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American and Australian Tariff Policies: Do They Rock or Tango or Roll?

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Abstract: How can two countries' trade policies be related to each other? A first possibility is that they are not related at all and that each country's tariffs are defined under national considerations (the "rock" hypothesis). A second is that each country adapts its tariffs in reaction to what the other does (the "tango" hypothesis). A third is that both countries react to events happening in the rest of the world (the "roll" possibility). This paper examines the determinants of Australia's and the US' average tariff levels. Relying on historical data that cover a century (1904 to 2005), the three hypotheses are examined. The results indicate a strong long-run relation between the US and the Australian tariffs. Interrelations are also exhibited, with the US decisions influencing more strongly the Australian tariffs than the opposite. The results are important to assess the sustainability and stability of the regional trade agreements in the Pacific area.

Keywords: trade wars; trade policy; tariffs; import prices

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1. Introduction

The Pacific zone is an important one in geopolitical terms, and the trade relations between countries in this area matter a lot for the sustainable development of trade flows and, more globally, for the economies that have interests in the region. Trade flows being essential for the development of the countries in this area, it is essential to understand if and how trade relations and treaties governing economic issues are sustainable.

This paper thus presents an empirical analysis of the evolutions of the trade policy (perceived through the average tariff rate) between Australia and the United States. We cover both countries' trade policies over 100 years (1904–2005) and examine the links between them. Intuitively, one can think of two types of hypotheses when considering two national trade policies: the first being that both policies are shaped uniquely by national considerations (which can be called the "rock" hypothesis) and the second that there are reciprocal influences of one country over the other (the "tango" hypothesis).

A confirmation of the first hypothesis could be considered as giving support to the literature on the political economy of trade, which insists on national factors (the labor laws, level of wages, degrees of concentration in the industries threatened by imports, etc.). The workhorse model in this literature is from the study by Grossman and Helpman [1] or Hillman [2], where trade policy is determined as the result of influence-driven contributions. In the last few years, research in this area has developed rapidly, both in terms of new theoretical developments and empirical applications (see, e.g., Grossman and Helpman [3], and Kohli 2022, or the survey by Irwin 2020).

However, politicians' answers to the different lobbies aggregate at the national level and form the national trade policy. This national policy interacts with—and can be constrained by—external considerations or constraints (the evolution of world prices or international trade agreements, for example). Such interrelations between national trade

policies would be analyzed under the "tango" hypothesis, whose theoretical basis is given by the literature on strategically retaliatory trade barriers (Grossman and Helpman [4]).

Concretely distinguishing the relative strength of the rock and tango hypotheses is an empirical matter that has not, to our knowledge, been attempted. Even though some country-based studies exist (see, e.g., Irwin [5] for the US and Anderson [6] for Australia), the relation between both has not really been considered. Yet, assessing the relative importance of each of the two hypotheses is particularly important for governance issues, e.g., to assess the degrees of freedom national politicians have in tailoring trade policy to their country's needs, or to assess the prospects of free trade areas, as they could be subject to external influences.

Our aim in this paper is thus to determine whether comovements in countries' tariffs are determined by exogenous movements in world prices or whether they are retaliatory interactions or whether only national factors matter. Our assumption is that the tariff policies of the two countries either are independently determined by domestic political economy factors or interact according to a model of strategic tariff policy. The third possibility—namely, that the time series of the two countries are both affected by events in the rest of the world, or in effect in the world economy—is also taken care of in the model by the inclusion of import prices (more precisely, their growth rate) as well as a measure of the producer price inflation rate for each country. We also include a series of tariffs for European countries as a check of the possibility that other countries could impact the USA–Australia relationship. These additional variables allow us to disentangle the two hypotheses, without neglecting the impact of the rest of the world on the interrelation (in other words, we test if the relation is a "tango", a "rock", or a "roll"—we owe the name of the last hypothesis to a referee of the journal).

Our results show that the trends of both trade policies are not the result of pure chance or of purely national factors (the "rock" hypothesis), but that an interaction exists (the "tango" hypothesis"). That the "tango" hypothesis stands out in our results as the more relevant one is important, especially in the geopolitical context of the Pacific area, and even more so given that the American policy influences the Australian more than vice versa. One referee points out that in Australia all tariff decisions are examined publicly by a tariff-fixing authority which reports to the public on all tariff changes. There is no evidence in these reports that the Australian authority fixes tariff levels in response to US tariff decisions.

The paper is structured as follows. The first section surveys the extant literature, while the second describes the theoretical frameworks that correspond to the two assumptions ("rock" or "tango"). The third section describes the data. It also details the several tests that were run to assess the relevance of the empirical methodology used in the following section, which presents and discusses the result of the estimates. The last section concludes.

2. Literature Review

The endogenous protection theory and the theory of retaliation explain movements in tariffs differently. According to the endogenous protection theory, macroeconomic conditions affect tariffs through policy responses to political pressure. Tariffs are created and changed in the political system in response to certain economic factors. However, the standard theory of tariffs suggests that feedback effects exist from tariffs on many of the same economic factors. Therefore, a structural regression model, with pre-established causality, may be miss specified. Moreover, the political process is slow to respond to pressure in some cases. This implies that an uncertain lag structure lies behind the relationship among time-series variables. As a consequence, many tests of tariffs' endogeneity rely on the VAR methodology in order to test for Granger causality between the variables.

Many studies find evidence that macroeconomic conditions influence tariffs (Bohara and Kaempfer [7,8]; Das and Das [9]; Lohmann and O'Halloran [10]; Krol [11]; Thornton and Molyneux [12]; O'Rourke [13]). The usual interpretation of these results is that political pressures for protection respond to economic performance, rising along with unemploy-

ment and falling with economic growth and the trade balance. However, Irwin [14] has shown that much of the variation in US tariffs can be traced back to changes in import prices rather than to policy variations. Moreover, Sherman [15] establishes that the effect of macroeconomic variables on the tariff is not robust to the inclusion of a control for import prices. Such results suggest that the evidence for political economy pressures on the average tariff may be an artifact of changes in import prices. Nevertheless, an alternative view is supported by Imai et al. [16].

If the endogenous policy theory of tariffs has been extensively tested (Kohli [17] being a recent typical example), the existence of tariff interactions between countries is a less developed area. Among the few existing studies, Henriques and Sadorsky [18] investigate if Canadian tariffs have been used as a political retaliatory device vis-à-vis the United States over the period of 1870–1987. They find a two-way causality between Canadian and US tariff rates, and Canada seems to be the follower in this tariff setting. Bohara et al. [19] extend this analysis and show that Canadian policy demonstrates a permanent change following US innovations, while in the long run the US tariff returns to its own internal equilibrium unaffected by innovations in the Canadian tariff. However, they do not take into account potential world price effects in this relationship, which could potentially impact both tariffs in the same direction. As stated by Hillman [2], Magee, Brock, and Young [20], and Pahre [21], decreasing world prices leads to increased protection, while increasing world prices leads to decreased protection in all countries.

3. Theoretical Framework

Following Grossman and Helpman [4], we formalized the tariff setting as a non-cooperative, simultaneous-move game between governments. National governments are not immune from political pressures: they are concerned both by the contributions they receive from lobbies (P) and by the welfare of the population (U) in order to be re-elected, which can be stated as in Equation (1):

$$W = W(P; U(C)) \tag{1}$$

The residents' utility of the domestic country U depends on their private consumption (C) drawn from their labor or capital income (W) and on the redistribution (R) operated by national government within the country and financed through trade policies. Private consumption is composed of national goods (which serves as a numeraire) and goods from the foreign country with a price p on which has been imposed a trade tax t such that $p = t\pi$ (with π the offshore price, the price of the good before trade tax, which is the same in both countries). When $t > 1$, the import price is increased by a trade tariff (with $t < 1$, the import price is decreased by an import subsidy). The revenue from the trade policy is used to redistribute income between groups in the economy (R). As a consequence, government revenue dedicated to redistribution increases with the domestic tariff and with the gross price of import goods. $R = R(t; \pi)$. Thus, we can rewrite the utility of voters as in Equation (2):

$$U = U(C) \; with \; C = W + R(t; \pi) \tag{2}$$

Politicians commit to a tariff vector favorable for pressure groups and lobbies, and they receive contributions from these groups to finance their campaign expenditures. These contributions, set to maximize the aggregate welfare of the lobby group's member, depend on the actions of the home government, especially on the tariff chosen, and on economic and political factors, $P = P(t; X)$. Kagitani [22] develops an extension of this theoretical framework.

According to the first hypothesis, the incumbents set trade policy so as to maximize their political welfare, which is summarized in Equation (3):

$$Max \; W = W(P(t); U(\pi)) \tag{3}$$

Maximization of politicians' utility yields the optimal tariff rate in the domestic country, given by the reaction function in Equation (4):

$$t = t(\pi; X) \tag{4}$$

This framework is the one tested, in particular, by Irwin (1998, 2020). However, it does not account for the world price equilibrium. The international equilibrium is strongly affected by net imports in the home country $M(p) = d(p) - X(p)$ and those for the foreign country $M^*(p^*) = d^*(p^*) - X^*(p^*)$. (An asterisk denotes the foreign country variables.) The world product markets clear when the excess demand equals zero for every good traded. This equation imposes a solution for the world price which depends on the trade taxes and subsidies imposed by the country, denoted by $\pi = \pi(t; t^*)$. As a consequence, the average welfare of home voters can be written as $U = U(t; \pi(t; t^*))$.

In the second case, an incumbent sets the national trade policy so as to maximize political welfare, written in Equation (5) as:

$$Max\ W = W(P(t); U(t; \pi(t; t^*))) \tag{5}$$

Maximization of politicians' utility yields the optimal tariff rate in the domestic country and is given by the reaction function in Equation (6):

$$t = t(t*; X) \tag{6}$$

According to this framework, tariffs do not only depend on world prices but on tariffs set by the other country.

In what follows, we test which of these reaction functions is best suited for Australia and the US.

4. Data and Statistical Analysis

Our data set covers the American and Australian tariff policies over the period of 1904–2005, permitting us to look at the long-term relationship, if any, between the two countries' trade policies. Interestingly, even though the US can be considered much larger, being the world's largest importer (while Australia is the 24th) and the second-largest exporter (Australia being the 23rd) according to the latest data (2022), for example, the WTO Trade Profiles (https://www.wto.org/english/res_e/statis_e/trade_profiles_list_e.htm, accessed on 19 August 2022), it could, in 2005, still appear on several grounds as "a small country in world trade", to use the expression and the argument of Magee and Magee [23].

However, when studying the trade relationships between these two countries, the United States plays a major role in the Australian economy, and their trade relationship is more dynamic than with any other major trading partner. At the end of the period under review, the US market accounts for around 11 per cent of total Australian exports and is the source of more than 20 per cent of Australia's imports (see Figure 1). Australia is less important to the US as a trading partner. US exports to Australia account for just 1.6 per cent of the total of the United States' exports, and Australia has never been the source of more than 3 per cent of US imports, except during the World Wars (see Figure 2).

Looking in detail at Figure 1, it clearly appears that, starting from a relatively high level of trade between the two countries (as the US represent around 20% of the Australian imports during the 1920s), there is a spike during the Second World War (the percentage increasing up to a maximum of 50%). Then, the relation decreases and reaches a "new normal" around 20% during the 1960s and up to 2000. Figure 2 shows a relatively similar profile, though at a much lower level (from 1 to 3 per cent during the beginning of the period under review, 1904–1920, then a return to a low above 1%, a spike up to 8% during WWII, a subsequent decrease, and a plateau in the 1950s and 1960s at around 2 percent).

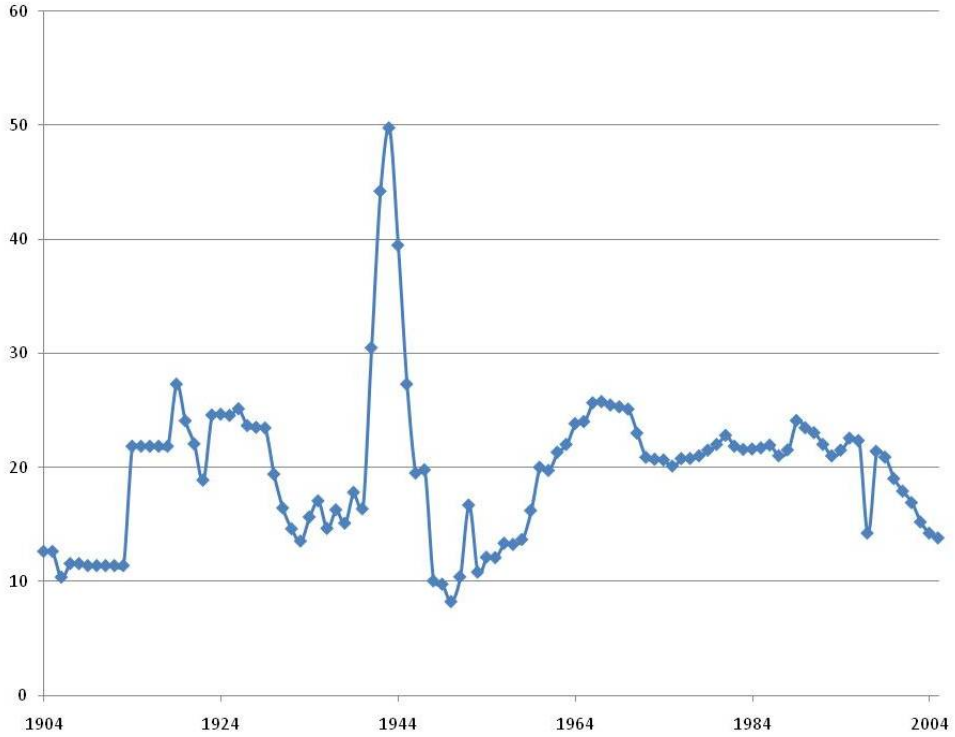

Figure 1. Share of US imports in Australian total imports (in %).

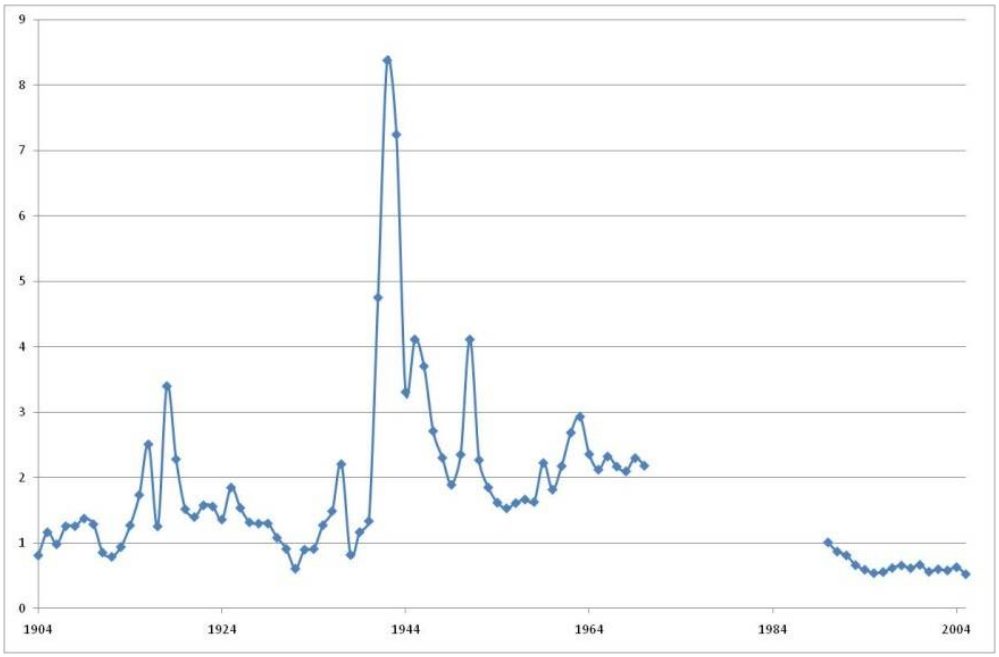

Figure 2. Share of imports from Australia in US total imports (in %).

4.1. Data

The most important data we make use of are the computations of both countries' average tariff rates for the last one hundred years. The average tariff rate is calculated by taking the ratio of the tariff revenue collected to the total value of dutiable imports only or of total imports (dutiable + free). Empirical studies of this type use the ratio of the total revenue from import duties to total imports (see, e.g., Gardner and Kimbrough [24]; Henriques and Sadorsky [18]; Thornton and Molyneux [12]; Sherman [15]). Given the responsiveness of this measure to changes in the composition of imports, as well as changes

in tariff rates, it would be more appropriate to use the ratio of the revenue from the tariff on goods that could be produced in the home country to the total of such imports (Bohara and Kaempfer [7]; Krol [17]). These data are shown in Figure 3.

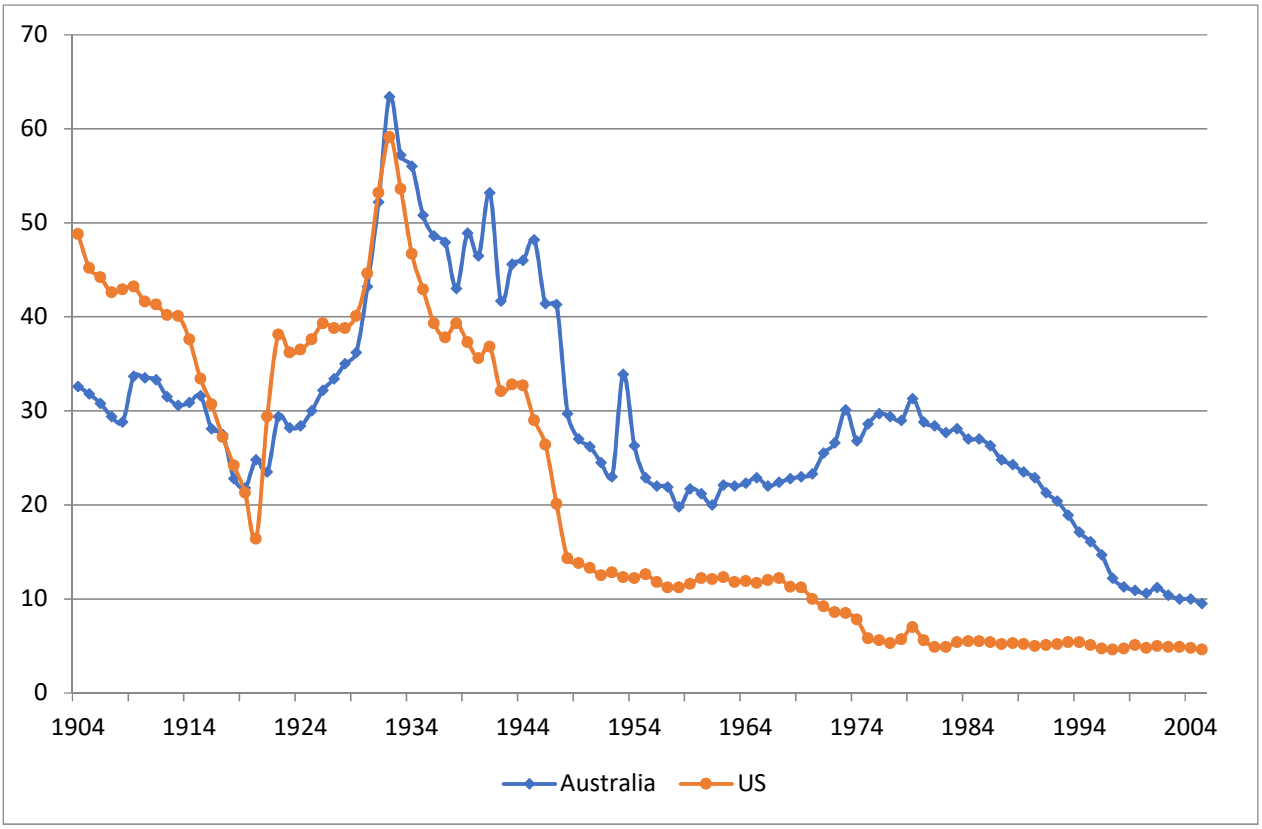

Figure 3. Average tariff rates on dutiable imports–Australia and the United States (1904–2005), taken from Lloyd ([25], Figure 11).

The same methods have been used in both countries: Paasche indices have been constructed, using current import values as weights and using an FOB valuation for the determination of duties (Lloyd [25]). Coughlin [26] provides an introductory review of the method used in the computation of trade restrictiveness indices. Tariff rates since WWII have been determined through the GATT/WTO; studying the period after WWII could seem useless as both the American and Australian tariffs have been determined through the GATT negotiations, and thus the timing of their tariff reductions should be synchronized during that time period. However, this period is interesting because Australia did not participate actively in the GATT rounds until the Uruguay Round. Measuring the level of protectionist activity is all the more difficult given that there has been a proliferation of nontariff protectionist devices in recent years.

To take into account the possibility that domestic factors impact trade policies, we also introduced in the estimations national political variables (election years, political leadership of the House, etc.).

Irwin [14] shows that movements in the average tariff were very much caused by movements in import prices. In that case, relationships between Australian and US tariffs may be driven by exogenous movements in world prices: they are not related to one another directly but move with world prices. We included both an import price growth rate and a producer price inflation rate for both countries to account for the influence of external factors.

The possibility of an interaction with third parties was also taken into account by including a measure of the tariffs for seven European countries (Denmark, Spain, France,

the UK, Greece, the Netherlands, and Portugal) for which the series were available and that matched the other series. Though the measure covered a small number of countries, the good thing is that they are all European countries and that some are among the largest importing and exporting countries over the period we covered. The series was computed from the data provided by the CEPII TRADEHIST database (Fouquin and Hugot [27]).

Finally, GDP growth rate was introduced to take into account previous results on Australia's trade policy, and notably those established by Athukorala and Chand [28] who have exhibited a stable and negative relationship between Australia's economic growth and tariff rates. The issue was to establish the causality in the tariff–growth correlation. GDP growth might interact with the political pressures of protectionism. Rapid economic growth may signal the ascendancy of growth-leading export industries which would lobby for fewer trade restrictions in order to minimize the chances of retaliatory trade policies abroad. However, higher tariffs raise the prices of dutiable imports which may cause lower economic growth. Models of endogenous protection suggest that GDP growth and inflation have negative effects on tariffs.

Data summary statistics and details on the sources are provided in Appendix A.

We included dummy variables *D* representing common trade agreements. Both Australia and the US ratified the General Agreement on Tariffs and Trade (GATT) in 1947 in Geneva, which came into force on 1 January 1948. This means they have been subject to common influence due to this membership. Consequently, we introduced common dummy variables for both countries. The first one was a dummy named *GATT* for the period of 1947–1992, and the second one (*WTO*) began at the creation of the World Trade Organization in 1993 and lasted until the end of the sample. These trade agreements were expected to reduce tariffs in both countries. However, in the estimation of Australian tariffs, we had to introduce a dummy variable for 1952. As Lloyd [25] states, "there was a sharp spike in the average duty on dutiable clearances in 1952–53. This movement is unusual in that it was not due to an increase in tariff rates. Rather there was a sharp rise in imports of dutiable goods in 1951–52 relative to free imports at the peak of the Korean War boom, followed by a sharp fall in these imports in the following year". The dummy thus took into account this specific year.

For the analysis of the multivariate time series that included stochastic trends, several unit root tests were used for the estimation of individual time series, with the intention to provide evidence about when the variables were integrated and also to check whether there was a structural break in trend and/or intercept. This was followed by multivariate cointegration analysis through the Engle–Granger methodology. All the test results are successively presented.

4.2. Unit Root Tests

First, we tested whether each series had a unit root using several unit root tests. For the augmented Dickey–Fuller [29] unit root test, tests in levels and then in first differences were carried out. Each series started with the most flexible specification of the test equation that included an intercept and a trend. The results, presented in Table 1, suggest that the null hypothesis in the tariff time series cannot be rejected at a 5% level of significance in variable levels. Therefore, no tariff series appears to be stationary in variable levels. When the tariff series are transformed into their first differences, they become stationary, and consequently the related variables can be characterized as being integrated of order one, I(1). However, all other variables are stationary. These results are confirmed by the Phillips and Perron [30] unit root test and the Kwiatkowski et al. (KPSS, [31]) test for stationarity.

Table 1. Results of unit root tests without accounting for a structural break.

Variables	Country	ADF Test							KPSS Test		Phillips–Perron Test			Integration Order
		Variables in Levels Model with Intercept and Trend				Variables in First Difference Model without Intercept or Trend			Variables in Levels		Variables in Levels			
		Lags	Stat Z(t)	Intercept	Trend	Lags	Stat Z(t)	Lags	Test Statistic	Stat Z(rho)	Stat S(tau)	Intercept	Trend	
Tariffs	Australia	2	−2.24	3.69 ** (2.22)	−0.03 * (−1.90)	1	−5.70 ***	2	0.444 ***	−7.89	−1.97	2.94 * (1.82)	−0.02 * (−1.69)	I(1)
	US	1	−2.66	3.45 ** (2.21)	−0.04 ** (−2.09)	1	−6.60 ***	1	0.339 ***	−3.28	−1.54	0.08 (0.18)	-	I(1)
Labor Prime Minister (Aust.) Democratic President (US)	Australia	1	−4.29 ***	0.10 ** (2.55)	-	1	−8.24 ***	1	0.167	−28.43 ***	−4.01 ***	0.08 ** (2.23)	-	I(0)
	US	1	−3.48 ***	0.11** (2.48)	-	1	−6.96 ***			−24.06 ***	−3.592 ***	0.09 ** (2.28)	-	I(0)
Election year	Australia	2	−7.07 ***	0.73 *** (6.69)	-	1	−11.97 ***	2	0.066	−119, 7 ***	−19.78 ***	0.55 *** (9.68)	-	I(0)
	US	1	−13.93 ***	0.5 *** (9.85)	-	1	−12.08 ***	1	0.008	−100,0 ***	−23.32 ***	0.33 *** (7.04)	-	I(0)
GDP growth rate	Australia	1	−6.51 ***	2.10 *** (5.04)	-	1	−9.818 ***	1	0.244	−32.22 ***	−1.45	-	-	I(0)
	US	1	−6.31 ***	2.42 *** (3.60)	-	1	−9.783 ***	1	0.253	−57.88 ***	−3,29 ***	-	-	I(0)
Import price index growth rate	Australia	1	−5.40 ***	2.70 ** (2.55)	-	1	−12.18 ***	1	0.163	−61.84 ***	−6.55 ***	2.73 *** (2.72)	-	I(0)
	US	1	−6.43 ***	2.82 ** (2.29)	-	1	−12.15 ***	1	0.126	−86.19 ***	−8.42 ***	2.78 ** (2.35)	-	I(0)

*, **, and *** denote significance at 10%, 5%, and 1%, respectively. KPSS test differs from the ADF and Philipps–Perron "unit root" tests by having a null hypothesis of stationarity.

Second, we tested for the existence of a structural break. While the Zivot and Andrews [32] unit root test allows for a single structural break, the data might actually show multiple structural breaks, in which case tests of multiple endogenous structural breaks may also be considered. A potential problem in the Zivot and Andrews [32] test is that a time series might be found to be trend stationary when in fact the series is nonstationary with breaks. As a consequence, we utilized the endogenous two-break LM unit root test derived by Lee and Strazicich [33]. The results of employing the two-break LM unit root test are shown in Table 2. Tariff series did not reject the unit root null at the 10% significance level. Examination revealed that two structural breaks in level were highly significant for each country with similar dates. Structural breaks in trend were less significant. It is also possible to allow for more than two breaks using this test, but we found that the third break was not significant.

Table 2. Two-break minimum LM unit root test, sample period: 1905–2005.

Variable	k	$\widehat{T_B}$	Constant D1; D2	Trend DT1; DT2	Test Statistic	Result
US tariff	0	1931; 1946	8.2 ***; −6.1 **	/	−2.0057	UR
	0	1929; 1948	4.3 *; −0.1	2.2 *; −0.05	−3.3889	UR
Australian tariff	0	1931; 1947	13.7 ***; −11.2***	/	−2.4508	UR
	0	1929 1948	4.9; 3.3	3.0 **; −1.4	−3.5943	UR

K: optimal number of lagged first-differenced terms included in the unit root test to correct for serial correlation; UR: unit root. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

5. Empirical Specification

Since it had been determined that tariff variables are integrated of order one, cointegration tests needed to be performed. We adopted the Engle–Granger methodology. First, we estimated the long-run equilibrium relationship between US and Australian tariffs, introducing also the stationary independent variables. If the series of the estimated residuals (*ecm*) of this long-run equilibrium are found to be stationary, US and Australian tariffs are cointegrated and there exists a long-run equilibrium between them. Second, we estimated the two following error correction models, according to Equations (7) and (8):

$$\Delta US_t = \alpha_1 \Delta US_{t-1} + \beta_1 \Delta Austr_{t-1} + \eta_1 ecm_{t-1} + \mu_1 \Delta X_t + \rho_1 X_{t-1} + \sigma_1 D_t + \varepsilon_t \quad (7)$$

$$\Delta Austr_t = \alpha_2 \Delta Austr_{t-1} + \beta_2 \Delta US_{t-1} + \eta_2 ecm_{t-1} + \mu_2 \Delta X_t + \rho_2 X_{t-1} + \sigma_2 D_t + \epsilon_t \quad (8)$$

Each dependent variable was regressed on lags of itself and on lags of all the other dependent variables. As stated above, the model also included several exogenous variables, X, to assess the influence of domestic growth and politics on tariff policies. We included both changes and lags in the independent variables X (GDP growth rate and import price index growth rate). Lagged variables represent the long-run effect, whereas changes in the variables explain the short-run effect of these variables on tariffs.

The *ecm* term, obtained from first-step regression, represents deviations from any long-run relationship between the I(1) variables and I(0) variables. The coefficient on the error correction term, η, gives the adjustment rate at which the gap between US and Australian tariffs is closed. If η is negative and significant, the model is an error correction model (ECM), the relationship between tariffs exists in the long run, and the error correction mechanism induces the tariff adjustments to close the gap with respect to the long-run relationship between tariffs. One country's tariff could deviate from the

long-run equilibrium relationship due to certain shocks in the short run, but it eventually converges to the equilibrium in the absence of shocks in subsequent periods.

As US tariffs can be a function of Australian ones and vice versa, we checked if we had to estimate our two ECM equations as a system of simultaneous equations. The Hausman test for endogeneity was performed and rejected the use of simultaneous equations. The equations have been estimated for the full sample and the stability of the estimated function has been tested by using the cumulative sum of recursive residuals (CUSUM) test proposed by Brown et al. [34]. As the plot of CUSUM did not lie outside the area between the two critical lines, the parameters were said to be stable over the sample. Hence, we estimated independently our two ECM equations.

6. Results

Table 3 displays the estimates and reveals interesting results. First, the coefficients associated with the error correction terms in both regression equations are significant and negative, as was expected. Thus, the results show that there is a strong long-run relationship between US and Australian tariffs. Furthermore, the statistical significance of the error correction term also implies that, when there are deviations from long-run equilibrium, short-run adjustments in the dependent variable will be made to re-establish the long-run equilibrium. We can note that the speed of the adjustment from the deviation in the long-run relationship is quite different between the two countries. The model converges more quickly to equilibrium in the US, with about 85 percent of discrepancy corrected in each period (against 45 percent in the Australian case).

Second, the long-run coefficients computed in the first step indicate that higher US tariffs lead to a long-term rise in the Australian ones and vice versa. However, the long-run effect of the American tariffs on the Australian ones is stronger than the reciprocal case. The long-run coefficients indicate that higher tariffs in the US lead to a long-term rise in the Australian rates and vice versa. Over the period, this can be related, for example, to the fact that the Smoot–Hawley tariff increases in the US played a significant role in the rise in protection during the Great Depression. However, this can also be ascribed to the possibility that there was a worldwide surge in tariffs during this period. The nonsignificance of the variables related to the trade institutions in the later period, however, point towards interactions that are not part of more global movements in tariff rates. More precisely, with the coefficient being close to 0.16 in one case and 0.09 in the other, the interaction can be said to be almost twice as strong for the US towards Australia than the opposite.

Concerning the short-run interactions between the two countries, the results reveal overall that the US positively impacts the Australian tariff policy and vice versa. Everything thus happens as if Australians were retaliating to American protection spurs by increasing their own tariffs. This result can also be taken as confirmation of the well-known view of the world spiraling into ever more protectionism during the 1930s. Tariffs thus evolve more like tango dancers than rockers. Overall, then, comparing confidence intervals, our results reveal a more important influence of the US trade policy on Australia than the inverse relationship. The relative importance highlighted above can contribute to explaining this influence, of course, but the interaction being twice as strong is in some ways revealing of the relative political weight of each country with regard to the other.

The coefficients related to the control variables also deliver interesting results. First, Athukorala and Chand's [28] result is confirmed, as Australia's growth rate is negatively related to tariffs in the long run. This result is a rejoinder to Lampe and Sharp [35] who studied the link between tariffs and growth over the long run for 24 countries. Second, it also appears that there is some path dependence in the American tariffs, as confirmed by the influence of lagged tariff variation on the variation of tariffs. In other words, it seems that tariffs cannot be changed in a discretionary way (which differs from what the standard abstract model would seem to imply). Third, everything happens as if domestic political factors (i.e., here, the presence of a Labor leader and of a Labor-led House) play no role. Such a result ought to be related to Wiberg [36], who shows that the equilibrium

level of trade protection depends upon the electoral regimes and their relative stability (i.e., the relative proportion of factor owners with stakes in the exporting sector in the swing districts). There is no significant relation between the Democratic (or Labor) leadership and the tariff variation. This result is a confirmation of Hoffman [37], who reports that party affiliation is not significantly related to the promotion of free trade in the US. Jäkel and Smolka M [38] show that skills matter more than party affiliation in the support of free trade. Finally, in the US, there is a negative impact of import price growth rate on tariffs both in the short and long run, which may indicate a reaction from the administration to counter what would in the end appear as inflationary changes in the import prices. This would also conform with a political economy model in which a politician exercises a trade-off between support from the lobbies and from the general population.

Table 3. Estimation results: error correction models.

	Australia Tariff Variation	**Australia Tariff Variation**	**US Tariff Variation**	**US Tariff Variation**
Lagged Aust. tariff variation	−0.147 (−1.10)	−0.166 (−1.21)	−0.034 (−0.50)	−0.042 (−0.59)
Lagged US tariff variation	0.653 *** (5.47)	0.658 *** (5.24)	0.903 *** (4.60)	0.777 *** (3.72)
Error correction term	−0.454 *** (−2.80)	−0.426 ** (−2.57)	−0.832 *** (−3.81)	−0.717 *** (−3.14)
Growth rate variation	−0.004 (−0.17)	−0.005 (−0.20)	−0.006 (−0.33)	−0.008 (−0.44)
Lagged growth rate	−0.308 *** (−3.32)	−0.304 *** (−3.18)	0.056 (1.48)	0.068 * (1.78)
Import price index growth rate variation	0.002 (0.07)	0.002 (0.07)	−0.109 *** (−5.92)	−0.107 *** (−5.56)
Lagged import price index growth rate	0.006 (0.16)	0.006 (0.15)	−0.076 ** (−2.34)	−0.095 *** (−2.81)
Averaged European tariff variation		−0.006 (−0.03)		0.037 (0.28)
Lagged averaged European tariffs		−0.003 (−0.03)		−0.106 (−1.52)
Election year	−0.552 (−1.01)	−0.535 (−0.93)	0.260 (0.55)	0.171 (0.36)
Labor (Democratic) leader AND/OR House domination	−1.050 (−1.58)	−1.063 (−1.55)	−0.290 (−0.49)	−0.046 (−0.08)
GATT	−0.740 (−1.25)	−0.798 (−0.79)	0.285 (0.58)	−0.687 (−0.85)
WTO	−1.544 * (−1.70)	−1.631 (−1.10)	−0.125 (−0.18)	−1.530 (−1.36)
D53	8.933 *** (3.29)	8.841 *** (3.20)		
Intercept	2.058) *** (3.31	2.102 (1.55)	0.090 (0.18)	1.338 (1.36)
Long-run interaction coefficient ADF	0.158 *** (2.03) −4.957 ***	0.188 ** (2.12) −4.941 ***	0.09 ** (2.55) −7.34 ***	0,107 ** (2,43) −7.39 ***

*, **, and *** denote significance at 10%, 5%, and 1%, respectively. Bold format is for the coefficient on the long-run interaction.

Concerning Australia, our results confirm the importance of a sharp spike in tariffs in 1952–53, as the dummy variable takes a high value and is highly significant. This confirms Lloyd's [25] analysis. Finally, the GATT and WTO dummies are insignificant for the US, while only the latter is (poorly) significant for Australia. The fact that international rounds of negotiations do not impact the aggregate national trade policies confirms the role of national considerations in determining these policies. It can be read as a confirmation of Fung et al.'s [39] theoretical result that a lobby-driven policy can deliver a national policy similar to the one defined by a benevolent politician acting strategically (à la Brander and Spencer, [40]). We send the reader to Anderson [41] for a review of the impacts of WTO rounds, and Dluhosch and Horgos [42] or Dluhosch [43] for the link between WTO disputes and the degree of liberalism of trade policies.

Interestingly, the European tariffs are not significant in either relation. This reveals that the European countries' (averaged) trade policies do not impact the US or the Australian tariffs.

7. Conclusions

In this paper, we disentangled two hypotheses on the determinants of Australia's and the US' average tariff levels: when considering two national trade policies, there is one scenario according to which both policies are shaped uniquely by national considerations (which we named the "rock" hypothesis) while another scenario is that there are reciprocal influences of one country over the other (the "tango" hypothesis).

Relying on a historically consistent series of data covering a period of over a century (1904 to 2005) and including variables to account for the international trends in inflation and import prices, we showed that the trends of both trade policies may not be the result of pure chance but that a causal relationship exists, with the interactions between the two countries under study being significant.

In particular, we showed that the "tango" hypothesis appears to be more important than the "rock", meaning that there are interrelations between the policies of the two countries, especially in the long run. This conclusion is important, especially as we showed that the American trade policy influences the Australian far more than vice versa. Even though such a result could be expected given the relative political weight of each country with regard to the other, our results allow us to quantify the effect: the influence of the US over Australia is double compared to the other way round.

These results have a strong significance. Theoretically, they plead for the inclusion of features of the strategic trade policy literature in the models based on the political economy of trade policies (à la Grossman–Helpman). Concretely, our results show that designers, for example, of free trade areas in the Pacific region will have to acknowledge existing interrelations. The Pacific zone being an important one in geopolitical terms, a better understanding of the trade relations between the countries in this area matter a lot for the sustainable development of their economies.

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Appendix A

Table A1. Data sources and summary statistics.

			Data Source	Mean	Std Dev.	Min	Max
Tariffs	Australia	1904–2005	Lloyd, 2008 [25]	28.9	11.2	9.5	63.4
		1904–1946		37.5	10.5	21.8	63.4
		1947–2005		22.6	6.6	9.5	41.3
	US	1904–2005	USITC, 2006 [44]	20.9	15.9	4.6	59.1
		1904–1946		38.0	8.3	16.4	59.1
		1947–2005		8.4	3.7	4.6	20.1
	Europe	1904–2005	Fouquin and Hugot, 2016 [27]	7.7	6.1	0.04	26.2
GDP growth rate	Australia	1904–2005	Maddison, 2006 [45]	3.4	3.3	−9.5	11.5
	US	1904–2005	Maddison, 2006 [45]	3.3	5.8	−20.6	20
Import price index growth rate	Australia	1904–2005	'Reserve Bank of Australia Bulletin' (http://www.rba.gov.au/Statistics/Bulletin accessed on 19 August 2022) and Australian Bureau of Statistics (http://www.abs.gov.au/ accessed on 19 August 2022)	4.4	9.9	−34.8	43.4
	US	1904–2005	U.S. Bureau of the Census (1975) [46] and U.S. Bureau of Labor Statistics (2007) [47]	3.3	11.4	−46.6	50
Political variables	Australia	1904–2005	http://australianpolitics.com/elections/results/. accessed on 20 August 2022				
	US	1904–2005	Office of the Clerk from the House of Representatives for the US (http://clerk.house.gov/art_history/house_history/partyDiv.html accessed on 19 August 2022)				

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