

Economic Impact of a Repeal of the Jones Act for Regional Soybean Markets

**Policy Brief Written for the Benefit
Soybean Producer's[#]**

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[#] This paper serves as a non-technical summary of the more comprehensive and technical analysis in Piggott and Goodwin (2002) (visit www.ag-econ.ncsu.edu/faculty/piggott/jones_act_pg.pdf for copies of this paper or e-mail: nick_piggott@ncsu.edu). This work was supported by a grant from the North Carolina Soybean Association.

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Introduction

The United States protects U.S. flagged carriers and U.S. shipbuilders from foreign competition in the U.S. domestic maritime market under provisions in Section 27 of the Merchant Marine Act of 1920 (46 U.S.C. 883). This legislation has become commonly referred to as the Jones Act, named after Senator Wesley L. Jones (WA). The Jones Act requires that all cargo moving between U.S. ports be carried on U.S. owned and built vessels, operated by American crews. The laws protects barge operators on the inland waterways, freighters on the Great Lakes, and deep-sea ocean carriers serving Hawaii, Alaska, Puerto Rico, and Guam.

A primary justification of the legislation is to ensure safety standards, environmental protection, and the existence of an adequate domestic merchant marine fleet for national security—a fourth arm of the military. Much of the debate over whether this legislation should be repealed has focused on national security. Those opposing a repeal are concerned that foreign competition could threaten the adequacy of the U.S. domestic fleet and raise fears that foreign ship owners may not be willing to risk their fleets during times of conflict to transport supplies and equipment to troops in combat overseas. Those in favor of a repeal argue that during the Gulf war no Jones Act vessels participated and that the Jones Act had to be partially suspended to ensure that adequate fuel supplies were maintained for the nation's defense (Quartel 1991). The contention of the those wanting reform is that the regulation and protectionism that was deemed necessary to maintain the domestic fleet in the 1920s on the contingency that it would play a vital role in national security appears to be unnecessary more recently (i.e. the Gulf War).

According to a U.S. International Trade Commission (USITC) report in 1999 "as of July 1998, the active Jones Act fleet consisted of 113 oceangoing vessels over 1,000 tons, including self-propelled integrated tug-barges" (pg. 88). This report also states that "in 1996, that all waterborne commerce covered by the Jones Act, including ocean borne, lake-wise, and inland shipping, amounted to approximately 1,101 million short tons of traffic and revenues of \$7.7 billion" (pg. 88). The USITC 1999 report estimated that removing the Jones Act would result in a 22 percent reduction in the price of shipping and would result in approximately a \$1.32 billion welfare gain to the U.S. economy.¹ A reasonable expected result of this decline in rates for waterborne transportation is additional pressure on internal rail freight prices, as these modes of transportation compete in domestic commerce.²

¹ A previous study also done by the USITC in 1995 estimated a 26 percent reduction in shipping rates and an economic welfare gain of approximately \$2.8 billion if the Jones Act were repealed.

² It is important to note, that in reality it is difficult to establish what the magnitude of the declines in rates might be since it is difficult to quantify the cost of compliance for foreign investors in U.S. domestic trades since there are no data for foreign-flagged vessels operating in the U.S. routes because the Jones Acts currently bars foreign entry in domestic trade.

The agricultural sector has a vested interest, and so accordingly has been involved in the debate over repeal of the Jones Act. At a 1996 hearing before the Subcommittee on Coast Guard and Maritime Transportation (of the House Committee on Transportation and Infrastructure), several agricultural representatives argued for a repeal of the Jones Act. The president of the American Farm Bureau pointed out the importance of waterborne transportation to U.S. agriculture in transporting products and argued that current laws undermine the ability of U.S. farmers to compete with foreign producers who can move their products into U.S. markets on competitive foreign vessels (pg. 61, transcript). A key issue for U.S. grain farmers has been that there are no Jones Act vessels that are shipping grain from the mid-West to the Southeast, thus preventing livestock producers in these areas access to waterborne American-grown grain (logistical arguments of the feasibility of this route notwithstanding). Instead, on occasions the Southeastern poultry and pork industries have had to resort to importing foreign grain on foreign-flagged and owned ships rather than U.S. grown grain. This has been perceived to represent lost sales for U.S. farmers.

A coalition of eastern North Carolina farmers engaged in production of livestock and poultry also testified that historically they have relied on rail transportation originating in the eastern grain belt to supplement local supplies. Admitting that rail will probably remain the primary mode of grain movement from other states as demand increases (logistically this is most favorable), concerns over relying too heavily on one source of transportation when feeding live animals were also raised. They argued that movement of grain by water would be a viable transportation alternative but noted that the only competitive cargo under the current legislation is foreign-origin cargoes delivered into the port of Wilmington (pg. 69, transcript). The remainder of this article focuses on what a repeal of the Jones Act would mean for North Carolina soybean producers and the U.S. soybean producers who export soybeans to North Carolina.

What is at Stake for North Carolina Soybean Producers?

Based on 1999 estimates, the North Carolina soybean industry was valued at \$139 million, producing 29.2 million bushels of soybeans with an average yield of 23 bushels per acre. Total production in the U.S. soybean industry in 1999 amounted to 2.7 billion bushels, an average yield of 37 bushels per acre, with production valued at \$12.4 billion. The value of North Carolina production accounts for 1.12 percent of the total value of U.S. soybean production.

North Carolina is a soybean deficit state, importing a substantial volume of soybeans to support the large hog and poultry industries in the state.³ Because North Carolina must import soybeans from other states to satisfy local demands, the price of soybeans in North Carolina tends to be higher than the U.S. average, presumably reflecting the cost of transportation. That is, North Carolina soybean producers receive a premium on locally produced soybeans due to the costs involved in importing the additional soybeans into the state that are required to satisfy

³ For 1999, total demand for soybeans in North Carolina was estimated at 67.5 million bushels with production in North Carolina only amounting to 29.9 million bushels, requiring that 37.6 million bushels be imported (about 58 percent).

demand. If repealing the Jones Act has the effect of reducing domestic waterborne freight rates, and in turn lowering the competitive internal (rail) freight rates, this will reduce the premium to North Carolina soybean producers. Furthermore, there are also trade impacts from a reduction in transportation costs—less North Carolina soybeans will be supplied in response to the reduction in price and there will be an increase in soybean imports from other states.

The Demand and Supply Effects on Soybeans Producers

Despite the challenges involved in determining the level of transactions costs and the extent to which transactions costs might be reduced as a result of reform, it is straightforward to evaluate the price, quantity, and welfare implications for the different regions involved for a reduction in transactions costs. For the purposes of formulating these impacts, it is useful for the U.S. soybean market to be broken into two regions—North Carolina (*NC*) and the Rest of the U.S. (*RUS*)—and to recognize inter-state trade. Figure 1 provides a graphical representation of the impacts of a lowering the transactions costs (t) of trading soybeans between *RUS* and *NC*. We model the transactions costs in an ad-valorem manner, implying that the transactions costs associated with importing soybeans into *NC* varies according to the price level in *RUS* [i.e., $P_b^{nc} = P_b^{rus}(1+t)$]. At the equilibrium price in *NC* of P_b^{nc} , there is a corresponding level of production of S_b^{nc} and quantity demanded of D_b^{nc} representing a deficit of soybeans in *NC* ($D_b^{nc} - S_b^{nc}$) that must be made up by imports from the *RUS* equaling B ($B = D_b^{nc} - S_b^{nc}$). The price in the *RUS* of P_b^{rus} is less than P_b^{nc} by an amount equal to the cost of transporting soybeans between regions ($P_b^{rus}t$). At the equilibrium price in *RUS* of P_b^{rus} , there is a corresponding level of production of S_b^{rus} and quantity demanded of D_b^{rus} representing a surplus in *RUS* ($S_b^{rus} - D_b^{rus}$) that can be exported from the *RUS* equaling B ($B = S_b^{rus} - D_b^{rus}$). A reduction in transactions costs from $P_b^{rus}t$ to $P_b^{rus'}t'$ reduces the price differential between regions with a lower equilibrium price in *NC* of $P_b^{nc'}$ and a higher price in *RUS* of $P_b^{rus'}$. The prices converge as the transactions costs decrease. The higher price of $P_b^{rus'}$ in *RUS* causes an increase in the quantity supplied by *RUS* producers ($S_b^{rus'}$) but a decline in the quantity demanded ($D_b^{rus'}$) in the *RUS*—increasing the amount of surplus production in *RUS*. In the *NC* region, the lower price $P_b^{nc'}$ results in a reduced quantity being supplied by *NC* producers ($S_b^{nc'}$) but an increase in the quantity demanded ($D_b^{nc'}$)—increasing the deficit in *NC*. Overall, the reduction in transactions costs between regions stimulates trade ($B'-B$) and has some definite welfare implications for soybean producers in each region. For the producers in *NC* the decline in production that earns a lower price is welfare reducing (area A). For the producers in the *RUS*, the increase in production that earns a higher price is welfare increasing (area B).

Welfare Effects of a Repeal for Soybean Producers

Figure 1 reveals that the estimated changes in prices, quantities demanded and supplied, and the subsequent welfare effects in each region hinge critically on the responsiveness of demand and supply to changes in price—the respective elasticities of demand and supply. In addition, the magnitude of the price and quantity changes will also depend on the size of the transactions

costs involved in importing soybeans into *NC*. A recent study by Piggott and Goodwin (2002) quantified these key parameters so that the welfare effects from a reduction in transactions costs could be estimated for soybean producers in each of the regions. Historical data and quantitative methods were utilized to generate estimates of the elasticities of demand and supply for each region as well as the magnitude of transaction costs involved in importing soybeans into North Carolina (see Table 1 for these estimates). Each of these tasks involved various challenges. The demand elasticity for soybeans depends on demand elasticities for soybean meal and oil (due to the joint product nature of soybeans), and to further complicate matters, soybean meal and oil are also traded internationally, which must be taken into account. Estimating the transaction costs involved in importing soybeans into North Carolina involves an inherent problem in spatial models of trade—obtaining data on transportation and other transaction costs. A common approach in dealing with the absence of these data is to compare prices in different locations over an extended period of time. The differences over time should reflect the costs of transportation and other transaction costs.

Utilizing a similar but slightly more sophisticated technique than that used by Goodwin and Piggott (2001), a neutral band representing transactions costs was established to exist between several key soybean producing regions and North Carolina.⁴ For two spatially separated markets, the neutral band implies that, for price differences inside the band, prices are not linked to one another as the differential is not sufficient to cover the transactions costs involved in trading soybeans between the two markets. For differentials outside this neutral band, there are arbitrage opportunities from trade and so the markets are linked and prices adjust back to equilibrating levels through trade. Thus, the width of this band serves an estimate of the transactions costs involved in trading soybeans between two regions. For example, it was determined that a threshold proportional price difference of 3.64 percent exists between prices in Ohio (an eastern Corn-Belt market that serves the Southeast by rail) and North Carolina. That is, there would need to be a price differential of more than 3.64 percent between the prices in North Carolina and Ohio to trigger price-equalizing arbitrage activities.

Table 1 shows the price, quantity, and welfare effects from a simulated 22 percent reduction in transactions costs involved in transporting soybeans into *NC* from the *RUS* taken from Piggott and Goodwin (2002). A 22 percent reduction was used in simulations because this was the estimated impact on shipping rates from the USITC's 1999 study. The implicit assumption being made in this context is that we might expect a similar decline in other modes (such as rail) as a result of additional competition. The reduction in transaction costs results in a 0.733 percent reduction in the price of soybeans in *NC*, or \$0.05 per bushel, based on the average price of \$6.686 per bushel. This lower price induces a reduction in the quantity supplied of 0.687 per cent or about 0.243 million bushels. This amounts to a loss in producer

⁴ The slightly more sophisticated modification of the threshold effects involved allowing the neutral band implied by transaction costs to be variable and be influenced by such factors as fuel charges and seasonal factors.

surplus for *NC* soybean producers of \$1.728 million dollars, annually. Exports from the *RUS* increase an estimated 2.220 percent or 0.792 million bushels. The simulated price increase in the *RUS* is very small, equaling 0.040 percent (less than \$0.01 per bushel) since trade with *NC* only makes up a small percentage of total demand. There is also a small increase in supply (0.018 percent) and decline in demand (0.013) in response to this slightly higher price. Although the price change is much smaller due to the large quantity supplied in *RUS* the benefit to producers is \$6.583 million.

Conclusion

Agricultural producers have been involved in the recent debate over reform of the Jones Act. This article has focused on the impact on soybean producers in North Carolina (*NC*) and the Rest of the U.S. (*RUS*) from a repeal of the Jones Act. Each of the respective parties in this debate has its own self-interest at stake and, not surprisingly, their positions are determined by whether or not they stand to benefit. Using the estimate of the transactions costs between North Carolina-Ohio of 3.64 percent as representative of transactions costs associated with trade between the *RUS* and *NC*, we simulated the effects of a 22 percent reduction in these transactions costs that might transpire if the Jones Act was repealed (the USITC's best estimate) on the two regions of *RUS* and *NC*. The benefits to producers in the *RUS* (\$6.583 million) are larger than the costs to soybean producers in *NC* (\$1.728 million). With this being the case, there may be incentives for producers in the *RUS* to offer compensating measures to *NC* producers in the interest of all soybean producers being united on this contentious issue of seeking a reform of the Jones Act. The overall magnitude of welfare effects are small in comparison to total receipts which should also be helpful to policy-makers in setting priorities. Finally, it is important to acknowledge that our results apply only to trade between North Carolina and the Rest of the U.S. To the extent that repeal of the Jones Act would have similar effects on transactions costs among other regional markets, similar effects would be realized and the overall welfare gains from repeal of the Act would be accordingly greater.

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Figure 1: Impacts of a Reduction of Transaction Costs

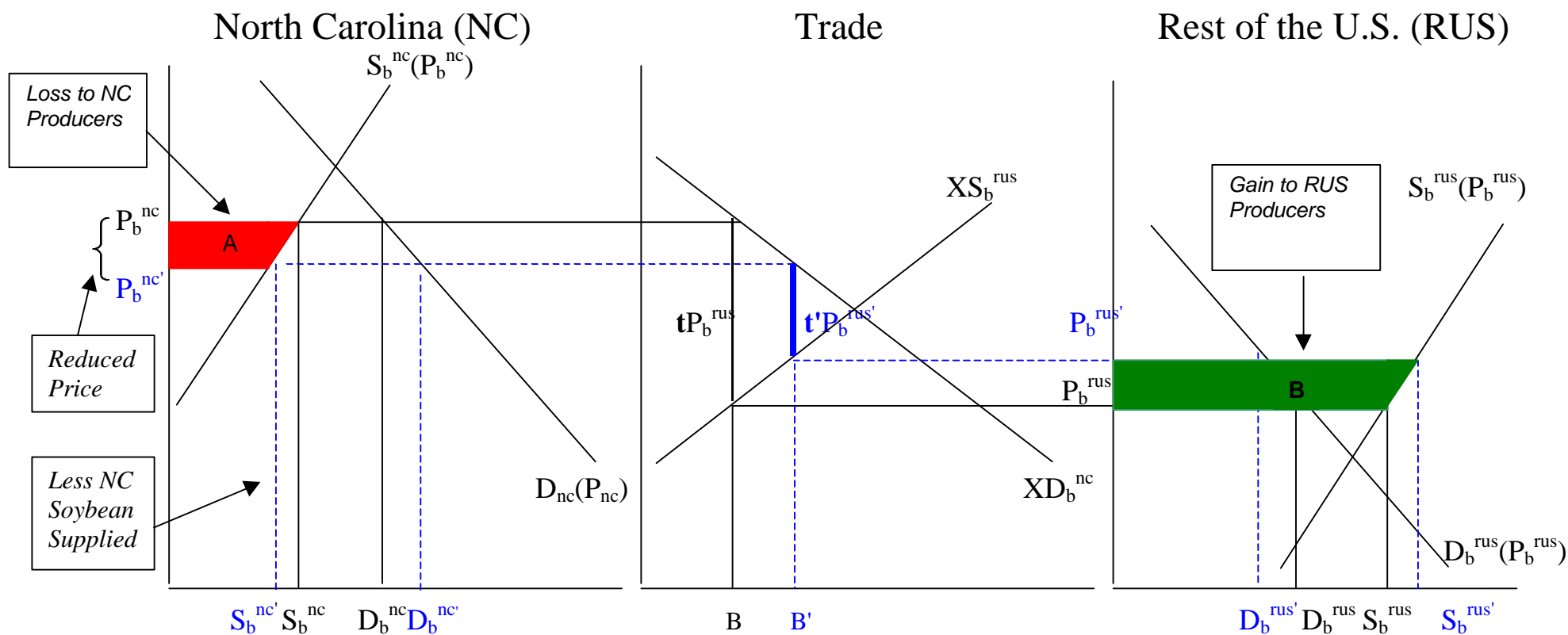


Table 1: Elasticities and Simulated Price, Quantity, and Welfare Effects for a 22 Percent Transactions Costs Reduction

	North Carolina				RUS			
<i>Elasticities</i>								
Demand			-1.054				-0.337	
Supply			0.937				0.444	
Transaction Costs	3.64 percent							
<i>Quantity, Price and Welfare Measures</i>								
	Before	% Δ	After	Δ	Before	% Δ	After	Δ
Supply (mil. bu)	35.370	-0.687	35.127	-0.243	2,584.630	0.0175	2,585.08	0.453
Demand (mil. bu)	71.048	0.773	71.597	0.549	2,548.953	-0.013	2,548.61	-0.339
Price (\$/bu)	6.686	-0.733	6.637	-0.049	6.451	0.039	6.453	0.003
Trade (mil. bu)	35.678	2.220	36.470	0.792	35.678	2.220	36.369	0.691
Change in PS (mil. \$)	-1.728				6.583			

Notes: Baseline for simulations are the annual averages over the period 1996-1999. Source is Piggott and Goodwin (2002).