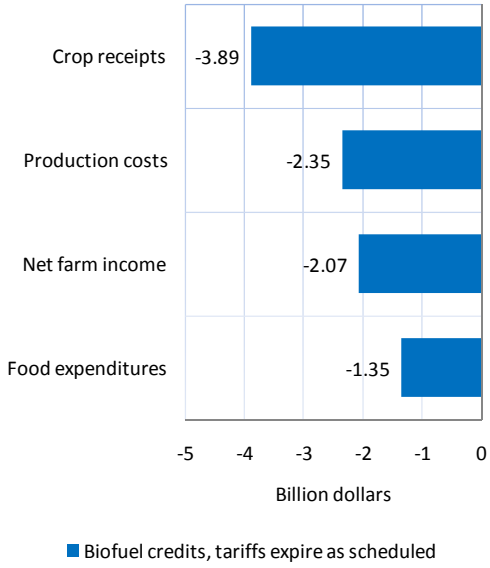

Table 9a. Effects of allowing the ethanol tariff and biofuel tax credits to expire*

	EISA, credits, tariffs extended indefinitely	EISA, credits and tariffs expire	Absolute difference	Percentage difference
Tax and tariff provisions		(Dollars per gallon)		
Ethanol tax credit	0.51	0.00	-0.51	-100.0%
Biodiesel tax credit (pre-consumer oils)	1.00	0.00	-1.00	-100.0%
Ethanol specific tariff	0.54	0.00	-0.54	-100.0%
Biofuel sector results		(Billion gallons)		
Ethanol production	15.60	13.74	-1.86	-11.9%
Ethanol net imports	1.28	2.57	1.29	100.9%
Ethanol domestic disappearance	16.83	16.27	-0.56	-3.3%
Biodiesel production	1.11	1.01	-0.10	-8.6%
		(Dollars per gallon)		
Ethanol price, conventional rack, Omaha	1.99	1.85	-0.15	-7.4%
Ethanol effective retail price	1.89	1.92	0.03	1.5%
Dry mill returns over operating costs	0.36	0.29	-0.07	-20.0%
Biodiesel rack price	5.11	4.77	-0.35	-6.8%
Biodiesel returns over operating costs	0.12	0.07	-0.05	-39.3%
Corn sector supply and use		(Billion bushels)		
Corn production	14.60	14.31	-0.29	-2.0%
Corn ethanol use	5.08	4.49	-0.59	-11.6%
Corn feed use	5.41	5.57	0.16	2.9%
Corn exports	2.68	2.83	0.15	5.6%
Soybean sector supply and use		(Billion bushels)		
Soybean production	3.14	3.16	0.02	0.5%
Soybean crush	2.13	2.13	0.00	0.0%
Soybean exports	0.83	0.85	0.01	1.6%
		(Billion pounds)		
Soyoil biodiesel use	7.52	6.80	-0.71	-9.5%
Soyoil other domestic use	15.80	16.12	0.32	2.0%
Soyoil exports	1.08	1.47	0.38	35.4%
Crop planted acreage		(Million acres)		
Corn	95.31	93.38	-1.92	-2.0%
Soybeans	70.57	70.92	0.35	0.5%
Wheat	56.99	57.20	0.20	0.4%
9 other crops plus hay	94.20	94.27	0.07	0.1%
Conservation reserve area	29.80	30.31	0.51	1.7%
12 crops + hay + CRP	346.86	346.08	-0.79	-0.2%
Crop sector prices		(Dollars per bushel)		
Corn farm price	3.94	3.80	-0.14	-3.6%
Soybean farm price	10.25	9.98	-0.27	-2.6%
Wheat farm price	5.46	5.35	-0.11	-2.0%
		(Cents per pound)		
Upland cotton farm price	62.09	61.92	-0.17	-0.3%
Soybean oil market price, Decatur	57.94	54.08	-3.86	-6.7%
		(Dollars per ton)		
Soymeal price, 48% protein	222.41	228.28	5.87	2.6%
Distillers grain price, Indiana	134.11	142.98	8.88	6.6%

*Assumes EISA and other 2008 policies remain in place. Figures represent average of stochastic results for 2011-2017.

Table 9b. Effects of allowing the ethanol tariff and biofuel tax credits to expire, continued*

	EISA, credits, tariffs extended indefinitely	EISA, credits and tariffs expire	Absolute difference	Percentage difference
Meat and milk production		(Billion pounds)		
Beef production	28.36	28.36	0.00	0.0%
Pork production	23.93	24.04	0.11	0.4%
Broiler production	39.20	39.20	0.00	0.0%
Milk production	206.44	206.58	0.14	0.1%
Livestock and dairy prices		(Dollars per hundredweight)		
Steers, Nebraska direct	92.39	92.17	-0.22	-0.2%
Barrows & gilts, 51-52% lean	52.95	52.51	-0.44	-0.8%
Broilers, 12-city wholesale	76.85	76.75	-0.10	-0.1%
All milk	16.87	16.84	-0.03	-0.2%
Farm income		(Billion dollars)		
Crop receipts	179.78	175.89	-3.89	-2.2%
Livestock receipts	146.32	145.96	-0.36	-0.2%
Government payments	10.66	10.72	0.06	0.6%
Rent to non-operator landlords	15.27	14.38	-0.90	-5.9%
Other production expenses	287.93	286.47	-1.45	-0.5%
Total production expenses	303.20	300.85	-2.35	-0.8%
Other net farm income	54.16	53.92	-0.24	-0.4%
Net farm income	87.72	85.64	-2.07	-2.4%
		(Dollars per acre)		
Value of farm real estate	3,001	2,940	-60.85	-2.0%
Farm program outlays		(Billion dollars)		
Marketing loans (crop year basis)	0.30	0.31	0.01	3.7%
Countercyclical payments (crop year)	0.50	0.51	0.02	3.2%
Net CCC outlays (fiscal year basis)	9.92	9.98	0.06	0.6%
		(Billion dollars)		
Consumer food expenditures	951.05	949.69	-1.35	-0.1%

*Assumes EISA and other 2008 policies remain in place. Figures represent average of stochastic results for 2011-2017.

Effects of removing EISA provisions

EISA creates an interlinked set of biofuel use mandates. If these mandates are not waived, they require a minimum level of use of various classes of biofuels. To measure the impacts of removing these mandates, a scenario that assumes the mandates are not enforced is compared to a scenario that requires all mandates are met except for the cellulosic biofuel mandate.

Under many circumstances, removing these mandates has important implications for biofuel and agricultural markets (table 10 and figures 26-29).

- If ethanol and biodiesel supplies far exceed the levels of biofuel use required by EISA, the mandates may have little impact on biofuel markets. This is most likely to occur when high petroleum prices and low crop prices make biofuel production profitable.

- In the FAPRI–MU 2008 stochastic baseline, the EISA mandates are binding in most cases in years after 2010. Without the mandates, ethanol domestic use falls by more than four billion gallons over the 2011-2017 period.

- Imports of ethanol fall by almost 70 percent when EISA mandates are removed. In the scenario that continues mandates, imports of sugar-based ethanol increase sharply from 2008 levels in order to help satisfy the portion of the advanced biofuel mandate that does not have to be met by cellulosic ethanol or biodiesel. Without the mandate, lower prices and the $0.54 per gallon tariff make ethanol imports unattractive.

- Without EISA mandates, ethanol producer prices fall by almost 13 percent. This contributes to a 3.2 billion gallon reduction in ethanol production.

- Removing the mandates results in an even larger reduction in biodiesel producer prices and a 46 percent reduction in biodiesel production.

- Reduced production of biofuels results in a 6.2 percent reduction in average corn prices and a 6.7 percent reduction in average soybean prices. Soybean oil prices fall dramatically, and this contributes to less soybean crush and higher soybean meal prices. Higher soybean meal prices partially offset the impact of lower corn prices in terms of livestock feed costs.

- Lower corn prices contribute to increased production of beef, pork, and milk. However, the increase in soybean meal prices increases poultry production costs, and broiler production declines. Reduced broiler production results in a 2.3 percent increase in broiler prices.

- Crop receipts decline by an average of $6.6 billion because of the reduction in grain and oilseed prices. Most of the $2.0 billion reduction in farm production expenses is explained by reduced rental payments to nonoperator landlords. Net farm income declines by an average of $3.8 billion.

- Lower grain and vegetable oil prices reduce consumer food expenditures by an average of $2.0 billion.

Figure 26. Biofuel use mandates under EISA, 2017

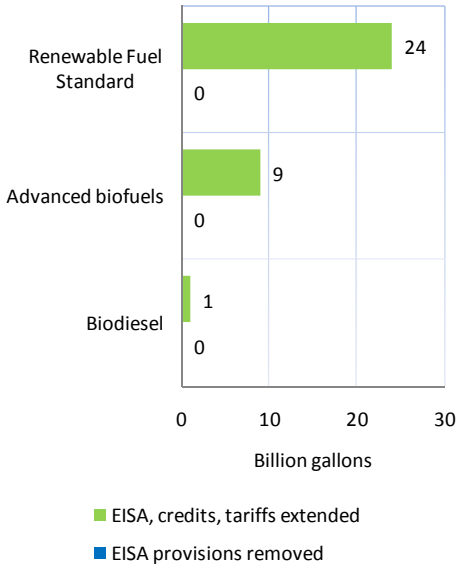

Figure 27. Biofuel supply and use, 2011-2017 average

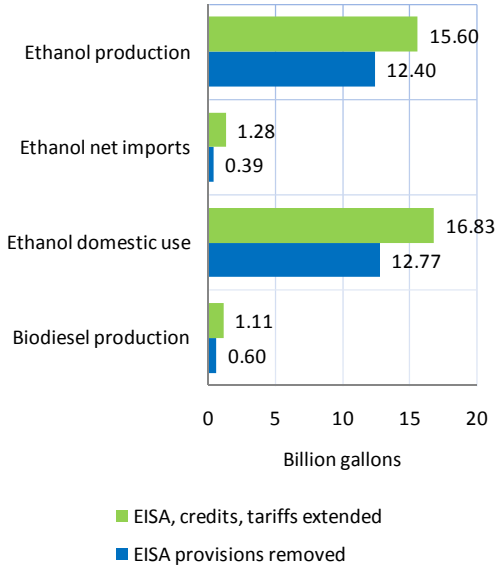

Figure 28. Ethanol and crop producer prices, 2011-2017 average change from 2008 policy scenario

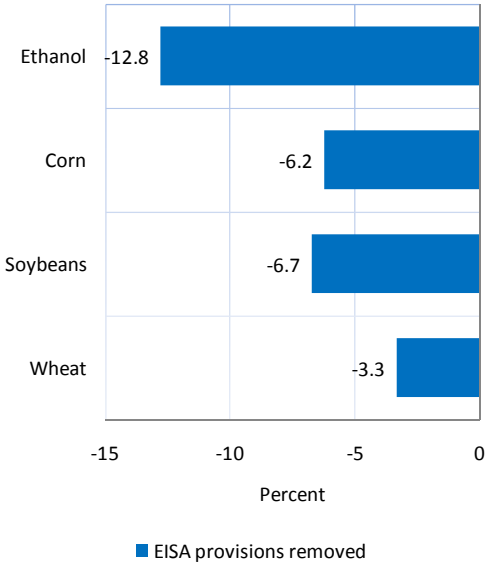

Figure 29. Farm income and consumer food expenditures, 2011-2017 average change from 2008 policy scenario

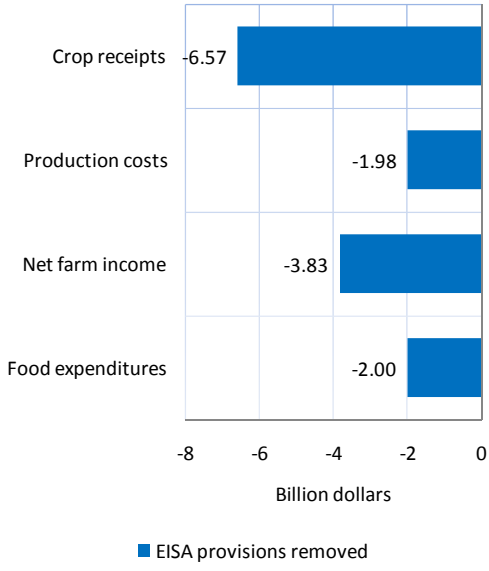

Table 10a. Effects of removing EISA provisions*

	EISA, credits, tariffs extended indefinitely	No EISA, credits and tariffs extended	Absolute difference	Percentage difference
Tax and tariff provisions		(Dollars per gallon)		
Ethanol tax credit	0.51	0.51	0.00	0.0%
Biodiesel tax credit (pre-consumer oils)	1.00	1.00	0.00	0.0%
Ethanol specific tariff	0.54	0.54	0.00	0.0%
Biofuel sector results		(Billion gallons)		
Ethanol production	15.60	12.40	-3.20	-20.5%
Ethanol net imports	1.28	0.39	-0.89	-69.7%
Ethanol domestic disappearance	16.83	12.77	-4.06	-24.1%
Biodiesel production	1.11	0.60	-0.51	-46.0%
		(Dollars per gallon)		
Ethanol price, conventional rack, Omaha	1.99	1.74	-0.25	-12.8%
Ethanol effective retail price	1.89	1.93	0.04	2.1%
Dry mill returns over operating costs	0.36	0.23	-0.13	-35.9%
Biodiesel rack price	5.11	3.62	-1.49	-29.2%
Biodiesel returns over operating costs	0.12	-0.21	-0.34	-273.0%
Corn sector supply and use		(Billion bushels)		
Corn production	14.60	14.35	-0.25	-1.7%
Corn ethanol use	5.08	4.25	-0.83	-16.3%
Corn feed use	5.41	5.76	0.35	6.5%
Corn exports	2.68	2.88	0.20	7.4%
Soybean sector supply and use		(Billion bushels)		
Soybean production	3.14	3.10	-0.04	-1.3%
Soybean crush	2.13	2.10	-0.03	-1.5%
Soybean exports	0.83	0.82	-0.01	-1.3%
		(Billion pounds)		
Soyoil biodiesel use	7.52	3.92	-3.60	-47.8%
Soyoil other domestic use	15.80	17.07	1.27	8.1%
Soyoil exports	1.08	3.02	1.94	179.3%
Crop planted acreage		(Million acres)		
Corn	95.31	93.69	-1.62	-1.7%
Soybeans	70.57	69.68	-0.89	-1.3%
Wheat	56.99	57.52	0.53	0.9%
9 other crops plus hay	94.20	94.11	-0.09	-0.1%
Conservation reserve area	29.80	30.43	0.63	2.1%
12 crops + hay + CRP	346.86	345.44	-1.43	-0.4%
Crop sector prices		(Dollars per bushel)		
Corn farm price	3.94	3.70	-0.24	-6.2%
Soybean farm price	10.25	9.56	-0.69	-6.7%
Wheat farm price	5.46	5.28	-0.18	-3.3%
		(Cents per pound)		
Upland cotton farm price	62.09	62.12	0.03	0.1%
Soybean oil market price, Decatur	57.94	42.89	-15.04	-26.0%
		(Dollars per ton)		
Soymeal price, 48% protein	222.41	256.79	34.38	15.5%
Distillers grain price, Indiana	134.11	147.58	13.48	10.0%

*Assumes 2008 biofuel tax credits and tariffs remain in place. Figures represent average of stochastic results for 2011-2017.

Table 10b. Effects of removing EISA provisions, continued*

	EISA, credits, tariffs extended indefinitely	No EISA, credits and tariffs extended	Absolute difference	Percentage difference
Meat and milk production		(Billion pounds)		
Beef production	28.36	28.37	0.01	0.0%
Pork production	23.93	23.98	0.05	0.2%
Broiler production	39.20	38.76	-0.44	-1.1%
Milk production	206.44	206.47	0.03	0.0%
Livestock and dairy prices		(Dollars per hundredweight)		
Steers, Nebraska direct	92.39	92.70	0.32	0.3%
Barrows & gilts, 51-52% lean	52.95	53.10	0.15	0.3%
Broilers, 12-city wholesale	76.85	78.62	1.77	2.3%
All milk	16.87	16.86	0.00	0.0%
Farm income		(Billion dollars)		
Crop receipts	179.78	173.22	-6.57	-3.7%
Livestock receipts	146.32	147.15	0.83	0.6%
Government payments	10.66	10.73	0.07	0.7%
Rent to non-operator landlords	15.27	13.87	-1.40	-9.2%
Other production expenses	287.93	287.35	-0.58	-0.2%
Total production expenses	303.20	301.22	-1.98	-0.7%
Other net farm income	54.16	54.00	-0.15	-0.3%
Net farm income	87.72	83.88	-3.83	-4.4%
		(Dollars per acre)		
Value of farm real estate	3,001	2,923	-77.68	-2.6%
Farm program outlays		(Billion dollars)		
Marketing loans (crop year basis)	0.30	0.31	0.01	4.8%
Countercyclical payments (crop year)	0.50	0.52	0.02	3.7%
Net CCC outlays (fiscal year basis)	9.92	10.01	0.09	0.9%
		(Billion dollars)		
Consumer food expenditures	951.05	949.05	-2.00	-0.2%

*Assumes 2008 biofuel tax credits and tariffs remain in place. Figures represent average of stochastic results for 2011-2017.

Effects of removing EISA provisions and allowing credits and tariffs to expire

EISA mandates, the ethanol import tariff and biofuel blender's tax credits all provide support to the US biofuel industry. To measure the combined impact of removing these policies, a scenario that assumes EISA mandates are not enforced and that biofuel tax credits and tariffs expire is compared to a scenario that imposes mandates and maintains credits and tariff indefinitely.

This combination of policies has implications for biofuel and agricultural markets that are not a simple sum of the effects of the policies considered individually (table 11 and figures 30-33).

- Both EISA mandates and biofuel tax credits encourage the use of biofuels. Removing both policies contributes to a 7.4 billion gallon (44 percent) reduction in ethanol use.

- This effect is larger than the sum of effects from the scenario removing EISA mandates (4.1 billion gallons) and the scenario eliminating tax credits and tariffs (0.6 billion gallons).

- This occurs because current policies provide redundant support to biofuel use under some circumstances. When use mandates are binding, allowing tax credits to expire has little or no impact on levels of biofuel use. When high gasoline prices and other factors result in ethanol use in excess of EISA mandates, removing the mandates has little or no impact on biofuel use. In all cases, however, eliminating both EISA mandates and biofuel tax credits reduces incentives to use biofuels and lowers consumption.

- Reduced consumption of biofuels reduces the producer price of ethanol by 29 percent and the producer price of biodiesel by 43 percent. These lower prices result in a 43 percent reduction in average ethanol production over the 2011-2017 period, and a 63 percent reduction in biodiesel production. Given negative estimated returns to biodiesel production, one might expect actual biodiesel production to be even less.

- In spite of the elimination of the ethanol tariff, ethanol net imports are actually lower than in the alternative scenario. Most of the imports in the current policy scenario result from the advanced biofuel mandate. Without that mandate and with much lower domestic prices for ethanol, there is little incentive to import ethanol even without the tariff.

- Corn prices fall by 14 percent and soybean prices by 12 percent. Soybean oil prices fall by 38 percent because of reduced biodiesel demand. This reduces soybean crush and increases soybean meal prices.

- Lower corn prices contribute to increased production and lower prices for beef, pork, and milk. However, the increase in soybean meal prices increases poultry production costs, and broiler production declines.

- Crop receipts decline by an average of $13.9 billion, production expenses decline by $6.4 billion, and net farm income falls by an average of $7.5 billion.

- Lower grain, vegetable oil, beef, pork and milk prices reduce consumer food expenditures by an average of $4.7 billion, or 0.5 percent.

Figure 30. Biofuel policy assumptions, 2011-2017

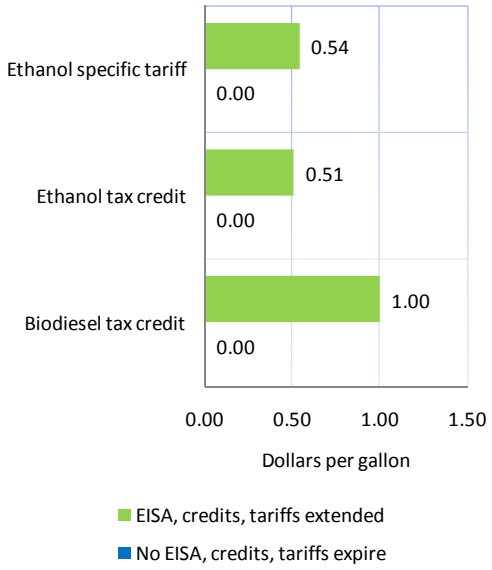

Figure 31. Biofuel supply and use, 2011-2017 average

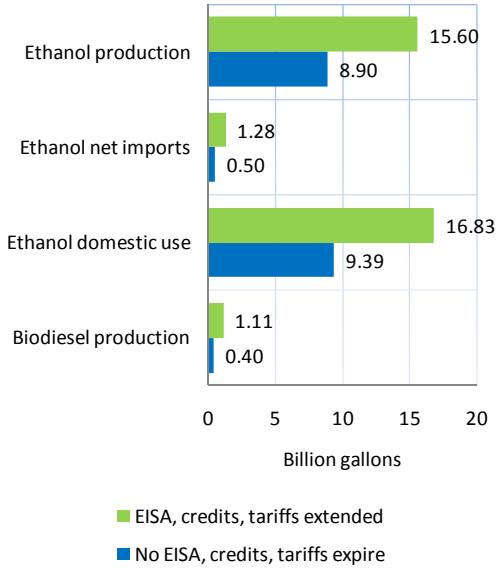

Figure 32. Ethanol and crop producer prices, 2011-2017 average change from 2008 policy scenario

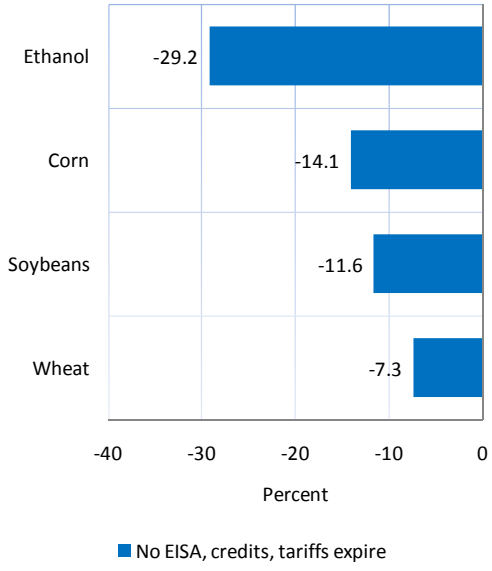

Figure 33. Farm income and consumer food expenditures, 2011-2017 average change from 2008 policy scenario

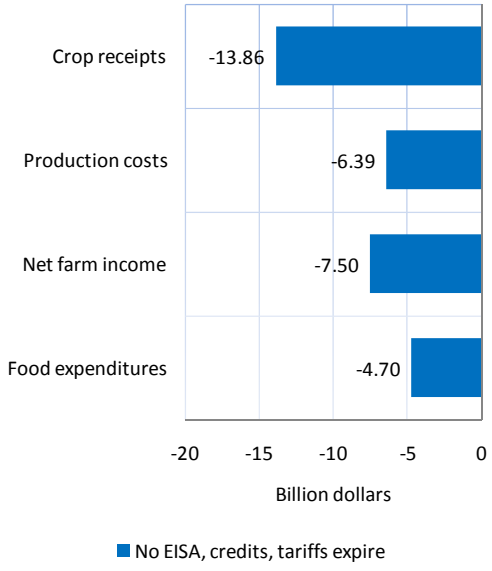

Table 11a. Effects of removing EISA provisions and allowing credits and tariffs to expire*

	EISA, credits, tariffs extended indefinitely	No EISA, credits and tariffs expire	Absolute difference	Percentage difference
Tax and tariff provisions		(Dollars per gallon)		
Ethanol tax credit	0.51	0.00	-0.51	-100.0%
Biodiesel tax credit (pre-consumer oils)	1.00	0.00	-1.00	-100.0%
Ethanol specific tariff	0.54	0.00	-0.54	-100.0%
Biofuel sector results		(Billion gallons)		
Ethanol production	15.60	8.90	-6.70	-43.0%
Ethanol net imports	1.28	0.50	-0.78	-61.3%
Ethanol domestic disappearance	16.83	9.39	-7.44	-44.2%
Biodiesel production	1.11	0.40	-0.70	-63.4%
		(Dollars per gallon)		
Ethanol price, conventional rack, Omaha	1.99	1.41	-0.58	-29.2%
Ethanol effective retail price	1.89	2.10	0.20	10.7%
Dry mill returns over operating costs	0.36	0.08	-0.28	-78.8%
Biodiesel rack price	5.11	2.90	-2.21	-43.3%
Biodiesel returns over operating costs	0.12	-0.39	-0.51	-414.8%
Corn sector supply and use		(Billion bushels)		
Corn production	14.60	13.80	-0.80	-5.5%
Corn ethanol use	5.08	3.05	-2.03	-39.9%
Corn feed use	5.41	6.09	0.69	12.7%
Corn exports	2.68	3.18	0.51	18.9%
Soybean sector supply and use		(Billion bushels)		
Soybean production	3.14	3.14	0.00	-0.1%
Soybean crush	2.13	2.10	-0.03	-1.4%
Soybean exports	0.83	0.85	0.02	2.0%
		(Billion pounds)		
Soyoil biodiesel use	7.52	2.59	-4.93	-65.6%
Soyoil other domestic use	15.80	17.66	1.86	11.8%
Soyoil exports	1.08	3.80	2.71	250.7%
Crop planted acreage		(Million acres)		
Corn	95.31	90.11	-5.20	-5.5%
Soybeans	70.57	70.49	-0.07	-0.1%
Wheat	56.99	57.93	0.94	1.7%
9 other crops plus hay	94.20	94.24	0.04	0.0%
Conservation reserve area	29.80	31.28	1.48	5.0%
12 crops + hay + CRP	346.86	344.05	-2.81	-0.8%
Crop sector prices		(Dollars per bushel)		
Corn farm price	3.94	3.39	-0.56	-14.1%
Soybean farm price	10.25	9.06	-1.19	-11.6%
Wheat farm price	5.46	5.06	-0.40	-7.3%
		(Cents per pound)		
Upland cotton farm price	62.09	61.77	-0.32	-0.5%
Soybean oil market price, Decatur	57.94	35.85	-22.09	-38.1%
		(Dollars per ton)		
Soymeal price, 48% protein	222.41	268.36	45.95	20.7%
Distillers grain price, Indiana	134.11	168.93	34.82	26.0%

*Figures represent average of stochastic results for 2011-2017.

Table 11b. Effects of removing EISA provisions and allowing credits and tariffs to expire, continued*

	EISA, credits, tariffs extended indefinitely	No EISA, credits and tariffs expire	Absolute difference	Percentage difference
Meat and milk production		(Billion pounds)		
Beef production	28.36	28.39	0.03	0.1%
Pork production	23.93	24.16	0.23	0.9%
Broiler production	39.20	38.74	-0.46	-1.2%
Milk production	206.44	206.74	0.30	0.1%
Livestock and dairy prices		(Dollars per hundredweight)		
Steers, Nebraska direct	92.39	92.27	-0.11	-0.1%
Barrows & gilts, 51-52% lean	52.95	52.31	-0.64	-1.2%
Broilers, 12-city wholesale	76.85	78.55	1.70	2.2%
All milk	16.87	16.81	-0.06	-0.3%
Farm income		(Billion dollars)		
Crop receipts	179.78	165.92	-13.86	-7.7%
Livestock receipts	146.32	146.58	0.27	0.2%
Government payments	10.66	10.90	0.24	2.3%
Rent to non-operator landlords	15.27	12.30	-2.97	-19.4%
Other production expenses	287.93	284.50	-3.42	-1.2%
Total production expenses	303.20	296.81	-6.39	-2.1%
Other net farm income	54.16	53.61	-0.54	-1.0%
Net farm income	87.72	80.21	-7.50	-8.6%
		(Dollars per acre)		
Value of farm real estate	3,001	2,826	-175.64	-5.9%
Farm program outlays		(Billion dollars)		
Marketing loans (crop year basis)	0.30	0.36	0.07	22.2%
Countercyclical payments (crop year)	0.50	0.58	0.08	16.8%
Net CCC outlays (fiscal year basis)	9.92	10.20	0.28	2.8%
		(Billion dollars)		
Consumer food expenditures	951.05	946.34	-4.70	-0.5%

*Figures represent average of stochastic results for 2011-2017.

Effects of extending ethanol tariffs if no other biofuel policies are in place

The comparisons reported so far began with current biofuel policies and then one or more support measures was taken away. For the next six sets of comparisons, the point of reference will be a scenario that allows biofuel tax credits and tariffs to expire and that does not enforce EISA use mandates.

The first comparison is intended to measure the effect of the ethanol import tariff. A scenario where the ethanol tariff continues at the current level of $0.54 per gallon for the indefinite future is compared to the scenario that assumes no biofuel support policies are in place after 2010. Extending the tariff reduces ethanol imports with only minor effects on agricultural and biofuel markets (table 12 and figures 34-37).

- Without use mandates or blender's tax credits, ethanol prices must be competitive with gasoline prices. Even without import tariffs, US net imports of ethanol are fairly limited, as US ethanol prices are in line with prices in other countries in the absence of support.

- Extending the import tariff further reduces ethanol imports. Given projected prices, essentially no ethanol would be imported directly from Brazil, and only a modest amount would be imported from the Caribbean countries exempt from ethanol import duties. Reported net imports are less than total imports, as some US ethanol would continue to be exported to other countries.

- The estimated 350 million gallon reduction in ethanol imports results in a 150 million gallon reduction in ethanol domestic use and a 200 million gallon increase in production.

- Ethanol producer prices only increase by $0.02 per gallon. Domestic prices for ethanol are strongly affected by gasoline prices in the absence of binding mandates. Even a much smaller import tariff would be prohibitive, given baseline oil prices, so it does not matter much whether it is $0.20 per gallon or $0.54 per gallon. To the extent the tariff has any effect on prices, it is primarily to reduce prices in Brazil rather than to raise prices in the US market.

- The small increase in ethanol production marginally increases the demand for corn, raising corn prices by $0.02 per bushel. By marginally raising feed prices, extending the import tariff slightly increases the cost of producing livestock.

- Crop receipts increase by an annual average of $340 million. Because of increases in feed and other production expenses, net farm income increases by just $120 million.

- Marginally higher grain and animal product prices increase consumer food expenditures by an average of $170 million per year.

- The impacts of extending the ethanol tariff when no other biofuel support policies are in place are generally smaller than the impacts of allowing the tariff to expire in the presence of EISA mandates. When the total renewable fuel standard is binding, imports primarily displace domestic production when tariffs expire. Without a binding mandate, this displacement effect is smaller. Lower US prices in the absence of other support policies also make the US a less attractive export market for Brazilian ethanol.

Figure 34. Biofuel policy assumptions, 2011-2017

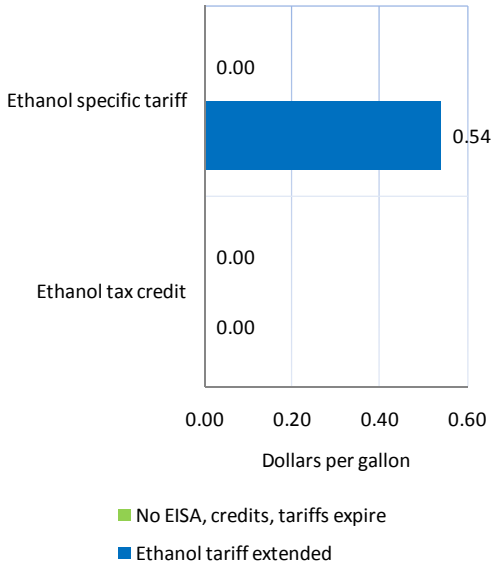

Figure 35. Ethanol supply and use, 2011-2017 average

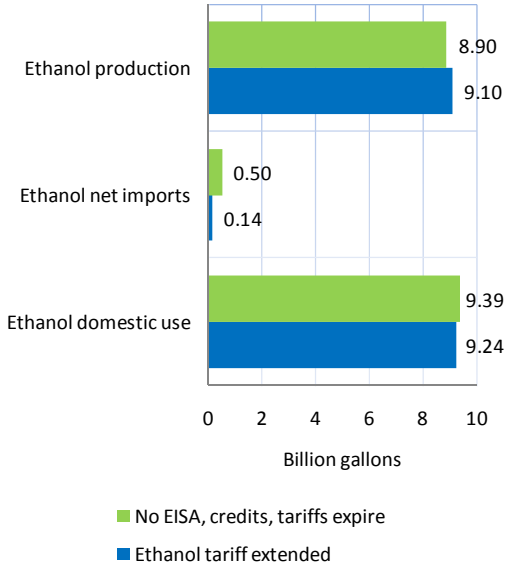

Figure 36. Ethanol and crop producer prices, 2011-2017 average change from no biofuel policy scenario

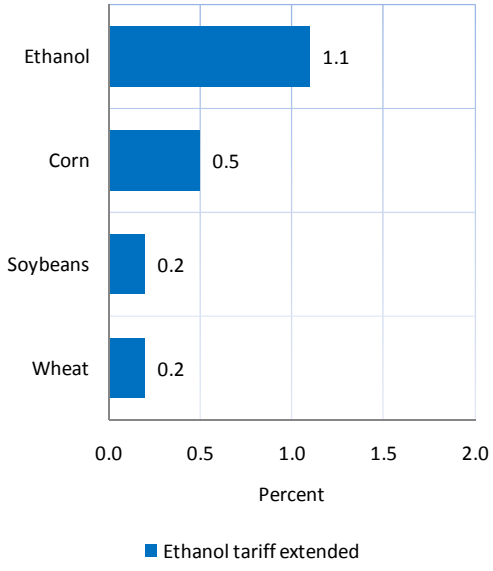

Figure 37. Farm income and consumer food expenditures, 2011-2017 average change from no biofuel policy scenario

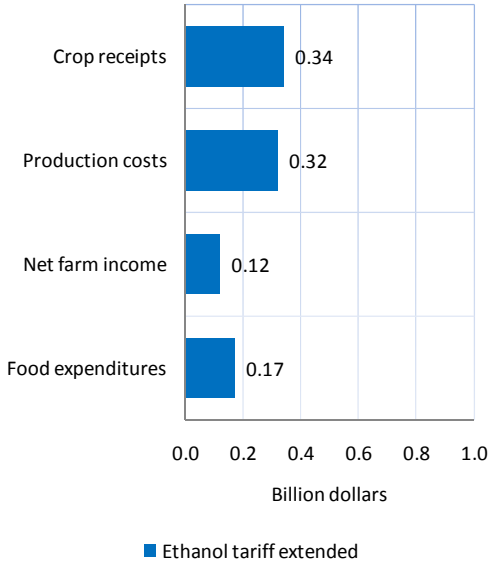

Table 12a. Effects of extending ethanol tariffs if no other biofuel policies are in place*

	No EISA, credits and tariffs expire	Ethanol tariff extended	Absolute difference	Percentage difference
Tax and tariff provisions		(Dollars per gallon)		
Ethanol tax credit	0.00	0.00	0.00	n.a.
Biodiesel tax credit (pre-consumer oils)	0.00	0.00	0.00	n.a.
Ethanol specific tariff	0.00	0.54	0.54	n.a.
Biofuel sector results		(Billion gallons)		
Ethanol production	8.90	9.10	0.20	2.3%
Ethanol net imports	0.50	0.14	-0.35	-71.5%
Ethanol domestic disappearance	9.39	9.24	-0.15	-1.6%
Biodiesel production	0.40	0.40	0.00	-0.4%
		(Dollars per gallon)		
Ethanol price, conventional rack, Omaha	1.41	1.43	0.02	1.1%
Ethanol effective retail price	2.10	2.11	0.01	0.7%
Dry mill returns over operating costs	0.08	0.08	0.00	5.6%
Biodiesel rack price	2.90	2.91	0.00	0.1%
Biodiesel returns over operating costs	-0.39	-0.39	0.00	n.a.
Corn sector supply and use		(Billion bushels)		
Corn production	13.80	13.84	0.03	0.2%
Corn ethanol use	3.05	3.12	0.07	2.3%
Corn feed use	6.09	6.08	-0.02	-0.3%
Corn exports	3.18	3.16	-0.02	-0.6%
Soybean sector supply and use		(Billion bushels)		
Soybean production	3.14	3.14	0.00	-0.1%
Soybean crush	2.10	2.10	0.00	-0.1%
Soybean exports	0.85	0.85	0.00	-0.3%
		(Billion pounds)		
Soyoil biodiesel use	2.59	2.58	-0.01	-0.5%
Soyoil other domestic use	17.66	17.65	-0.01	0.0%
Soyoil exports	3.80	3.80	0.00	0.1%
Crop planted acreage		(Million acres)		
Corn	90.11	90.34	0.23	0.3%
Soybeans	70.49	70.41	-0.08	-0.1%
Wheat	57.93	57.93	0.00	0.0%
9 other crops plus hay	94.24	94.22	-0.01	0.0%
Conservation reserve area	31.28	31.21	-0.07	-0.2%
12 crops + hay + CRP	344.05	344.11	0.06	0.0%
Crop sector prices		(Dollars per bushel)		
Corn farm price	3.39	3.40	0.02	0.5%
Soybean farm price	9.06	9.08	0.01	0.2%
Wheat farm price	5.06	5.07	0.01	0.2%
		(Cents per pound)		
Upland cotton farm price	61.77	61.79	0.03	0.0%
Soybean oil market price, Decatur	35.85	35.92	0.07	0.2%
		(Dollars per ton)		
Soymeal price, 48% protein	268.36	268.45	0.09	0.0%
Distillers grain price, Indiana	168.93	167.12	-1.80	-1.1%

*Assumes EISA provisions removed and tax credits expire. Figures represent average of stochastic results for 2011-2017.

Table 12b. Effects of extending ethanol tariffs if no other biofuel policies are in place, continued*

	No EISA, credits and tariffs expire	Ethanol tariff extended	Absolute difference	Percentage difference
Meat and milk production		(Billion pounds)		
Beef production	28.39	28.39	0.00	0.0%
Pork production	24.16	24.14	-0.02	-0.1%
Broiler production	38.74	38.72	-0.02	0.0%
Milk production	206.74	206.71	-0.03	0.0%
Livestock and dairy prices		(Dollars per hundredweight)		
Steers, Nebraska direct	92.27	92.33	0.06	0.1%
Barrows & gilts, 51-52% lean	52.31	52.41	0.10	0.2%
Broilers, 12-city wholesale	78.55	78.64	0.09	0.1%
All milk	16.81	16.81	0.01	0.0%
Farm income		(Billion dollars)		
Crop receipts	165.92	166.26	0.34	0.2%
Livestock receipts	146.58	146.68	0.10	0.1%
Government payments	10.90	10.89	-0.01	-0.1%
Rent to non-operator landlords	12.30	12.39	0.09	0.7%
Other production expenses	284.50	284.73	0.23	0.1%
Total production expenses	296.81	297.12	0.32	0.1%
Other net farm income	53.61	53.63	0.02	0.0%
Net farm income	80.21	80.34	0.12	0.2%
		(Dollars per acre)		
Value of farm real estate	2,826	2,833	7.56	0.3%
Farm program outlays		(Billion dollars)		
Marketing loans (crop year basis)	0.36	0.36	0.00	-0.5%
Countercyclical payments (crop year)	0.58	0.58	0.00	-0.5%
Net CCC outlays (fiscal year basis)	10.20	10.19	-0.01	-0.1%
		(Billion dollars)		
Consumer food expenditures	946.34	946.51	0.17	0.0%

*Assumes EISA provisions removed and tax credits expire. Figures represent average of stochastic results for 2011-2017.

Effects of extending ethanol blender's tax credits if no other biofuel policies are in place

The ethanol blender's tax credit results in higher prices to ethanol producers and lower prices to ethanol consumers. To estimate impacts of the ethanol tax credit in the absence of other biofuel support measures, a scenario where the ethanol tax credit continues at the 2008 level of $0.51 per gallon for the indefinite future is compared to the scenario that assumes no biofuel support policies are in place after 2010.

Extending the tax credit has large impacts on biofuel and agricultural markets when biofuel use mandates are not binding (table 13 and figures 38-41).

- Relative to a no-biofuel policy scenario, extending a $0.51 per gallon tax credit increases estimated producer prices of ethanol by $0.30 per gallon over the 2011-2017 period, with most of the rest reflected in lower prices for consumers of gasoline blended with ethanol.

- Higher wholesale prices for ethanol encourage a 3.2 billion gallon increase in ethanol production and a 1.3 billion gallon increase in ethanol imports. Ethanol domestic use increases by 4.5 billion gallons, or 48 percent.

- The increase in ethanol production increases ethanol use of corn by more than a billion bushels, raising corn prices by 8.1 percent. Higher corn prices draw land away from other crops, raising prices for soybeans, wheat, and other crops.

- Higher prices for corn and soybean meal raise livestock production costs, resulting in modest reductions in meat and dairy production and higher prices for livestock, poultry, and milk. Hog prices increase by 2.2 percent, with smaller increases for chickens, cattle, and milk.

- Higher grain and oilseed prices result in a $5.7 billion increase in crop receipts. Livestock prices and receipts also increase. Feed costs and other production expenses increase by $4.2 billion, and net farm income increases by an average of $2.9 billion.

- The increase in grain and animal product prices increases consumer food expenditures by an average of $2.3 billion per year relative to the scenario with no biofuel policies.

- In contrast to the case of the ethanol import tariff, the impacts of extending the tax credit relative to a no-policy baseline are much greater than the effects of allowing the tax credit to expire relative to a baseline with current policies in place.

- Under current policies and baseline oil prices, the EISA use mandates and the ethanol tax credit often provide redundant support. Taking away the ethanol tax credit may have only modest effects on ethanol production when EISA requires minimum levels of biofuel use. Likewise, taking away EISA mandates may have only marginal impacts on ethanol production if gasoline prices and the ethanol tax credit are already sufficient to generate the supplies necessary to meet the mandate. Starting from a scenario with no policies in place, the impacts of adding either ethanol tax credits or EISA mandates may be greater than the impact of removing just one of these support measures.

Figure 38. Biofuel policy assumptions, 2011-2017

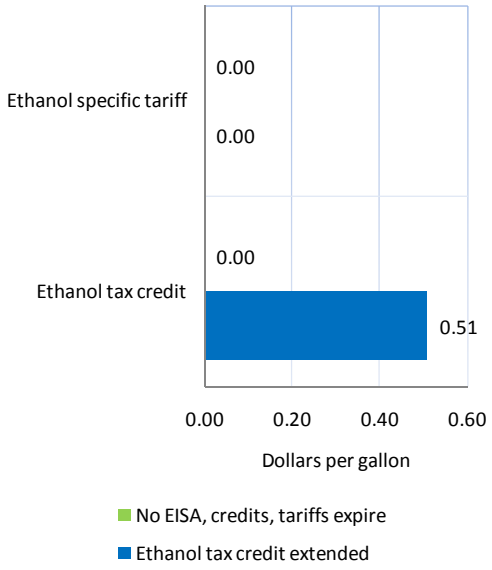

Figure 39. Ethanol supply and use, 2011-2017 average

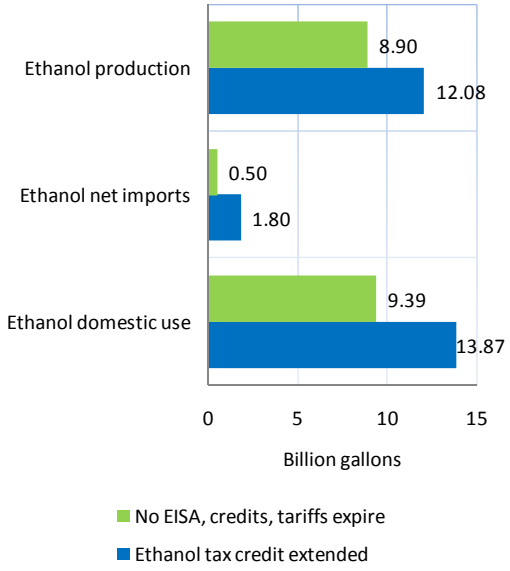

Figure 40. Ethanol and crop producer prices, 2011-2017 average change from no biofuel policy scenario

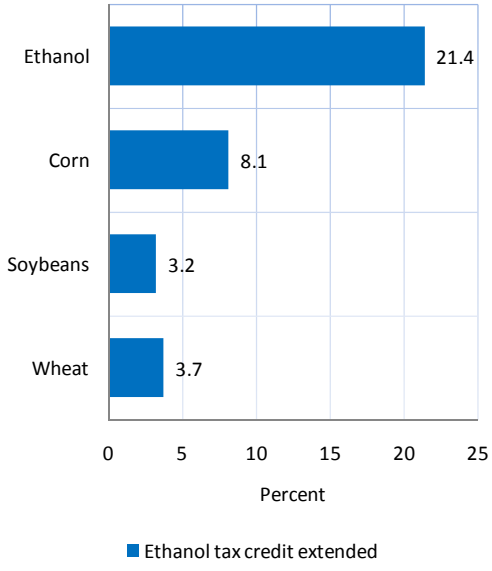

Figure 41. Farm income and consumer food expenditures, 2011-2017 average change from no biofuel policy scenario

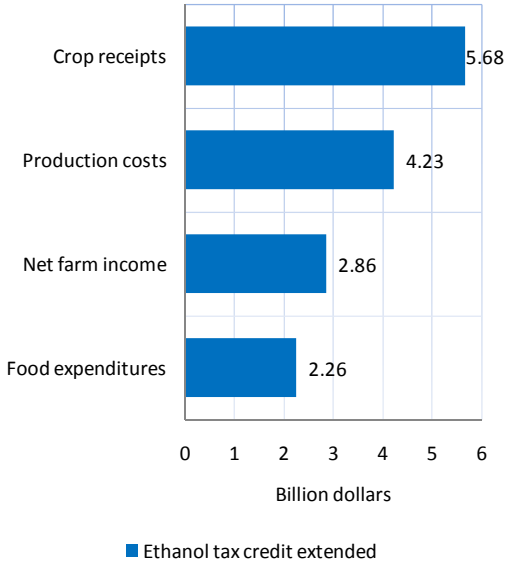

Table 13a. Effects of extending ethanol credits if no other biofuel policies are in place*

	No EISA, credits and tariffs expire	Ethanol tax credit extended	Absolute difference	Percentage difference
Tax and tariff provisions		(Dollars per gallon)		
Ethanol tax credit	0.00	0.51	0.51	n.a.
Biodiesel tax credit (pre-consumer oils)	0.00	0.00	0.00	n.a.
Ethanol specific tariff	0.00	0.00	0.00	n.a.
Biofuel sector results		(Billion gallons)		
Ethanol production	8.90	12.08	3.18	35.8%
Ethanol net imports	0.50	1.80	1.30	263.3%
Ethanol domestic disappearance	9.39	13.87	4.48	47.7%
Biodiesel production	0.40	0.38	-0.03	-7.0%
		(Dollars per gallon)		
Ethanol price, conventional rack, Omaha	1.41	1.71	0.30	21.4%
Ethanol effective retail price	2.10	1.91	-0.18	-8.7%
Dry mill returns over operating costs	0.08	0.23	0.15	195.2%
Biodiesel rack price	2.90	2.96	0.06	2.0%
Biodiesel returns over operating costs	-0.39	-0.42	-0.03	n.a.
Corn sector supply and use		(Billion bushels)		
Corn production	13.80	14.35	0.55	4.0%
Corn ethanol use	3.05	4.14	1.09	35.7%
Corn feed use	6.09	5.84	-0.25	-4.1%
Corn exports	3.18	2.90	-0.28	-8.8%
Soybean sector supply and use		(Billion bushels)		
Soybean production	3.14	3.07	-0.07	-2.1%
Soybean crush	2.10	2.08	-0.02	-0.9%
Soybean exports	0.85	0.81	-0.04	-4.7%
		(Billion pounds)		
Soyoil biodiesel use	2.59	2.37	-0.21	-8.3%
Soyoil other domestic use	17.66	17.57	-0.08	-0.5%
Soyoil exports	3.80	3.89	0.09	2.3%
Crop planted acreage		(Million acres)		
Corn	90.11	93.68	3.57	4.0%
Soybeans	70.49	69.02	-1.48	-2.1%
Wheat	57.93	57.67	-0.26	-0.5%
9 other crops plus hay	94.24	94.02	-0.22	-0.2%
Conservation reserve area	31.28	30.69	-0.59	-1.9%
12 crops + hay + CRP	344.05	345.07	1.02	0.3%
Crop sector prices		(Dollars per bushel)		
Corn farm price	3.39	3.66	0.28	8.1%
Soybean farm price	9.06	9.36	0.29	3.2%
Wheat farm price	5.06	5.25	0.19	3.7%
		(Cents per pound)		
Upland cotton farm price	61.77	62.23	0.46	0.8%
Soybean oil market price, Decatur	35.85	37.07	1.22	3.4%
		(Dollars per ton)		
Soymeal price, 48% protein	268.36	272.23	3.87	1.4%
Distillers grain price, Indiana	168.93	150.00	-18.93	-11.2%

*Assumes EISA provisions removed and tariffs expire. Figures represent average of stochastic results for 2011-2017.

Table 13b. Effects of extending ethanol credits if no other biofuel policies are in place, continued*

	No EISA, credits and tariffs expire	Ethanol tax credit extended	Absolute difference	Percentage difference
Meat and milk production		(Billion pounds)		
Beef production	28.39	28.38	-0.01	0.0%
Pork production	24.16	23.94	-0.22	-0.9%
Broiler production	38.74	38.48	-0.26	-0.7%
Milk production	206.74	206.40	-0.34	-0.2%
Livestock and dairy prices		(Dollars per hundredweight)		
Steers, Nebraska direct	92.27	93.02	0.75	0.8%
Barrows & gilts, 51-52% lean	52.31	53.45	1.14	2.2%
Broilers, 12-city wholesale	78.55	79.83	1.28	1.6%
All milk	16.81	16.88	0.07	0.4%
Farm income		(Billion dollars)		
Crop receipts	165.92	171.61	5.68	3.4%
Livestock receipts	146.58	147.87	1.29	0.9%
Government payments	10.90	10.75	-0.15	-1.3%
Rent to non-operator landlords	12.30	13.45	1.15	9.3%
Other production expenses	284.50	287.58	3.08	1.1%
Total production expenses	296.81	301.04	4.23	1.4%
Other net farm income	53.61	53.88	0.26	0.5%
Net farm income	80.21	83.07	2.86	3.6%
		(Dollars per acre)		
Value of farm real estate	2,826	2,890	64.74	2.3%
Farm program outlays		(Billion dollars)		
Marketing loans (crop year basis)	0.36	0.32	-0.05	-12.9%
Countercyclical payments (crop year)	0.58	0.52	-0.07	-11.3%
Net CCC outlays (fiscal year basis)	10.20	10.02	-0.18	-1.8%
		(Billion dollars)		
Consumer food expenditures	946.34	948.60	2.26	0.2%

*Assumes EISA provisions removed and tariffs expire. Figures represent average of stochastic results for 2011-2017.

Effects of extending biodiesel tax credits if no other biofuel policies are in place

Similar to the ethanol tax credit, the biodiesel tax credit results in higher prices to biodiesel producers and lower prices to biodiesel consumers. To estimate impacts of the biodiesel tax credit in the absence of other biofuel support measures, a scenario where the biodiesel tax credit continues at the 2008 level ($1.00 per gallon for biodiesel made from pre-consumer oils and fats) is compared to the scenario that assumes no biofuel support policies are in place after 2010.

Extending the tax credit has significant impacts on biodiesel, soybean and related markets when biofuel use mandates are not binding (table 14 and figures 42-45).

- Relative to a no-biofuel policy scenario, extending a $1.00 per gallon tax credit increases estimated producer prices of biodiesel by $0.68 per gallon over the 2011-2017 period. As with the ethanol tax credit, the main effect of the credit is to increase biofuel producer prices, with a smaller reduction in prices paid by biofuel consumers.

- The increase in biodiesel prices results in a 240 million gallon increase in biodiesel production. It should be noted that even when the biodiesel tax credit is extended, biodiesel production is far below existing capacity, as returns over operating costs are negative for many potential producers.

- Soybean oil consumption increases with the increase in biodiesel production, resulting in a 17 percent average increase in soybean oil prices.

- Higher soybean oil prices increase the profitability of crushing soybeans, resulting in more crush, higher soybean prices, increased supplies of soybean meal, and lower soybean meal prices. Higher soybean prices result in marginal increases in corn and wheat prices because of competition for cropland.

- The reduction in soybean meal prices increases the profitability of broiler, pork, and milk production. Increased meat and milk production results in lower prices, with broiler prices declining almost two percent. Effects on the poultry industry are greater than those on cattle, hog or dairy producers, as soybean meal makes up a larger portion of total production costs for poultry producers than for the other types of operations.

- Higher oilseed prices result in a $1.1 billion increase in crop receipts. Livestock receipts fall by $1.0 billion because of lower prices, and production expenses decline because lower feed costs outweigh the effect of higher rental payments to nonoperator landlords. Net farm income increases by an average of $0.5 billion per year over 2011-2017.

- The increase in vegetable oil prices more than offsets lower meat and dairy product prices, so consumer food expenditures increase by an average of $0.2 billion per year relative to the scenario with no biofuel policies.

- As with ethanol tax credits and tariffs, effects of the biodiesel tax credit are substantially different depending on whether EISA mandates are binding. Biodiesel production is strongly affected by EISA mandates, so biodiesel tax credits matter more when mandates are not in place.

Figure 42. Biofuel policy assumptions, 2011-2017

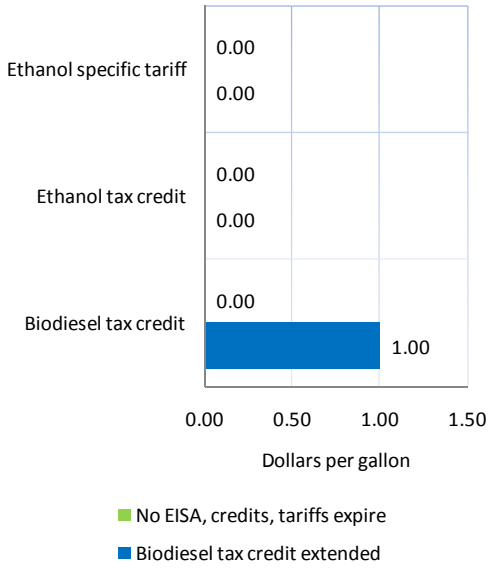

Figure 43. Biofuel supply and use, 2011-2017 average

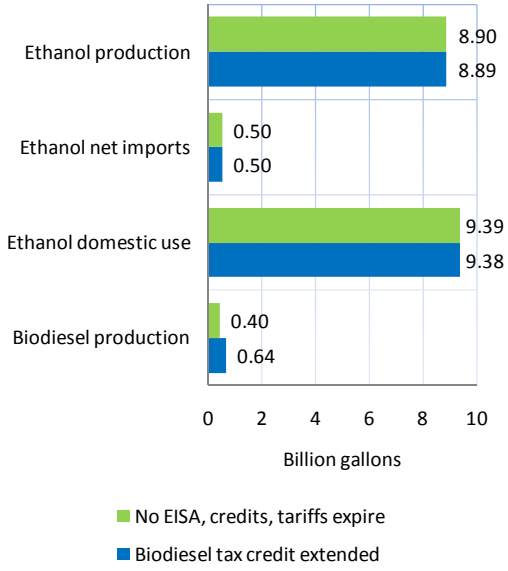

Figure 44. Biodiesel and crop producer prices, 2011-2017 average change from no biofuel policy scenario

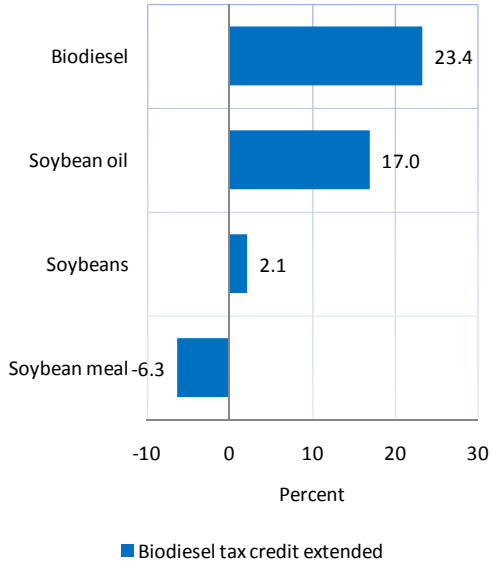

Figure 45. Farm income and consumer food expenditures, 2011-2017 average change from no biofuel policy scenario

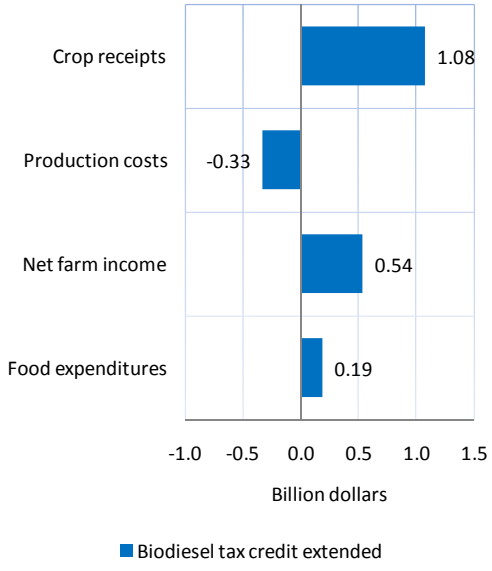

Table 14a. Effects of extending biodiesel credits if no other biofuel policies are in place*

	No EISA, credits and tariffs expire	Biodiesel tax credit extended	Absolute difference	Percentage difference
Tax and tariff provisions		(Dollars per gallon)		
Ethanol tax credit	0.00	0.00	0.00	n.a.
Biodiesel tax credit (pre-consumer oils)	0.00	1.00	1.00	n.a.
Ethanol specific tariff	0.00	0.00	0.00	n.a.
Biofuel sector results		(Billion gallons)		
Ethanol production	8.90	8.89	-0.01	-0.1%
Ethanol net imports	0.50	0.50	0.00	0.3%
Ethanol domestic disappearance	9.39	9.38	-0.01	-0.1%
Biodiesel production	0.40	0.64	0.24	58.3%
		(Dollars per gallon)		
Ethanol price, conventional rack, Omaha	1.41	1.41	0.00	0.1%
Ethanol effective retail price	2.10	2.10	0.00	0.0%
Dry mill returns over operating costs	0.08	0.07	0.00	-4.8%
Biodiesel rack price	2.90	3.58	0.68	23.4%
Biodiesel returns over operating costs	-0.39	-0.18	0.21	n.a.
Corn sector supply and use		(Billion bushels)		
Corn production	13.80	13.75	-0.05	-0.4%
Corn ethanol use	3.05	3.05	0.00	-0.1%
Corn feed use	6.09	6.04	-0.06	-0.9%
Corn exports	3.18	3.19	0.01	0.2%
Soybean sector supply and use		(Billion bushels)		
Soybean production	3.14	3.18	0.04	1.2%
Soybean crush	2.10	2.12	0.02	0.9%
Soybean exports	0.85	0.87	0.02	2.0%
		(Billion pounds)		
Soyoil biodiesel use	2.59	4.25	1.66	64.2%
Soyoil other domestic use	17.66	17.13	-0.53	-3.0%
Soyoil exports	3.80	2.88	-0.92	-24.3%
Crop planted acreage		(Million acres)		
Corn	90.11	89.75	-0.36	-0.4%
Soybeans	70.49	71.32	0.83	1.2%
Wheat	57.93	57.79	-0.14	-0.2%
9 other crops plus hay	94.24	94.36	0.13	0.1%
Conservation reserve area	31.28	31.11	-0.17	-0.5%
12 crops + hay + CRP	344.05	344.34	0.29	0.1%
Crop sector prices		(Dollars per bushel)		
Corn farm price	3.39	3.40	0.01	0.3%
Soybean farm price	9.06	9.26	0.19	2.1%
Wheat farm price	5.06	5.07	0.02	0.3%
		(Cents per pound)		
Upland cotton farm price	61.77	61.60	-0.17	-0.3%
Soybean oil market price, Decatur	35.85	41.94	6.09	17.0%
		(Dollars per ton)		
Soymeal price, 48% protein	268.36	251.51	-16.85	-6.3%
Distillers grain price, Indiana	168.93	168.47	-0.46	-0.3%

*Assumes EISA provisions removed and ethanol credits and tariffs expire. Figures represent average of 2011-2017 results.

Table 14b. Effects of extending biodiesel credits if no other biofuel policies are in place, continued*

	No EISA, credits and tariffs expire	Biodiesel tax credit extended	Absolute difference	Percentage difference
Meat and milk production		(Billion pounds)		
Beef production	28.39	28.38	-0.01	0.0%
Pork production	24.16	24.23	0.07	0.3%
Broiler production	38.74	39.08	0.34	0.9%
Milk production	206.74	206.86	0.12	0.1%
Livestock and dairy prices		(Dollars per hundredweight)		
Steers, Nebraska direct	92.27	91.83	-0.44	-0.5%
Barrows & gilts, 51-52% lean	52.31	51.77	-0.54	-1.0%
Broilers, 12-city wholesale	78.55	77.07	-1.48	-1.9%
All milk	16.81	16.78	-0.03	-0.2%
Farm income		(Billion dollars)		
Crop receipts	165.92	167.00	1.08	0.7%
Livestock receipts	146.58	145.62	-0.96	-0.7%
Government payments	10.90	10.88	-0.01	-0.1%
Rent to non-operator landlords	12.30	12.59	0.29	2.3%
Other production expenses	284.50	283.88	-0.62	-0.2%
Total production expenses	296.81	296.47	-0.33	-0.1%
Other net farm income	53.61	53.71	0.10	0.2%
Net farm income	80.21	80.75	0.54	0.7%
		(Dollars per acre)		
Value of farm real estate	2,826	2,849	23.25	0.8%
Farm program outlays		(Billion dollars)		
Marketing loans (crop year basis)	0.36	0.36	-0.01	-1.4%
Countercyclical payments (crop year)	0.58	0.58	0.00	0.5%
Net CCC outlays (fiscal year basis)	10.20	10.20	0.00	0.0%
		(Billion dollars)		
Consumer food expenditures	946.34	946.53	0.19	0.0%

*Assumes EISA provisions removed and ethanol credits and tariffs expire. Figures represent average of 2011-2017 results.

Effects of extending biofuel tax credits and tariffs if no other biofuel policies are in place

The biofuel tax credits and import tariffs in place prior to enactment of EISA in late 2007 provided substantial support to the biofuel sector. To estimate the combined impacts of the tax credits and tariffs in the absence of EISA mandates, a scenario where those policies are extended at 2008 levels is compared to the scenario that assumes no biofuel support policies are in place after 2010.

Extending biofuel tax credits and tariffs has significant impacts on biofuel and agricultural markets when biofuel use mandates are not binding (table 15 and figures 46-49).

- Extending the tax credits raises producer prices for ethanol and biodiesel. Ethanol prices increase by an average of $0.33 per gallon relative to the scenario with no biofuel support policies in place, and biodiesel prices increase by $0.72 per gallon.

- Biofuel production increases in response to higher producer prices. Ethanol production increases by an average of 3.5 billion gallons (39 percent), while biodiesel production increases by 0.19 billion gallons (48 percent).

- All else equal, the ethanol tax credit increases ethanol imports while the tariff reduces imports. When both policies are in place, the net effect is a 0.11 billion gallon reduction in net imports, as the $0.54 per gallon import tariff more than offsets the $0.33 per gallon increase in wholesale ethanol prices.

- A 1.2 billion bushel average increase in ethanol use of corn results in a 9.2 percent increase in average corn prices over the 2011-2017 period. Soybean prices increase by 5.5 percent, both because of the increase in biodiesel demand for soybean oil and because of competition with corn for cropland. Wheat prices increase by 4.4 percent.

- As in other scenarios with an increase in biodiesel production, higher soybean oil prices indirectly contribute to a reduction in soybean meal prices. This reduction in soybean meal prices partially offsets the impacts of higher corn prices on livestock feed costs.

- Pork, beef, and milk production decline slightly in response to higher grain prices. Broiler production is essentially unchanged due to the offsetting effect of lower soybean meal prices. Given a reduction in total meat production, prices increase for all livestock and poultry categories.

- Higher prices result in a $7.3 billion increase in crop receipts. Livestock receipts also increase slightly. Farm production expenses increase by $4.4 billion due to higher feed and other costs. Net farm income increases by an average of $3.7 billion.

- Higher grain, vegetable oil, meat and dairy product prices contribute to a $2.7 billion (0.3 percent) increase in annual consumer food expenditures.

- These combined effects of extending biofuel credits and tariffs relative to a baseline without biofuel support policies are generally larger than the impacts of allowing the credits and tariffs to expire relative to a baseline with EISA mandates in place. As discussed elsewhere, current policies provide redundant support to biofuel production.

Figure 46. Biofuel policy assumptions, 2011-2017

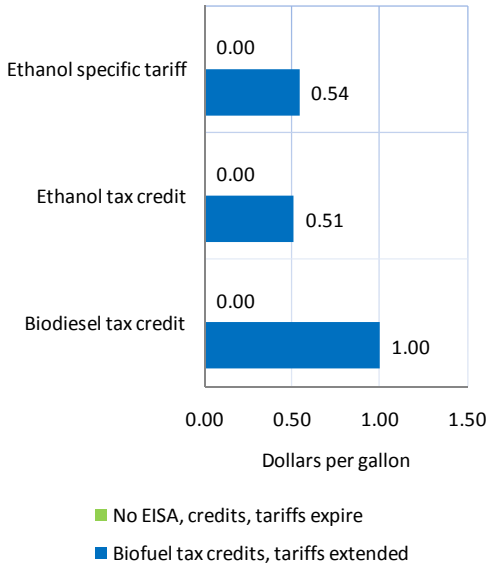

Figure 47. Biofuel supply and use, 2011-2017 average

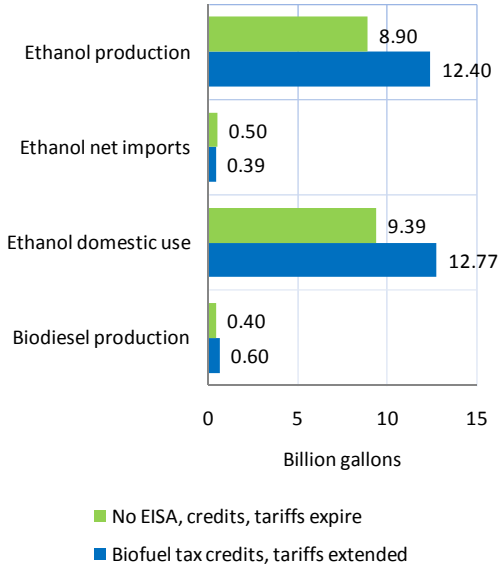

Figure 48. Ethanol and crop producer prices, 2011-2017 average change from no biofuel policy scenario

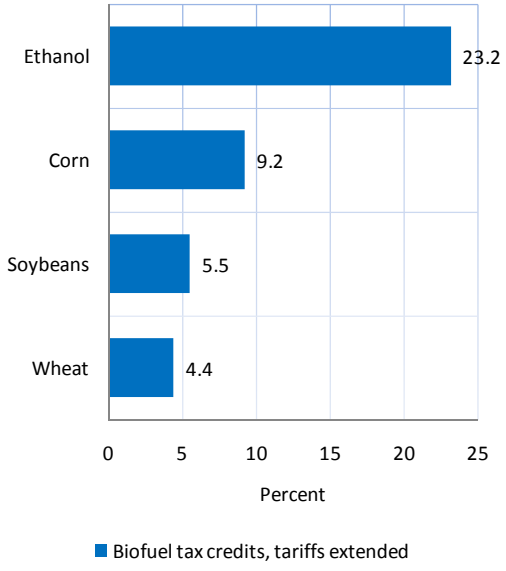

Figure 49. Farm income and consumer food expenditures, 2011-2017 average change from no biofuel policy scenario

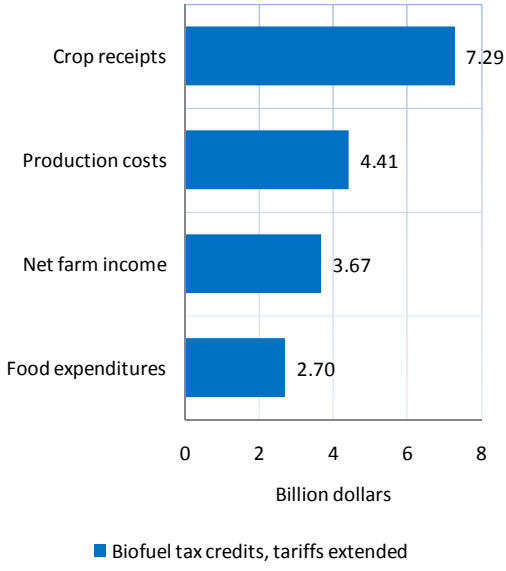

Table 15a. Effects of extending biofuel credits, tariffs if no other biofuel policies are in place*

	No EISA, credits and tariffs expire	No EISA, credits and tariffs extended	Absolute difference	Percentage difference
Tax and tariff provisions		(Dollars per gallon)		
Ethanol tax credit	0.00	0.51	0.51	n.a.
Biodiesel tax credit (pre-consumer oils)	0.00	1.00	1.00	n.a.
Ethanol specific tariff	0.00	0.54	0.54	n.a.
Biofuel sector results		(Billion gallons)		
Ethanol production	8.90	12.40	3.50	39.4%
Ethanol net imports	0.50	0.39	-0.11	-21.8%
Ethanol domestic disappearance	9.39	12.77	3.38	36.0%
Biodiesel production	0.40	0.60	0.19	47.5%
		(Dollars per gallon)		
Ethanol price, conventional rack, Omaha	1.41	1.74	0.33	23.2%
Ethanol effective retail price	2.10	1.93	-0.16	-7.8%
Dry mill returns over operating costs	0.08	0.23	0.15	202.2%
Biodiesel rack price	2.90	3.62	0.72	24.7%
Biodiesel returns over operating costs	-0.39	-0.21	0.17	n.a.
Corn sector supply and use		(Billion bushels)		
Corn production	13.80	14.35	0.55	4.0%
Corn ethanol use	3.05	4.25	1.20	39.3%
Corn feed use	6.09	5.76	-0.33	-5.5%
Corn exports	3.18	2.88	-0.31	-9.7%
Soybean sector supply and use		(Billion bushels)		
Soybean production	3.14	3.10	-0.04	-1.2%
Soybean crush	2.10	2.10	0.00	-0.1%
Soybean exports	0.85	0.82	-0.03	-3.2%
		(Billion pounds)		
Soyoil biodiesel use	2.59	3.92	1.33	51.6%
Soyoil other domestic use	17.66	17.07	-0.59	-3.3%
Soyoil exports	3.80	3.02	-0.77	-20.4%
Crop planted acreage		(Million acres)		
Corn	90.11	93.69	3.58	4.0%
Soybeans	70.49	69.68	-0.81	-1.2%
Wheat	57.93	57.52	-0.41	-0.7%
9 other crops plus hay	94.24	94.11	-0.12	-0.1%
Conservation reserve area	31.28	30.43	-0.85	-2.7%
12 crops + hay + CRP	344.05	345.44	1.39	0.4%
Crop sector prices		(Dollars per bushel)		
Corn farm price	3.39	3.70	0.31	9.2%
Soybean farm price	9.06	9.56	0.50	5.5%
Wheat farm price	5.06	5.28	0.22	4.4%
		(Cents per pound)		
Upland cotton farm price	61.77	62.12	0.36	0.6%
Soybean oil market price, Decatur	35.85	42.89	7.05	19.7%
		(Dollars per ton)		
Soymeal price, 48% protein	268.36	256.79	-11.57	-4.3%
Distillers grain price, Indiana	168.93	147.58	-21.35	-12.6%

*Assumes EISA provisions removed. Figures represent average of stochastic results for 2011-2017.

Table 15b. Effects of extending biofuel credits, tariffs if no other biofuel policies are in place, continued*

	No EISA, credits and tariffs expire	No EISA, credits and tariffs extended	Absolute difference	Percentage difference
Meat and milk production		(Billion pounds)		
Beef production	28.39	28.37	-0.02	-0.1%
Pork production	24.16	23.98	-0.18	-0.8%
Broiler production	38.74	38.76	0.02	0.1%
Milk production	206.74	206.47	-0.27	-0.1%
Livestock and dairy prices		(Dollars per hundredweight)		
Steers, Nebraska direct	92.27	92.70	0.43	0.5%
Barrows & gilts, 51-52% lean	52.31	53.10	0.79	1.5%
Broilers, 12-city wholesale	78.55	78.62	0.07	0.1%
All milk	16.81	16.86	0.06	0.3%
Farm income		(Billion dollars)		
Crop receipts	165.92	173.22	7.29	4.4%
Livestock receipts	146.58	147.15	0.57	0.4%
Government payments	10.90	10.73	-0.17	-1.5%
Rent to non-operator landlords	12.30	13.87	1.57	12.7%
Other production expenses	284.50	287.35	2.84	1.0%
Total production expenses	296.81	301.22	4.41	1.5%
Other net farm income	53.61	54.00	0.39	0.7%
Net farm income	80.21	83.88	3.67	4.6%
		(Dollars per acre)		
Value of farm real estate	2,826	2,923	97.96	3.5%
Farm program outlays		(Billion dollars)		
Marketing loans (crop year basis)	0.36	0.31	-0.05	-14.2%
Countercyclical payments (crop year)	0.58	0.52	-0.06	-11.2%
Net CCC outlays (fiscal year basis)	10.20	10.01	-0.19	-1.9%
		(Billion dollars)		
Consumer food expenditures	946.34	949.05	2.70	0.3%

*Assumes EISA provisions removed. Figures represent average of stochastic results for 2011-2017.

Effects of continuing EISA provisions if no other biofuel policies are in place

Even in the absence of biofuel tax credits and tariffs, the use mandates established by EISA can significantly increase biofuel consumption. To estimate the impact of EISA mandates in the absence of biofuel credits and tariffs, a scenario where EISA mandates are enforced is compared to the scenario that assumes no biofuel support policies are in place after 2010.

By requiring minimum levels of biofuel use, EISA can have major impacts on biofuel and agricultural markets even if tax credits and tariffs expire (table 16 and figures 50-53).

- Assuming mandates for conventional ethanol and for advanced biofuels other than cellulosic ethanol are not waived, biofuel use levels are estimated to be near EISA levels.

- Producer prices for ethanol and biodiesel must be bid up to levels sufficient to generate the supplies needed to satisfy the use mandates. In most cases, this is well above what the producer price for biofuels would be in the absence of the mandates.

- As elsewhere in this analysis, it is assumed that the difference between what producers must be paid for biofuels and what consumers would be willing to pay to purchase the required level of biofuels is largely passed on to fuel consumers.

- Relative to the scenario with no biofuel policies in place after 2010, ethanol consumption in the EISA scenario increases by an average of 6.9 billion gallons between 2011 and 2017. Biodiesel consumption also increases sharply.

- To supply this level of consumption, ethanol production increases by 4.9 billion gallons and ethanol net imports increase by 2.1 billion gallons. Wholesale prices for ethanol must rise by 31 percent above the no-policy scenario level to generate this level of supply.

- Corn use for ethanol production increases by 1.4 billion bushels, resulting in a 12.2 percent increase in corn prices. Soybean prices increase by 10.1 percent in response to greater demand for biodiesel and because of competition with corn for cropland.

- Higher grain prices increase feed costs to most livestock producers, resulting in reduced production. The exception is poultry, where a large reduction in soybean meal prices results in lower ration costs and increased production.

- Higher prices result in a $10.0 billion increase in crop receipts. Livestock receipts change little because of offsetting impacts on prices for poultry and livestock. Farm production expenses increase by $4.0 billion. Net farm income increases by an average of $5.4 billion.

- Higher grain, vegetable oil, meat and dairy product prices contribute to a $3.4 billion (0.4 percent) increase in annual consumer food expenditures.

- The estimated impacts of maintaining EISA provisions in the absence of other biofuel support policies are generally larger than the estimated impacts of removing EISA provisions from the current set of policies. As discussed elsewhere, current policies provide redundant support to biofuel production. Without tax credits, the cost of EISA mandates is partially absorbed by fuel consumers, and not at all by taxpayers.

Figure 50. Biofuel use mandates under EISA, 2017

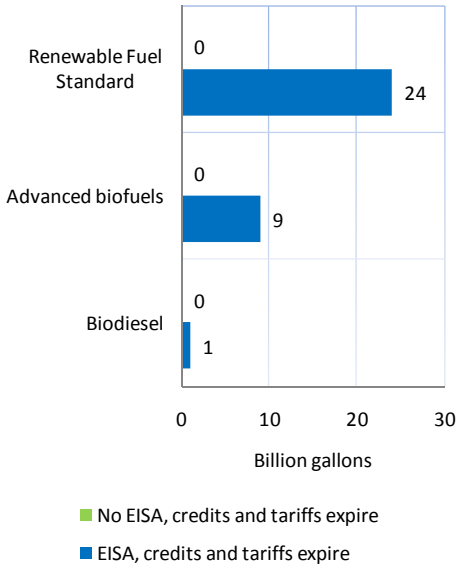

Figure 51. Biofuel supply and use, 2011-2017 average

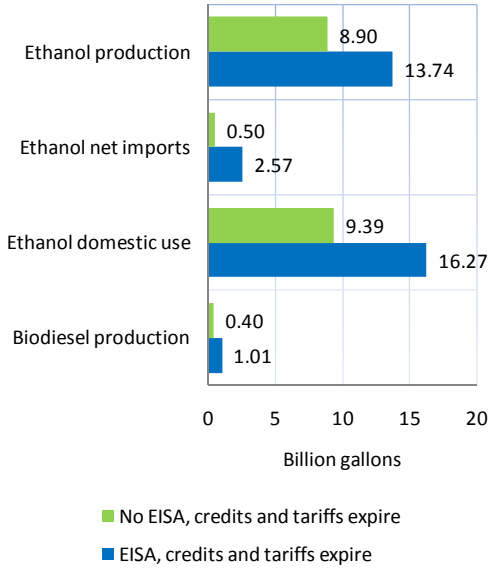

Figure 52. Ethanol and crop producer prices, 2011-2017 average change from no biofuel policy scenario

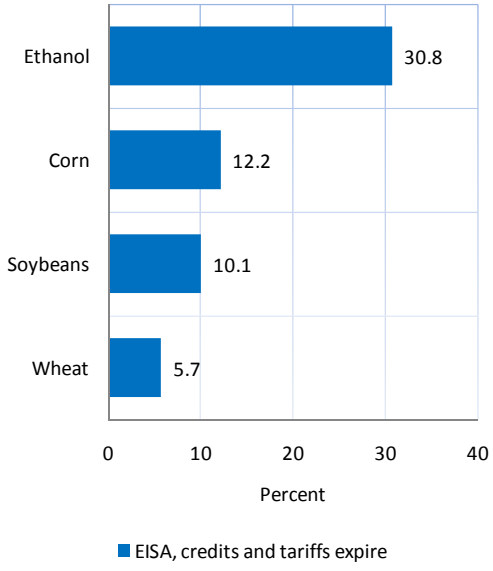

Figure 53. Farm income and consumer food expenditures, 2011-2017 average change from no biofuel policy scenario

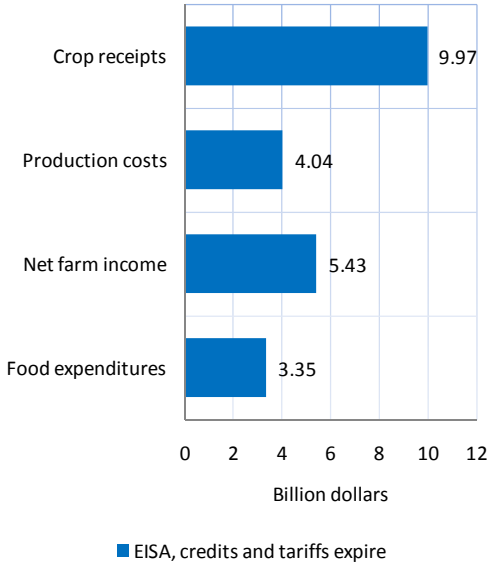

Table 16a. Effects of continuing EISA provisions if no other biofuel policies are in place*

	No EISA, credits and tariffs expire	EISA, credits and tariffs expire	Absolute difference	Percentage difference
Tax and tariff provisions		(Dollars per gallon)		
Ethanol tax credit	0.00	0.00	0.00	n.a.
Biodiesel tax credit (pre-consumer oils)	0.00	0.00	0.00	n.a.
Ethanol specific tariff	0.00	0.00	0.00	n.a.
Biofuel sector results		(Billion gallons)		
Ethanol production	8.90	13.74	4.85	54.5%
Ethanol net imports	0.50	2.57	2.08	419.2%
Ethanol domestic disappearance	9.39	16.27	6.88	73.2%
Biodiesel production	0.40	1.01	0.61	149.8%
		(Dollars per gallon)		
Ethanol price, conventional rack, Omaha	1.41	1.85	0.43	30.8%
Ethanol effective retail price	2.10	1.92	-0.18	-8.4%
Dry mill returns over operating costs	0.08	0.29	0.21	277.4%
Biodiesel rack price	2.90	4.77	1.87	64.3%
Biodiesel returns over operating costs	-0.39	0.07	0.46	n.a.
Corn sector supply and use		(Billion bushels)		
Corn production	13.80	14.31	0.50	3.7%
Corn ethanol use	3.05	4.49	1.44	47.1%
Corn feed use	6.09	5.57	-0.53	-8.6%
Corn exports	3.18	2.83	-0.36	-11.2%
Soybean sector supply and use		(Billion bushels)		
Soybean production	3.14	3.16	0.02	0.6%
Soybean crush	2.10	2.13	0.03	1.4%
Soybean exports	0.85	0.85	0.00	-0.4%
		(Billion pounds)		
Soyoil biodiesel use	2.59	6.80	4.22	162.9%
Soyoil other domestic use	17.66	16.12	-1.54	-8.7%
Soyoil exports	3.80	1.47	-2.33	-61.4%
Crop planted acreage		(Million acres)		
Corn	90.11	93.38	3.27	3.6%
Soybeans	70.49	70.92	0.42	0.6%
Wheat	57.93	57.20	-0.74	-1.3%
9 other crops plus hay	94.24	94.27	0.03	0.0%
Conservation reserve area	31.28	30.31	-0.97	-3.1%
12 crops + hay + CRP	344.05	346.08	2.03	0.6%
Crop sector prices		(Dollars per bushel)		
Corn farm price	3.39	3.80	0.41	12.2%
Soybean farm price	9.06	9.98	0.92	10.1%
Wheat farm price	5.06	5.35	0.29	5.7%
		(Cents per pound)		
Upland cotton farm price	61.77	61.92	0.15	0.2%
Soybean oil market price, Decatur	35.85	54.08	18.23	50.9%
		(Dollars per ton)		
Soymeal price, 48% protein	268.36	228.28	-40.08	-14.9%
Distillers grain price, Indiana	168.93	142.98	-25.94	-15.4%

*Assumes biofuel tax credits and tariffs expire as scheduled. Figures represent average of stochastic results for 2011-2017.

Table 16b. Effects of continuing EISA provisions if no other biofuel policies are in place, continued*

	No EISA, credits and tariffs expire	EISA, credits and tariffs expire	Absolute difference	Percentage difference
Meat and milk production		(Billion pounds)		
Beef production	28.39	28.36	-0.03	-0.1%
Pork production	24.16	24.04	-0.12	-0.5%
Broiler production	38.74	39.20	0.46	1.2%
Milk production	206.74	206.58	-0.16	-0.1%
Livestock and dairy prices		(Dollars per hundredweight)		
Steers, Nebraska direct	92.27	92.17	-0.10	-0.1%
Barrows & gilts, 51-52% lean	52.31	52.51	0.20	0.4%
Broilers, 12-city wholesale	78.55	76.75	-1.80	-2.3%
All milk	16.81	16.84	0.03	0.2%
Farm income		(Billion dollars)		
Crop receipts	165.92	175.89	9.97	6.0%
Livestock receipts	146.58	145.96	-0.62	-0.4%
Government payments	10.90	10.72	-0.18	-1.6%
Rent to non-operator landlords	12.30	14.38	2.07	16.8%
Other production expenses	284.50	286.47	1.97	0.7%
Total production expenses	296.81	300.85	4.04	1.4%
Other net farm income	53.61	53.92	0.30	0.6%
Net farm income	80.21	85.64	5.43	6.8%
		(Dollars per acre)		
Value of farm real estate	2,826	2,940	114.79	4.1%
Farm program outlays		(Billion dollars)		
Marketing loans (crop year basis)	0.36	0.31	-0.06	-15.2%
Countercyclical payments (crop year)	0.58	0.51	-0.07	-11.6%
Net CCC outlays (fiscal year basis)	10.20	9.98	-0.22	-2.1%
		(Billion dollars)		
Consumer food expenditures	946.34	949.69	3.35	0.4%

*Assumes biofuel tax credits and tariffs expire as scheduled. Figures represent average of stochastic results for 2011-2017.

Effects of continuing current policies relative to a no biofuel policy baseline

The combination of EISA mandates, ethanol tariffs and blender's tax credits provides considerable support to US biofuel production, with important implications for agricultural markets. Comparing a scenario with EISA mandates and 2008 levels of credits and tariff extended indefinitely to one where no policies remain in place after 2010 estimates the net impact of biofuel policies in the aggregate.

Note that this comparison reverses the one reported on page 37. The "baseline" and "scenario" columns are switched.

EISA mandates, and biofuel credits and tariffs significantly increase US biofuel production and raise prices for a wide range of agricultural commodities (table 17 and figures 54-57).

- Ethanol wholesale prices from 2011-2017 exceed prices in the scenario without biofuel support policies by an average of $0.58 per gallon, or 41 percent. The increase in biodiesel wholesale prices is an even more dramatic 76 percent.

- Higher producer prices lead to significant increases in biofuel production. Ethanol production increases by an average of 75 percent, and biodiesel production increases by 173 percent.

- Ethanol net imports increase, primarily because of the mandate for advanced biofuels other than biodiesel and cellulosic ethanol.

- Increased demand for corn to produce ethanol increases corn prices by an average of 16 percent. Soybean prices increase by 13 percent because of increased demand for soybean oil to make biodiesel and because of competition with corn for cropland. Wheat prices also increase by 8 percent because of substitution effects in both supply and demand.

- Higher grain prices increase feed costs to cattle, hog, and dairy producers. A sharp reduction in soybean meal prices (a byproduct of increased demand for soybean oil) results in lower production costs for broiler producers.

- Once production adjusts to these changes in feed prices, cattle, hog and milk prices increase and chicken prices fall.

- Higher prices result in a $13.9 billion increase in crop receipts. Livestock receipts change little because of offsetting impacts on prices for poultry and livestock. Farm production expenses increase by $6.4 billion. Net farm income increases by an average of $7.5 billion.

- Higher grain, vegetable oil, beef, pork and dairy product prices contribute to a $4.7 billion (0.5 percent) increase in annual consumer food expenditures.

- The market impact of maintaining current policies is generally less than the sum of the impacts of the various policies considered separately. For example, corn prices increase by 9 percent when credits and tariffs are extended and by 12 percent when EISA mandates are enforced, but by only 16 percent when all current policies are maintained. This occurs because current policies provide redundant support to biofuel producers.

Figure 54. Biofuel policy assumptions, 2011-2017

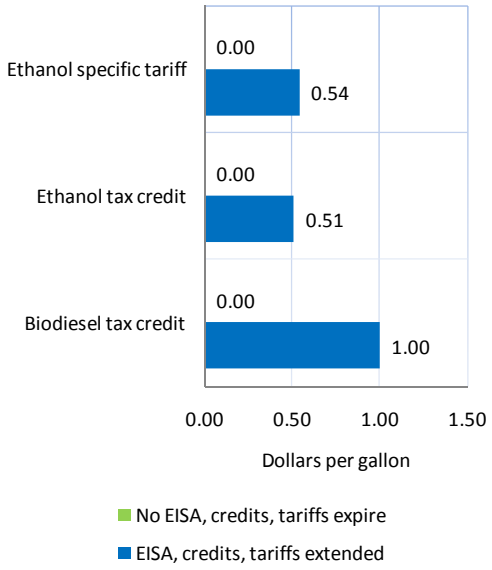

Figure 55. Biofuel supply and use, 2011-2017 average

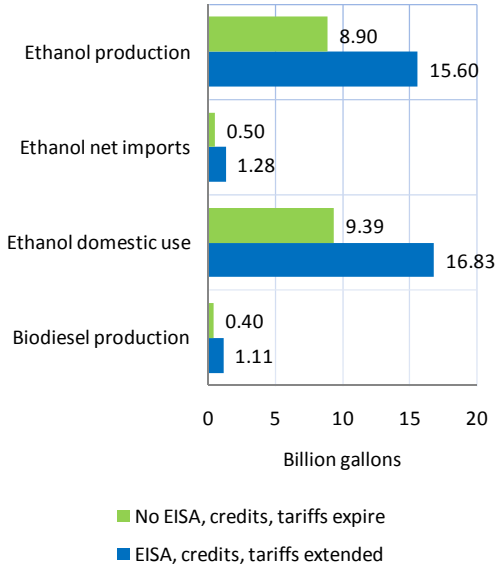

Figure 56. Ethanol and crop producer prices, 2011-2017 average change from no biofuel policy scenario

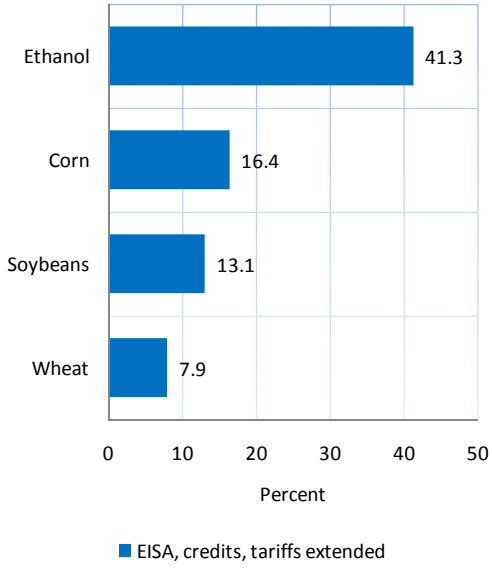

Figure 57. Farm income and consumer food expenditures, 2011-2017 average change from no biofuel policy scenario

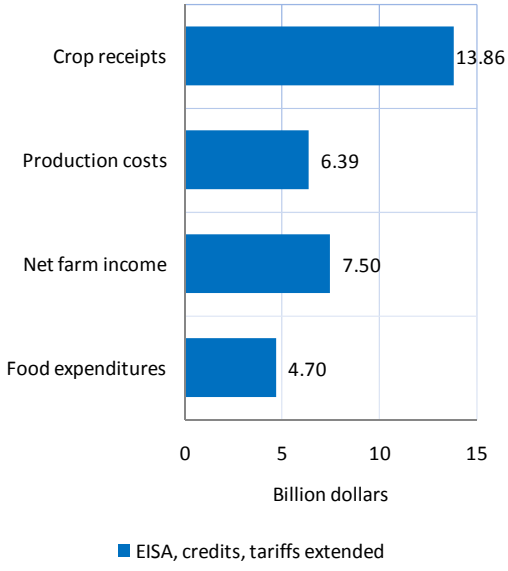

Table 17a. Effects of continuing current policies relative to a no biofuel policy baseline*

	No EISA, credits and tariffs expire	EISA, credits, tariffs extended indefinitely	Absolute difference	Percentage difference
Tax and tariff provisions		(Dollars per gallon)		
Ethanol tax credit	0.00	0.51	0.51	n.a.
Biodiesel tax credit (pre-consumer oils)	0.00	1.00	1.00	n.a.
Ethanol specific tariff	0.00	0.54	0.54	n.a.
Biofuel sector results		(Billion gallons)		
Ethanol production	8.90	15.60	6.70	75.4%
Ethanol net imports	0.50	1.28	0.78	158.5%
Ethanol domestic disappearance	9.39	16.83	7.44	79.2%
Biodiesel production	0.40	1.11	0.70	173.4%
		(Dollars per gallon)		
Ethanol price, conventional rack, Omaha	1.41	1.99	0.58	41.3%
Ethanol effective retail price	2.10	1.89	-0.20	-9.7%
Dry mill returns over operating costs	0.08	0.36	0.28	371.8%
Biodiesel rack price	2.90	5.11	2.21	76.2%
Biodiesel returns over operating costs	-0.39	0.12	0.51	n.a.
Corn sector supply and use		(Billion bushels)		
Corn production	13.80	14.60	0.80	5.8%
Corn ethanol use	3.05	5.08	2.03	66.4%
Corn feed use	6.09	5.41	-0.69	-11.3%
Corn exports	3.18	2.68	-0.51	-15.9%
Soybean sector supply and use		(Billion bushels)		
Soybean production	3.14	3.14	0.00	0.1%
Soybean crush	2.10	2.13	0.03	1.4%
Soybean exports	0.85	0.83	-0.02	-2.0%
		(Billion pounds)		
Soyoil biodiesel use	2.59	7.52	4.93	190.5%
Soyoil other domestic use	17.66	15.80	-1.86	-10.5%
Soyoil exports	3.80	1.08	-2.71	-71.5%
Crop planted acreage		(Million acres)		
Corn	90.11	95.31	5.20	5.8%
Soybeans	70.49	70.57	0.07	0.1%
Wheat	57.93	56.99	-0.94	-1.6%
9 other crops plus hay	94.24	94.20	-0.04	0.0%
Conservation reserve area	31.28	29.80	-1.48	-4.7%
12 crops + hay + CRP	344.05	346.86	2.81	0.8%
Crop sector prices		(Dollars per bushel)		
Corn farm price	3.39	3.94	0.56	16.4%
Soybean farm price	9.06	10.25	1.19	13.1%
Wheat farm price	5.06	5.46	0.40	7.9%
		(Cents per pound)		
Upland cotton farm price	61.77	62.09	0.32	0.5%
Soybean oil market price, Decatur	35.85	57.94	22.09	61.6%
		(Dollars per ton)		
Soymeal price, 48% protein	268.36	222.41	-45.95	-17.1%
Distillers grain price, Indiana	168.93	134.11	-34.82	-20.6%

*Figures represent average of stochastic results for 2011-2017.

Table 17b. Effects of continuing current policies relative to a no biofuel policy baseline, continued*

	No EISA, credits and tariffs expire	EISA, credits, tariffs extended indefinitely	Absolute difference	Percentage difference
Meat and milk production		(Billion pounds)		
Beef production	28.39	28.36	-0.03	-0.1%
Pork production	24.16	23.93	-0.23	-0.9%
Broiler production	38.74	39.20	0.46	1.2%
Milk production	206.74	206.44	-0.30	-0.1%
Livestock and dairy prices		(Dollars per hundredweight)		
Steers, Nebraska direct	92.27	92.39	0.11	0.1%
Barrows & gilts, 51-52% lean	52.31	52.95	0.64	1.2%
Broilers, 12-city wholesale	78.55	76.85	-1.70	-2.2%
All milk	16.81	16.87	0.06	0.3%
Farm income		(Billion dollars)		
Crop receipts	165.92	179.78	13.86	8.4%
Livestock receipts	146.58	146.32	-0.27	-0.2%
Government payments	10.90	10.66	-0.24	-2.2%
Rent to non-operator landlords	12.30	15.27	2.97	24.1%
Other production expenses	284.50	287.93	3.42	1.2%
Total production expenses	296.81	303.20	6.39	2.2%
Other net farm income	53.61	54.16	0.54	1.0%
Net farm income	80.21	87.72	7.50	9.4%
		(Dollars per acre)		
Value of farm real estate	2,826	3,001	175.64	6.2%
Farm program outlays		(Billion dollars)		
Marketing loans (crop year basis)	0.36	0.30	-0.07	-18.2%
Countercyclical payments (crop year)	0.58	0.50	-0.08	-14.4%
Net CCC outlays (fiscal year basis)	10.20	9.92	-0.28	-2.8%
		(Billion dollars)		
Consumer food expenditures	946.34	951.05	4.70	0.5%

*Figures represent average of stochastic results for 2011-2017.

Impacts of petroleum prices and biofuel policies

The results reported here are very sensitive to a wide range of assumptions. Petroleum prices, in particular, are very important to biofuel markets, and petroleum prices in late May 2008 were far above the levels anticipated just a few months earlier.

To get a sense of how higher petroleum prices might affect the results of the analysis, the 500 stochastic outcomes were sorted by 2008-2017 average petroleum prices. Across all 500 outcomes, the average refiner's acquisition price for petroleum is $67 per barrel, consistent with January 2008 projections by Global Insight. Given the assumed distribution of petroleum prices, the top 10 percent of the stochastic outcomes have an average price of $107 per barrel, still below May 2008 futures prices, but much closer.

Market outcomes can be very different with various combinations of petroleum prices and policies (table 18 and figures 58-61).

- Ethanol production averages just 8.9 billion gallons across all 500 outcomes between 2011 and 2017 when no biofuel support policies are in place, but 13.1 billion gallons across the 50 outcomes with the highest average petroleum prices.

- When all 2008 policies are in place, ethanol production averages 15.6 billion gallons across all outcomes and 17.6 billion gallons across the 50 high oil price outcomes.

- EISA mandates explain this pattern of results. The mandates support biofuel use and production even when low petroleum prices would otherwise result in less consumption and production.

- Across all 500 outcomes, corn prices average $3.39 per bushel with no biofuel support policies and $3.91 per bushel across the 50 high oil price outcomes.

- Corn prices are about the same across the high oil price outcomes with no support policies in place ($3.91 per bushel) as they are across all 500 outcomes with the 2008 mix of policies in effect ($3.94 per bushel).

- The relative impacts of various policies are affected by petroleum prices. Across all 500 outcomes, removing EISA mandates reduces corn prices by 6.2 percent, while allowing tax credits and tariffs to expire reduces corn prices by just 3.6 percent.

- Focusing only on the 50 outcomes with the highest average petroleum prices, removing EISA mandates reduces corn prices by only 0.4 percent, while allowing credits and tariffs to expire reduces corn prices by 6.0 percent.

- In the high oil price outcomes, high ethanol prices generate production sufficient to supply more than the EISA mandated use. Thus, the mandates are not binding and have little or no market impact. Tax credits in this circumstance become more important, as they directly affect producer prices for ethanol when mandates are not binding.

- These results are a reminder that all the estimates reported here will change if an updated baseline incorporates a higher average price of petroleum.

Figure 58. Petroleum prices, 2008-2017 average

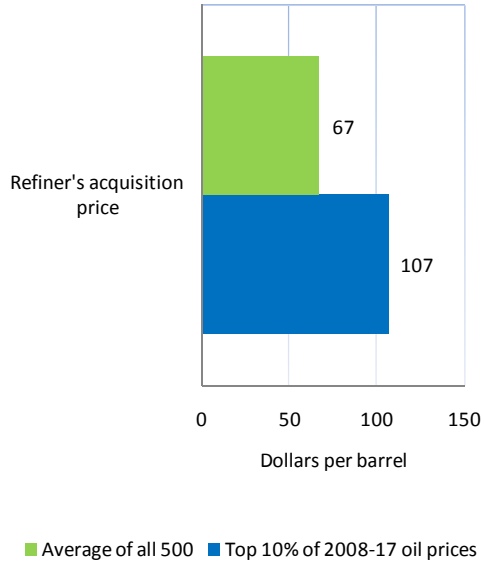

Figure 59. Ethanol production, 2011-2017 average

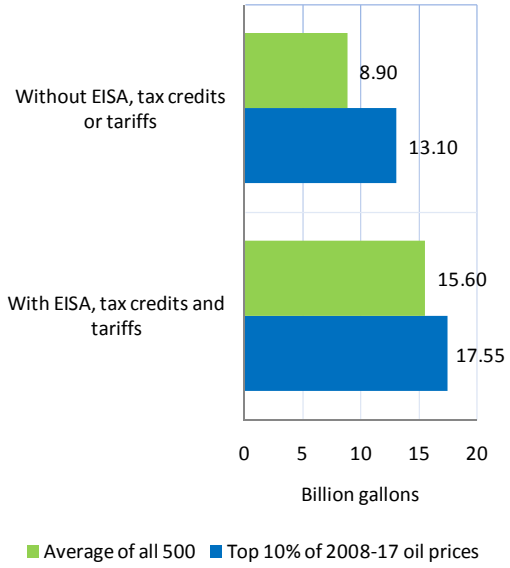

Figure 60. Corn prices, 2011-2017 average

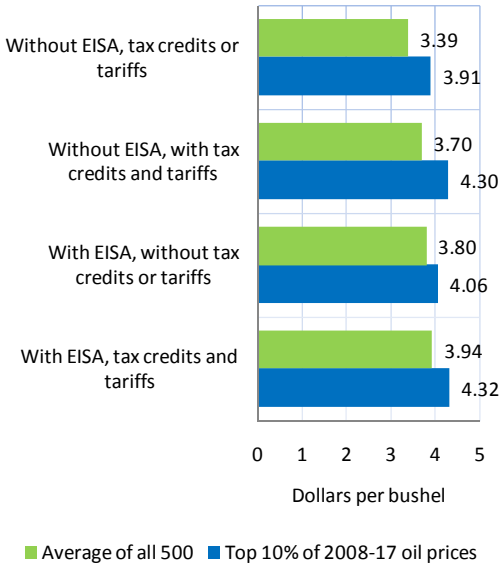

Figure 61. Impacts on corn prices relative to 2008 biofuel policies

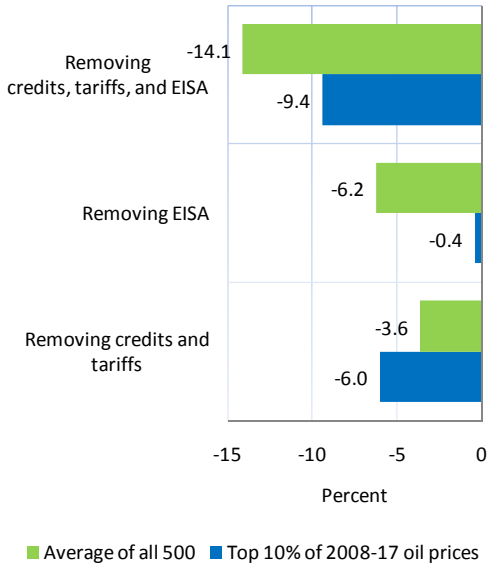

Table 18a. Impacts of petroleum prices and biofuel policies*

	Average of all 500 outcomes	Top 10% of 2008-2017 oil prices	Absolute difference	Percentage difference
	(Dollars per gallon)			
Petroleum refiner's acquisition price	67.45	106.80	39.35	58.3%
Ethanol production	(Billion gallons)			
With EISA, tax credits and tariffs	15.60	17.55	1.95	12.5%
Without EISA, tax credits or tariffs	8.90	13.10	4.21	47.3%
Absolute difference (combined effect)	-6.70	-4.45		
Percentage difference	-43.0%	-25.3%		
With EISA, tax credits and tariffs	15.60	17.55	1.95	12.5%
With EISA, ***without*** tax credits or tariffs	13.74	14.53	0.78	5.7%
Absolute difference (credit and tariff effect)	-1.86	-3.02		
Percentage difference	-11.9%	-17.2%		
With EISA, tax credits and tariffs	15.60	17.55	1.95	12.5%
Without EISA, ***with*** tax credits and tariffs	12.40	17.31	4.91	39.6%
Absolute difference (EISA effect)	-3.20	-0.24		
Percentage difference	-20.5%	-1.4%		
Without EISA, tax credits or tariffs	8.90	13.10	4.21	47.3%
With EISA, tax credits and tariffs	15.60	17.55	1.95	12.5%
Absolute difference (combined effect)	6.70	4.45		
Percentage difference	75.4%	33.9%		
Without EISA, tax credits or tariffs	8.90	13.10	4.21	47.3%
With EISA, ***without*** tax credits or tariffs	13.74	14.53	0.78	5.7%
Absolute difference (EISA effect)	4.85	1.43		
Percentage difference	54.5%	10.9%		
Without EISA, tax credits or tariffs	8.90	13.10	4.21	47.3%
Without EISA, ***with*** tax credits and tariffs	12.40	17.31	4.91	39.6%
Absolute difference (credit and tariff effect)	3.50	4.21		
Percentage difference	39.4%	32.1%		

*Figures represent average of stochastic results for 2011-2017.

Table 18b. Impacts of petroleum prices and biofuel policies, continued*

	Average of all 500 outcomes	Top 10% of 2008-2017 oil prices	Absolute difference	Percentage difference
	(Dollars per gallon)			
Petroleum refiner's acquisition price	67.45	106.80	39.35	58.3%
Corn farm price	(Dollars per bushel)			
With EISA, tax credits and tariffs	3.94	4.32	0.37	9.4%
Without EISA, tax credits or tariffs	3.39	3.91	0.52	15.4%
Absolute difference (combined effect)	-0.56	-0.41		
Percentage difference	-14.1%	-9.4%		
With EISA, tax credits and tariffs	3.94	4.32	0.37	9.4%
With EISA, ***without*** tax credits or tariffs	3.80	4.06	0.26	6.7%
Absolute difference (credit and tariff effect)	-0.14	-0.26		
Percentage difference	-3.6%	-6.0%		
With EISA, tax credits and tariffs	3.94	4.32	0.37	9.4%
Without EISA, ***with*** tax credits and tariffs	3.70	4.30	0.60	16.1%
Absolute difference (EISA effect)	-0.24	-0.02		
Percentage difference	-6.2%	-0.4%		
Without EISA, tax credits or tariffs	3.39	3.91	0.52	15.4%
With EISA, tax credits and tariffs	3.94	4.32	0.37	9.4%
Absolute difference (combined effect)	0.56	0.41		
Percentage difference	16.4%	10.4%		
Without EISA, tax credits or tariffs	3.39	3.91	0.52	15.4%
With EISA, ***without*** tax credits or tariffs	3.80	4.06	0.26	6.7%
Absolute difference (EISA effect)	0.41	0.15		
Percentage difference	12.2%	3.8%		
Without EISA, tax credits or tariffs	3.39	3.91	0.52	15.4%
Without EISA, ***with*** tax credits and tariffs	3.70	4.30	0.60	16.1%
Absolute difference (credit and tariff effect)	0.31	0.39		
Percentage difference	9.2%	9.9%		

*Figures represent average of stochastic results for 2011-2017.