



*Rice  
Science*

FOR  
DECISION-  
MAKERS

VOL. 8 • APRIL 2018 • ISSN 2094-8409

# HOW THE TAX REFORM FOR ACCELERATION AND INCLUSION LAW IMPACTS RICE FARMERS

AILEEN C. LITONJUA • JESUSA C. BELTRAN

## INTRODUCTION

Fuel prices have significantly increased mainly because of the Tax Reform for Acceleration and Inclusion (TRAIN) law implemented starting in early 2018. The Department of Energy says the average prices of gasoline and diesel in major rice producers Cagayan, Pangasinan, Isabela, Nueva Ecija, and Iloilo have respectively shot up from PhP44/li and PhP34/li in December 2017 to PhP48/li and PhP39/li in February 2018. The TRAIN's imposition of increased excise tax, unstable global fuel prices, and the peso-dollar exchange rate conspired to raise the prices.

This policy brief pinpoints the farmers who will bear the brunt of high fuel prices, and analyzes their effects on the farmers' production cost and income.

## KEY POINTS

- Farmers who depend on pumps for irrigation water suffer from the increased fuel prices. Their fuel consumption accounts for some 30% of their total production cost.
- TRAIN increases the production cost of pump-dependent farmers by 50 centavos for every kilogram of palay produced, which diminishes their income by 10%.
- Mechanization does not significantly increase farm fuel cost.
- To cushion the ill effects of TRAIN on rice farming, pump-dependent farmers have to continue using yield-enhancing technologies, reduce harvest losses through mechanization, and adopt water-saving technologies like Alternate Wetting and Drying (AWD). Government programs that promote and/or provide these technologies will be helpful.
- The government has to hasten the completion of projects on large-scale irrigation systems as these will help farmers access cheaper and reliable water.



**Specific tax refers to the tax on the production, sale, or consumption of a commodity in a country, which is based on weight or volume capacity or any other physical unit of measurement.**



Source: BIR (<https://www.bir.gov.ph/index.php/tax-information/excise-tax.html>)

## WHAT IS TRAIN?

In December 2017, the government adopted Republic Act 10963 or the TRAIN law. It is the first package of the Comprehensive Tax Reform Program (CTRP) that aims to create a simpler, fairer, and more efficient tax system (DOF, n.d.). Under the law, taxpayers who earn more will pay bigger taxes.

One of the TRAIN's highlights is the higher specific tax on petroleum products (PhP2.50/li diesel and PhP7.00/li gasoline), which was last increased in 1997. This will respectively escalate to PhP4.50 and PhP9.00 in 2019, and PhP6.00 and PhP10.00 in 2020 (DOF, n.d.).

## WHO WILL SUFFER MOST FROM INCREASED FUEL PRICES?

Table 1 contrasts the fuel consumption of a typical farmer with that of a more mechanized farmer. The mechanized activities of a typical farmer are

land preparation, irrigation, and threshing. Land preparation involves either a hand tractor only or also with a four-wheel tractor. He/She uses pumps that draw water from the ground or open source to irrigate seedbeds and/or his/her main field. His/Her axial-flow thresher is fueled by gasoline. On top of these machines, a mechanized farmer also uses a mechanical transplanter and a combine harvester instead of a thresher.

Table 1 shows that the consumptions of both farmers do not differ significantly. The mechanized farmer only uses an additional 16-26 liters per ha, equivalent to PhP600-1,000/ha more cost under TRAIN-lifted prices. The estimated PhP6,000/ha additional net income (Litonjua et al., 2016) from using the combine harvester more than offsets the additional cost. Therefore, the increase in fuel prices has less impact on farmers who choose to mechanize.

The fuel consumption of farmers who exclusively rely on the National Irrigation System (NIS) significantly

**Table 1.** Estimated fuel consumption (li/ha) in rice farming, by farmer classification and source of irrigation.

Farmer classification/ mechanized operations	Source of irrigation		
	NIS <sup>a</sup> only	NIS with pump <sup>b</sup>	Pumps only
<b>Typical Farmer</b>			
Land Preparation	29	29	39
Irrigation	0	140	348
Threshing	10	10	10
<b>Total</b>	<b>39</b>	<b>179</b>	<b>397</b>
<b>More mechanized farmer</b>			
Land Preparation	39	39	39
Transplanting	10	10	10
Irrigation	0	140	348
Combine Harvesting	16	16	16
<b>Total</b>	<b>65</b>	<b>205</b>	<b>413</b>

Source of raw data: Rice Engineering and Mechanization Division, PhilRice

<sup>a</sup>National Irrigation System

<sup>b</sup>For supplemental irrigation or as a conveyor

differs from that of farmers who use pumps for irrigation. NIS-irrigated farmers consume an estimated 39-65 li/ha only, equivalent to only 3-5% of their total production cost<sup>1</sup>. Farmers who use pumps to supplement irrigation consume 179-205 li/ha, accounting for 13-15% of their total expenses. Fuel consumption more than doubles for farmers who fully rely on pumps (397-413 li/ha), accounting for 29-30% of their total production cost. The fuel price increases, therefore, disadvantage farmers who highly depend on pumps for water supply.

Fortunately, consolidated survey data of PhilRice attest that only 18% of the 2,500 sample farmers totally depend on pumps for irrigation or as a conveyor of water. The situation implies that only a few farmers in certain areas would be hit by the higher fuel prices.

## IMPLICATIONS ON PRODUCTION COST AND INCOME

This section deals only with pump-dependent farmers because they will particularly bear the ill effects of TRAIN. Prior to the implementation of the tax reform law, these farmers were spending an average fuel cost of PhP14,000/ha. With TRAIN, this cost will grow by some PhP2,000/ha, equivalent to about 50 centavos additional cost for every kilogram of palay produced.

If this bigger production cost would increase the palay farmgate price, the income of pump-dependent farmers would not shrink. However, if price would not move, then their income constricts by 10% from PhP5.12/kg (in 2016) to PhP4.62/kg (Table 3).

**Table 3.** Effect of TRAIN on income of pump-dependent farmers.

Items	Value (PhP/kg)
Farmgate price (PSA, 2016)	17.43
Unit cost	12.31
Income before TRAIN	5.12
Income after TRAIN	4.62
% Reduction in income per kg of palay	10%

This situation shows that TRAIN could either make our pump-dependent farmers even less competitive due to increased production cost or deprive them of a higher income. This could happen if these farmers are unable to outsmart the higher cost.

To offset the increased cost, they must produce an additional yield of 105 kg/ha to maintain the same level of income. Less harvest losses also spell more net yield. The DA-PHilMech (n.d.) asserts that farmers incur 4.29% harvest losses, which steal 214 kg/ha from the would-be gross yield of 5,000 kg/ha. Adopting the combine harvester can reduce this to only 2.11% (Regalado and Ramos, 2016), thereby saving more farmers' produce without having to significantly increase fuel cost.

Likewise, water-saving options like the Alternate Wetting and Drying (AWD) technology must be aggressively promoted among pump-dependent farmers. This technology reduces water-use by 16-35% without decreasing grain yield, for the further advantage of farmers.

The government will do well to hasten the completion of existing irrigation projects. This will provide farmers with a free and reliable irrigation supply, and also help pump-dependent farmers save on irrigation cost.

**Table 2.** Changes in fuel costs of farmers, by source of irrigation.

Source of Irrigation	Total Fuel Cost (PhP/ha)		Difference	
	Before TRAIN	After TRAIN	PhP/ha	PhP/kg
NIS only	1,860	2,109	249	0.06
NIS with pump	6,620	7,569	949	0.24
Pump only	13,862	15,876	2,014	0.50

Notes: 2017 palay yield (source: PSA) - 4.0 mt/ha  
2016 unit cost (source: PSA) - PhP12.31/kg  
Fuel prices (based on provincial data of DOE):

	Dec-17	Feb-18
Gasoline	44	48
Diesel	34	39

<sup>1</sup> Computed using the 2016 Philippine Statistics Authority (PSA) production cost estimate at PhP47,625/ha.



## CALL FOR ACTION

- Continue promoting yield-enhancing technologies in pump-irrigated areas. This will help farmers offset the increased production cost.
- Use farm machines to significantly reduce harvest losses that raises yield and income.
- Intensify promotion of water-saving technologies like AWD, especially in areas heavily reliant on pumps.
- Hasten the completion of existing irrigation projects to provide farmers with reliable and free irrigation water.
- Explore ways to provide farmers with discounted fuel. This will directly unburden them of the ill effects of TRAIN on rice farming.



## CITED REFERENCES:

[DOF] Department of Finance. nd. Tax Reform Now (TRAIN English Primer), <http://www.dof.gov.ph/taxreform/index.php/downloadables/> Accessed 5 March 2018.

Litonjua, A.C., F.H. Bordey, R.B. Malasa, E.G. Bautista, and J.Y. Siddayao. 2016. Mechanizing Postharvest Work Enhances Farmers' Competitiveness, *Rice Science for Decisionmakers*, Vol 7, 4 p.

[PhilMech] Philippine Center for Postharvest Development and Mechanization. nd. Postharvest losses, <http://www.philmech.gov.ph/?page=phlossinfo> Accessed 13 March 2018.

[PhilRice] Philippine Rice Research Institute. 2000. Controlled Irrigation: a water-saving technique for transplanted rice, Technology Bulletin No. 29. Science City of Muñoz, Nueva Ecija: PhilRice.

Regalado, M.J.C. and P.S. Ramos. 2016. Postharvest management key checks and best practices for improving the rice postproduction system, a paper presented during the 66th National Convention of the Philippine Society of Agricultural Engineers, April 2016.

## ABOUT THE MATERIAL

Rice Science for Decision-Makers is published by the Department of Agriculture-Philippine Rice Research Institute (PhilRice). It synthesizes findings in rice science to help craft decisions relating to rice production and technology adoption and adaptation. It also provides recommendations that may offer policy triggers to relevant rice stakeholders in search of opportunities to share their knowledge on rice-related products.

The articles featured here aim to improve the competitiveness of the Filipino rice farmers and the Philippine rice industry through policy research and advocacy.

This issue discusses the effect of the Tax Reform Acceleration and Inclusion (TRAIN) law on the production cost of rice farmers. It particularly focuses on their fuel consumption before and after the implementation of TRAIN, and its ripples on the expenses and income of pump-dependent farmers. The paper calls for promotion and use of water-saving technologies that will lower production cost and increase grain yield, especially in pump-irrigated areas.

For comments and requests for additional copies, please write to:

### Development Communication Division

Philippine Rice Research Institute  
Maligaya, Science City of Muñoz, Nueva Ecija  
Contact: mg.layaoen@philrice.gov.ph • (44) 456-0258, 0277-0285 loc. 500  
PhilRice Text Center: 0920-911-1398

Rice Science for Decision-Makers • April 2018

Authors: Aileen C. Litonjua, Jesusa C. Beltran

Managing Editor: Myriam G. Layaoen

Design and Layout: Carlo G. Dacumos

Language Editor: Constante T. Briones

Subject Matter Specialists: Arnold S. Juliano, Ronell B. Malasa

Editorial Advisers: Saillila E. Abdula, Flordeliza H. Bordey, Ronan G. Zagado

Published by PhilRice as a policy advocacy material.



**Philippine Rice Research Institute**  
Central Experiment Station  
Maligaya, Science City of Muñoz, 3119 Nueva Ecija

