1   Appendix

1.1   Model

1.1.1   Model Definition

Sawmill Firms

Table 1: Notation for Sawmill Firms

	Symbol	Description
Variables	Y^W	Lumber output
	K	Capital input to sawmill firms
	L	Labour input to sawmill firms
Prices	r	Rental rate of capital
	w	Wage rate of labour
	P^W	Price of lumber
Parameters	A^S	Technology parameter for sawmill firms
	α	Capital share parameter, $\alpha \in (0,1)$

Production Function:

$$Y_t^W = A^S K_t^\alpha L_t^{1-\alpha} \tag{1}$$

Budget Constraint:

$$TC = r_t K_t + w_t L_t \tag{2}$$

Construction Firms

Table 2: Notation for Construction Firms

	Symbol	Description
Variables	Y^F	Final output produced by construction firms
	W	Lumber input used in construction
	Ψ	Alternative inputs to lumber
Prices	$\mathcal{P}^W$	Effective price of lumber
	P^Ψ	Price of alternative inputs
Parameters	A^C	Technology parameter for construction firms
	θ	Input share or scaling parameter in construction production
	ϕ	Elasticity of substitution between lumber and alternatives

Production

$$Y_t^F = A^C \left(\theta\, W_t^\phi + (1 - \theta)\, \Psi_t^\phi \right)^{1/\phi}. \tag{3}$$

Cost

$$TC_t^C = \mathcal{P}_t^W\, W_t + P_t^\Psi\, \Psi_t. \tag{4}$$

Effective price of lumber

$$\mathcal{P}_t^W = (1 - \omega)\, P_t^W. \tag{5}$$

Government

Table 3: Notation for Government

	Symbol	Description
Variables	G	Government expenditure on lumber tax credits
Policy Instruments	T	Lump-sum tax levied on households
	ω	Tax credit rate applied to lumber inputs

Lumber tax credit expenditure

$$G_t = \omega \, P_t^W \, W_t. \tag{6}$$

Government budget constraint

$$G_t = T_t. \tag{7}$$

Households

Table 4: Notation for Households

	Symbol	Description
Variables	C	Consumption of the final good
	L	Labour supplied by the household
Parameters	γ	Preference weight on leisure in utility

Preferences

$$U = \log(C_t) + \gamma \log(1 - L_t). \tag{8}$$

Budget constraint

$$C_t + K_{t+1} = w_t L_t + r_t K_t - T_t. \tag{9}$$

External Demand

Table 5: Notation for External Demand

	Symbol	Description
Variables	X	External demand for lumber

1.1.2 Market Clearing Conditions

Table 1: Notation for Market Clearing Conditions

	Symbol	Description
Markets	Y^W	Lumber market clearing output
	Y^F	Final goods market clearing output
	L	Labour market clearing quantity

Market clearing in each sector requires:

$$Y^W = W + X, \tag{10}$$

$$Y^F = C, \tag{11}$$

$$L = L^D. \tag{12}$$

1.1.3 First Order Conditions

Households

The household chooses $\{C_t, L_t, K_{t+1}\}_{t=0}^{\infty}$ to maximize (8) subject to (9). The first-order conditions are:

$$\frac{1}{C_t} = \lambda_t, \tag{13}$$

$$\frac{\gamma}{1 - L_t} = \lambda_t w_t, \tag{14}$$

$$\lambda_t = \beta \lambda_{t+1}(r_{t+1} + 1 - \delta). \tag{15}$$

These conditions imply the Euler equation:

$$\frac{1}{C_t} = \beta \frac{1}{C_{t+1}}(r_{t+1} + 1 - \delta). \tag{16}$$

Sawmill Firms

Sawmill firms choose K_t and L_t to maximize profits given prices. The first-order conditions are:

$$(1 - \alpha)P_t^W A^S K_t^\alpha L_t^{-\alpha} = w_t, \tag{17}$$

$$\alpha P_t^W A^S K_t^{\alpha-1} L_t^{1-\alpha} = r_t. \tag{18}$$

Construction Firms

Construction firms choose W_t and Ψ_t to minimize costs subject to (3). The first-order conditions are:

$$\theta A^C \left(\theta W_t^\phi + (1-\theta)\Psi_t^\phi\right)^{\frac{1}{\phi}-1} W_t^{\phi-1} = \mathcal{P}_t^W, \tag{19}$$

$$(1-\theta)A^C \left(\theta W_t^\phi + (1-\theta)\Psi_t^\phi\right)^{\frac{1}{\phi}-1} \Psi_t^{\phi-1} = P_t^\Psi. \tag{20}$$

1.2 Effective Tariff Rate

Calculating the Rate   The effective U.S. tariff rate on Canadian softwood lumber is constructed as a firm-weighted average of countervailing and anti-dumping duties:

$$\tau_t = \sum_{i \in \mathcal{F}} \omega_i \tau_{i,t}, \tag{21}$$

where $\tau_{i,t}$ denotes the tariff rate applied to firm i at time t, and ω_i is firm i's share of Canadian softwood lumber production.

Table 2: Production Weights Used in the Construction of the Effective Tariff Rate

Firm	Weight
West Fraser Timber Co. Ltd.	0.136
Canfor Corporation	0.111
Resolute Forest Products	0.096
J.D. Irving, Limited	0.055
All remaining Canadian softwood lumber producers	0.602
Total	**1.000**

Export Weights Tariff rates are calculated based on the dates of actions taken as part of the Annual Reviews (AR) 1 through 6. Constant weights were used for this paper based on 2023 export quantities. After AR3, resolute was not given individual tariff rates. After AR5 J.D. Irving was not given individual tariff rates.