Province specific impacts of the 2006 United States-Canada Softwood Lumber Agreement: A seemingly unrelated regression approach

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ABSTRACT

In this paper, we evaluate effects of the 2006 U.S.-Canada Softwood Lumber Agreement (SLA 2006) in U.S. lumber imports from Canadian provinces. Based on monthly data from January 1988 to October 2015, we estimate a system of U.S. softwood lumber import equations by using Seemingly Unrelated Regression approach. The results reveal that SLA 2006 had a negative impact on softwood lumber shipments to the U.S. from British Columbia, Ontario, Quebec, and Saskatchewan, and no effect on those from SLA-exempted provinces. Thus, SLA 2006 did not provide an opportunity for trade diversion from SLA covered provinces to exempted provinces.

1. Introduction

Bilateral trade in softwood lumber is the subject of a long standing and ongoing dispute between Canada and the United States. The modern version of the dispute started in 1982 when a group of U.S. softwood lumber producers alleged that Canadian lumber was subsidized though low stumpage fees under Canadian provincial stumpage systems and when the U.S. Department of Commerce officially launched a countervailing duty investigation. Despite the fact that no subsidy was conferred in this investigation, U.S. lumber producers were not deterred. Repeated efforts by U.S. lumber producers using political pressures—along with help from U.S. lawmakers and administration, the inability of U.S. lumber consumers to defend their interests, and the untimely concessions by Canadian federal and provincial governments to advance other objectives—have led to trade restrictions on Canadian softwood lumber to the U.S. in 24 of the last 30 years. These restrictions are in the forms of Memorandum of Understanding (MOU) from 1987 to 1991, Softwood Lumber Agreement of 1996 (SLA 1996) from 1996 to 2001, and SLA 2006 from 2006 to 2015, as well as the litigation period of 2001 and 2006 which left an approximately 5% tariff, collected on Canadian lumber, in the U.S.

Canadian provinces have been divided in their positions and defenses regarding to this dispute (Zhang, 2007). British Columbia (BC), Quebec (QC), Ontario (ON), and Alberta (AB), the largest four softwood lumber producers of Canada, were subject to all trade restrictions, and Saskatchewan (SK) and Manitoba (MB) were also included in the last trade agreement. BC, QC, and AB are in large part primary lumber

manufacturing provinces, while ON has a higher proportion of secondary lumber manufacturing, or 'remanufacturing'. Typically ON secondary processing sawmills source wood from QC primary sawmills to work into higher value product. By far, QC is a timber supplier to QC and ON primary sawmills, and QC primary sawmills also supply processed wood to ON secondary remanufacturers. The maritime provinces of New Brunswick, Nova Scotia, Newfoundland and Labrador, and Prince Edward Island were exempt from all restrictions under the 2006 SLA, because a significant proportion of those timber harvests occur on private land and because those regions are predominantly hardwood species. Thus, it is possible that there may be trade diversion from restricted provinces to unrestricted provinces in Canada when trade restrictions are in place. Trade diversion reduces the benefits to U.S. producers from trade restrictions, and consequently, U.S. producers considered trade diversion to non-restricted provinces to be a serious threat, especially under SLA 1996 (Zhang, 2007). In the latest call for a quota scheme, the U.S. Lumber Coalition (hereafter referred to as the Coalition) which represents U.S. producers, simply demands that all of Canada should be under a single quota system (U.S. Lumber Coalition, 2016). The justification for this demand is that maritime provinces have had a significant increase in timber harvest on public lands since 2014. In reality, however, it is because the Coalition wanted to avoid trade diversion from restricted provinces to non-restricted provinces. Yet, it is unclear if there was such a trade diversion at all. More importantly, it is unclear if trade restrictions have different impacts on various provinces in Canada. These took different positions in the previous rounds of litigation and negotiations; presumably due to differences in their

resource endowments, policy regimes, and possible impacts on their provincial economy under different trade schemes.

The purpose of this paper is to estimate the impact of SLA 2006 on softwood lumber exports from various Canadian provinces and regions to the U.S. Specifically, we test the following hypotheses. Firstly, did SLA 2006 cause differential impacts on softwood lumber exports from SLA-covered Canadian provinces? If it did, what was the relative magnitude of this reduction, and why? Secondly, did SLA 2006 promote softwood lumber exports to the U.S. from non-SLA covered provinces? If it did, what was the magnitude of this promotion? The next section starts with a brief review of literature on the trade dispute, followed by our estimation model and data. The remaining sections present our empirical results and conclusions and discussion.

2. Literature review

Since this dispute is the longest and largest trade dispute between the two countries and is the largest forest products trade dispute in the world, there are many studies on it. Studies relevant to this paper include the structures of various trade restrictions and their impacts on Canadian lumber exports to the U.S. Zhang (2007), among others, provided a summary of four trade restriction measures.

The first was a 15% export tax or a permanent stumpage replacement measure under MOU. British Columbia and Quebec implemented the stumpage replacement measures and, by September 1991, were allowed to reduce its export tax to 0% and 3.1% respectively. Ontario and Alberta were not big exporters of softwood lumber to the U.S. at the time.

The second was a tariff-rate quota under SLA 1996. A tax-free quota of 14.7 billion board feet (bbf) was allocated to the 4 Canadian provinces. The next 650 million board feet (mmbf) exports are subject to a U.S. $50 per thousand board feet (mbf) export fee. Additionally covered exports are subject to a $100/mbf fee. The fee level is adjusted annually for the difference in inflation rate between the two countries. SLA 1996 covers in a period when lumber prices were highest in the U.S. history, and the four provinces collectively surpassed the second tier quota in the five years under SLA 1996.

The third was a combination of countervailing and anti-dumping duty imposed on Canadian lumber imports between August 2001 and October 2006. Although some 80% of the duties collected have been returned to Canadian producers under SLA 2006, US$1 billion was retained in the U.S., including $US 500 million that were given to U.S. producers. This US$1 billion represented a 4–5% tariff on all Canadian lumber exports to the U.S. in the same period.

The fourth was a price specific export tax rated quota system under SLA 2006 (SLA, 2006). Using Option A as an example, a 15% export tax is levied on Canadian lumber exports to the U.S. when the prevailing monthly softwood lumber composite price in the U.S. is below $315 per thousand board feet (mbf); a 10% export tax is applied when the composite lumber price is between $316 and 335/mbf, a 5% export tax is applied when the composite lumber price is between $336/mbf and $355/mbf, and 0% is applied if the prevailing monthly price is above $355/mbf and if a region does not go above its allocated share (triggering volume). Therefore, free trade was possible under SLA 2006. Indeed, in the 9 years — or 108 months — under SLA 2006, a 15% tax was applied in 66 months, a 10% tax was applied in 9 months, and a 5% tax was applied in 8 months, and a 0% tax (free trade) was applied in 25 months. The weighted average tax rate is 10.37% for the whole 108 months, or 13.49% in the 83 months when export tax rate was greater than 0%. Again, unlike MOU and SLA 1996, Manitoba and Saskatchewan were included in SLA 2006.

Early simulation and empirical studies by Boyd and Krutilla (1987), Chen et al. (1988), Wear and Lee (1993), and Myneni et al. (1994) evaluated the effectiveness of MOU. Likewise, Lindsey et al. (2000), Zhang (2001, 2006), van Kooten (2002), Kinnucan and Zhang (2004), and Baek and Yin (2006) studied the effects of SLA 1996. Other studies

which evaluated the effects of the U.S. retaliatory countervailing duties (CVD) and anti-dumping (AD) tariffs during the period of 2001–2006 include Adams (2003), Devadoss et al. (2005), Devadoss (2006), Mogus et al. (2006), and Song et al. (2011). Baek (2011, 2012), Nagubadi and Zhang (2013), and Parajuli et al. (2015) looked into the effects of SLA 2006 in its 5–7 years of operation on the U.S. lumber imports from Canada. Recently, Parajuli and Zhang (2016) looked at the impact of SLA 2006 in its full 9 years using an econometric approach, so did Ochuodho et al. (2016) using a computable general equilibrium approach. Only a few studies studied the impact of past trade agreement on softwood lumber exports of various Canadian provinces. Gulati and Malhotra (2006) used a gravity model to study the export responses in Canadian provinces under SLA 1996. Van Kooten and Johnston (2014) and Johnston and van Kooten (2017) used a positive mathematical simulation approach to study the regional impacts of SLA 2006. In this study, we have focused on empirical econometric analysis of softwood lumber exports from Canadian provinces under SLA 2006 using historical monthly data.

3. Empirical model and estimation method

Two distinct theoretical models are typically used to study the U.S. import model for Canadian lumber. A few studies derived a model for Canadian lumber exports to the U.S. with an assumption of homogenous softwood lumber in both countries (Myneni et al., 1994; Zhang, 2001, 2006; Baek and Yin, 2006; Song et al., 2011; Parajuli et al., 2015). Buongiorno et al. (1979), however, formulated several import demand models considering the assumption of imperfect substitutes or heterogeneity between the U.S. and Canadian lumber. Nagubadi et al. (2004) later revealed empirical evidence that Canadian lumber is not a perfect substitute for domestic lumber in the U.S. Recent studies in the Canadian lumber exports model followed the concept of Buongiorno et al. (1979), and developed the U.S. lumber imports model based on a derived import demand function (Baek, 2012; Nagubadi and Zhang, 2013; Parajuli and Zhang, 2016). Following Buongiorno et al. (1979) and Baek (2012), we also formulate the model of U.S. imports for softwood lumber from various Canadian provinces as:

$$qc_{it} = f\left(pus_t/pca_{it}, h_t, xc_t, mou, sla96, cvdad, sla06, \sum_{j=1}^{12} qc_{it-j}, \sum_{k=1}^{11} M_k\right)$$

(1)

where, qc_{it} represents U.S. lumber imports from a Canadian province i in month t; pus_t denotes the domestic lumber price in the U.S. and pca_{it} denotes the import price of softwood lumber from a Canadian province i in month t; h_t represents the housing starts in the U.S.; and xc_t is the real exchange rate between Canadian and U.S. dollars in month t. We incorporate dummy variables: mou, $sla96$, $cvdad$, and $sla06$ in the model to measure the effects of past trade agreements and policies: MOU, SLA 1996, countervailing duties and antidumping tariffs, and SLA 2006 respectively. Monthly seasonal and up to 12-lag dummy variables are also included to account for any systematic seasonal variation and autocorrelation in lumber imports. Buongiorno et al. (1979) and Parajuli and Zhang (2016) explained expected effects of each variable on the quantity of softwood lumber imported from Canada. The effects of the ratio of domestic to import price of softwood lumber ($p_{it} = pus_t/pca_{it}$) and U.S. housing starts are expected to be positive. The real exchange rate between the Canadian and U.S. dollars should have a positive sign. According to the trade theories, effects of all four trade policy agreements should have a negative influence on lumber shipments from every Canadian province to the U.S.

As an econometric estimation method, we use the Seemingly Unrelated Regression (SUR) approach to estimate the province-specific lumber import model together. Even though Canadian provinces selected different trade policy regimes under SLA 2006 and might operate somewhat independently, the overall trade policy and market events