For Better or Worse, In Sickness and in Health: Australia-China Political Relations and Trade

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Abstract: This paper quantifies the effects of shocks in bilateral political relations on Australia's merchandise goods exports to China between 2001 and 2020. Using a vector autoregression framework, our estimates suggest that short-term fluctuations in political relations have no long-run effects on Australia's aggregate export growth to China over this period, nor in any of three sub-periods analysed (2001-2005, 2006-2015 and 2016-2020). A disaggregated analysis of 19 HS2 sectors reveals heterogenous short-run effects across sectors and time periods, with numerous sectors indicating the seemingly perverse finding that an *increase* in political cooperation/conflict is associated with a *decrease*/*increase* in export growth, with a lag of one to four months. We propose two hypotheses that are consistent with these findings, "doubling down" and "dropping the ball", contributing new understanding to the political relations-trade nexus in the context of a bilateral relationship that will likely be characterised by both cooperation and conflict in the decades ahead.

1. Introduction

The notion that the state of political relations between capitals might significantly affect the warmth of countries' economic embrace is a long-standing one in the international relations literature. In the specific context of Canberra and Beijing, Curran (2022) documents that variability rather than stability in the state of political relations has been the historical norm. On occasion, the anecdotal evidence appears to suggest that, for better or worse, the state of political relations has had clear implications for trade. When Australian prime minister Gough Whitlam visited China in October 1973, less than a year after formal diplomatic ties had been established, he was accompanied by representatives of the Australian resources company, Hammersly Iron. Another member of his delegation, Minister for Northern Australia, Rex Paterson received commitments from Beijing on long-term sugar contracts (Curran, 2022). In 1974, a trade delegation of 100 Australian companies arrived in China (Smith, 2021). Stephen Fitzgerald, Australia's first ambassador to Beijing, was effusive in his

assessment of just how far the two countries' economic embrace might go after the political introduction had been made. In 1976, citing Japan's post-WW2 economic expansion and the subsequent proliferation of trade and investment connections with Australia, Fitzgerald cabled back to Canberra that if the experience was repeated, then "by the year 2000 China would have a dominant role in the expansion of the Australian economy" (Clark, 2015).

Yet based on anecdotal evidence alone, the implications of the state of political relations for trade is far from plain. While a number of significant economic connections were forged during the 1980s and 1990s, notably the integration of Australia and China's iron ore and steel industries, at the turn of the century trade with China remained at less than five percent of the Australian total (Au-Yeung, et al., 2012; DFAT, 2022). From the mid 2000s onwards, however, the economic romance truly blossomed; by 2010 China's share of total Australian trade had almost quadrupled to 19 percent. This 'honeymoon' period reached its zenith when Australian prime minister Tony Abbott and President Xi Jinping jointly announced a Free Trade Agreement (ChAFTA) in November 2014, coinciding with President Xi's visit to Australia. Along with minerals and energy products, Australia's agricultural and services exports to China, notably education and tourism, were now also booming.

Niggling fears, however, were already surfacing about whether this apparently healthy economic marriage could become a dysfunctional one. This was particularly so after Canberra and Beijing began quarrelling on a range of issues from 2016. Yet until 2020, there was little sign that an economic separation might be contemplated. Aggregate trade values continued to grow and, despite some Australian commentators alleging that exports of specific goods and services were being disrupted by Beijing to send a political message to Canberra, an ex-post analysis of trade flows found that any disruption was modest in scale and/or short-lived (Laurenceson, et al., 2020). This picture, however, changed in May 2020. By the end of that year, access to the Chinese market for around a dozen Australian goods had been either curtailed or cut off altogether, with one of the triggers being an assessment by Beijing that Canberra was working in conjunction with Washington to launch a political attack over the COVID-19 pandemic (Zhou and Laurenceson, 2022). Nonetheless, in 2021, Australia's two-way trade with China reached $US183 billion – a record high – and accounted for 31 percent

of the Australian total, albeit with buoyant world prices for resources and energy products playing a significant role (ITC, 2022).

Against this background, this paper uses econometric methods to formally investigate the nexus between bilateral political relations and trade, homing in on Canberra-Beijing relations and Australian exports to China over the period 2001-2020. The following section discusses the theoretical foundations of current understandings of the impact of political relations on trade in the context of a burgeoning literature on the topic. We then introduce the methodology, which involves constructing a political relations index (PRI) and combining this with trade data in a Vector Auto-Regression (VAR) framework. A presentation and discussion of results is then undertaken.

In brief, we find no evidence of long-run effects of political relations on Australia's aggregate exports to China. This also applies for a majority of sectors when trade data are disaggregated. Interestingly, however, for a number of sectors, and across time sub-periods as well, we find evidence that a *positive* shock to political relations is associated with a *decrease* in export growth in the short run. This seemingly perverse, but recurring result leads us to propose two new hypotheses regarding the political relations-trade nexus – of bureaucrats and/or exporters "dropping the ball" in the good times, and "doubling down" in the bad. Finally, we draw some key implications for Australia and China, and set this bilateral political relations-trade nexus in the context of a broader global environment that appears headed towards greater political conflict, despite ongoing efforts to promote economic cooperation.

2. Theoretical Foundations and Literature Review

The theoretical foundations for this analysis draw on insights from an extensive international relations literature that focuses on the impact of political relations on trade.[1] This literature

[1] There remains some debate over the direction of causation, with the 'commercial peace' literature maintaining that economic interdependence reduces conflict (as discussed in Davis and Meunier, 2011). However, it is still the case from this viewpoint that political conflict is harmful for economic interactions, suggesting at least a mutual dependence between the two. The VAR method we adopt below mitigates this reverse causality problem, and further aligns with the majority of research in this field, which asserts that "trade still follows the flag" and therefore treats politics as the independent variable to which trade, the dependent variable, responds. See Keshk, Pollins, Reuveny (2004) for further discussion and evidence.

reveals at least three competing hypotheses, all of which have found some empirical support, using a range of methods to examine a range of country pairs over a range of time periods.

In his seminal paper, Pollins (1989) "expects the level of trade between two countries to decline as their relations become more hostile and to increase as their relations become more friendly" (p. 466). This reasoning aligns with realist arguments that conflict, or the expectation of conflict, may create domestic vulnerabilities from trade with perceived 'rival' nations, while also strengthening the rival's military capabilities (an idea that traces back to Hirschman's (1945) 'supply effects'). There is also the expectation that firms will adjust to the risk imposed by such conflict – diversifying their exports towards countries that are deemed to be more diplomatically cooperative, and hold similar interests and values (Morrow, Siverson and Tabares, 1998; Davis and Meunier, 2011).

Pollins presents evidence supporting his expectation that better diplomatic relations – or cooperation – will positively effect trade, for the United States, the Soviet Union, the Federal Republic of Germany, the German Democratic Republic, Egypt and India during the Cold War period. This leads him to conclude that "trade does indeed follow the flag" (p. 478), and more so in the Soviet Union, GDR, Egypt and India, which is "not surprising, given the important role of the central government in the economies of socialist and developing nations" (p. 476). Morrow, Siverson and Tabares (1998) likewise begin their paper exploring the political determinants of international trade among the major powers (the United States, Great Britain, France, Germany, Russia and Italy) between 1907 and 1990 with the simple statement: "Politics shapes international trade". Their results show that trade flows are greater between states with similar interests, between democratic dyads and between allies supports this claim: that is, political cooperation leading to deeper trade ties.

In the case of China, evidence in support of this "politics determines trade" hypothesis has been found by Fuchs and Klann (2013), who observe a 'Dalai Lama' effect in which countries hosting the Dalai Lama in a given year experience a fall in exports to China that year. Davis, Fuchs and Johnson (2019) explore the sensitivity of Chinese (and Indian) imports to political conflict and show that, for both countries, state-owned enterprises are more responsive to political conflict than private companies. On the cooperative side of the ledger, Fuchs et al.

(2020) show that countries with "friendly political relations" were the bigger beneficiaries of China's exports of medical goods during the first two months of the Covid-19 pandemic.

In a paper most closely aligned with our approach here, Du et al. (2017) explore the impact of political shocks on the exports of China's major trading partners over the period 1990 to 2013. This work distinguishes between high-level military conflict (which is of course likely to be accompanied by declining trade and investment) with less extreme fluctuations in political relations that 'ranges from "friendly" to "normal" to "tense", and occasionally "threatening"' (p. 211). After critiquing the use of low-frequency annual or quarterly data (used in most of the studies cited above), Du et al. propose an "accidental deviations" hypothesis, by which moderate political shocks are viewed as deviations from an equilibrium. Assuming that a positive (negative) political shock will lead to an increase (decrease) in exports, their empirical analysis confirms that political shocks exert small, short-lived effects on exports to China; disappearing within two months of the shock.

Agarwal and Golley (2022) conduct a similar analysis focusing on the Quad countries' exports to China (Australia, India, Japan, and the United States).[2] Their results offer further support for the accidental deviations hypothesis in the case of India's aggregate exports, for which a negative shock to political relations causes a small reduction in growth in the first month after the shock; this is true for a number of disaggregated product categories as well. However, for many of the individual product categories, there are neither short- nor long-term effects of political shocks on trade, suggesting that neither the "politics determines trade" nor the accidental deviations hypotheses satisfactorily explain the empirics in this case.

Instead, these and other works provide empirical support for a third hypothesis, which we term the "globalisation" hypothesis: that there is no relationship between political cooperation or conflict and trade. Davis and Meunier (2011), for example, conclude that political tensions did not impact significantly on US and Japanese trade and investment flows for the period 1990-2004. Using Franco-American disputes over Iraq and Sino-Japanese rifts

[2] Our focus here on just one of these countries allows us to do a more comprehensive analysis of all export sectors, whereas Agarwal and Golley (2022) only examine the top five exports for each Quad country. It also enables us to identify sub-periods that are specific to the Australia-China relationship, and to separately consider separate political relations indexes for cooperative and conflict events for some of our analysis below.

over Yasukuni Shrine visits in the early 2000s as detailed studies, they explain how, in the current era of globalisation, "low trade barriers, capital mobility, and multinational firms has constrained the ability of states to direct trade or investment flows to meet national goals" (p. 631). This leads them to conclude that "there has been no substantial economic fallout from political tensions" because "businesses on both sides saw the market as too great to sacrifice" (p. 643).

We take this point even further, in proposing that economic ties between countries can not only absorb negative political shocks: they may even over-compensate for them. The logic behind this argument is that when high-level political relations deteriorate, behind-the-scenes efforts by bureaucrats and/or companies engaged in trade not only prevent a fall, but may actually result in a rise, in exports. We call this the "doubling down" hypothesis. Conversely, when high-level political relations improve, it may be the case that behind-the-scenes bureaucrats and/or companies put in less effort than they had previously, potentially resulting in a reduction in exports. We call this the "dropping the ball" hypothesis**.** If the effects on exports in either case are only evident in the short run, these hypotheses are sub-sets of the accidental deviations hypothesis, although they may not then be quite as 'accidental' as the name implies. If there is evidence consistent with these hypotheses holding in the longer run, they challenge the logic behind realist interpretations of why "political relations matter for trade".

Interestingly, Davis and Meunier (2011) have already provided evidence consistent with the "doubling down" hypothesis in the case of Japan and China. While they conclude that political tensions did not harm Japanese exports or investments, their empirical results in fact show that "political tensions are associated with an increase of exports and FDI!" (their exclamation mark, p. 633). While they stress that they "are not suggesting that political tensions perversely increase investment [or exports]" (p. 640), their well-constructed arguments about the many ways in which economic actors can limit the fallout of political shocks suggests that this is certainly a possibility. Some of the results presented in the Australia-China context below are consistent with this logic.

3. Methodology

3.1. Measuring Bilateral Political Relations

Numerous attempts have been made to measure bilateral political relations, constituting interactions between national state actors (government and/or the military), and discarding interactions between state and sub-state actors, between state and non-state actors, and between non-state actors. Our interest in episodes of both cooperation and conflict leads us beyond those datasets that focus on military confrontation, such as the Militarised Interstate Disputes (MID) dataset.[3] An alternative approach uses United Nations General Assembly (UNGA) voting data to construct one country's political distance from another based on its position vis-a`-vis a "US-led liberal order".[4] While this is closer to the mark, its narrow focus does not necessarily reflect the broad range of cooperative ties between two countries, nor the many ways in which their foreign policy objectives may sometimes conflict with each other's (Flores-Macias and Kreps 2013, Bailey et al. 2017, Davis et al. 2019).

In contrast, the Global Database of Events, Location and Tone (GDELT) captures political events that occur over a spectrum of cooperation to conflict. The data are available at much higher frequencies than MID and UNGA voting data, with updated event observations available every fifteen minutes (as opposed to annually). This makes it ideally suited to our purposes here. The GDELT database uses an automated machine coding system to classify daily reports of events from eleven global news outlets according to the actors involved and events recorded, and is the most comprehensive event-dataset of its kind (Leetaru and Schrodt 2013). The events are indexed according to the "Goldstein score", which ranges from -10 (for extreme hostility) to +10 (for extreme cooperation). For example, a military attack or clash is awarded a score of -10; a break in diplomatic relations scores -7; the signing of a bilateral agreement scores 6.8 and the extension of economic aid scores 7.4.

[3] For example, the Militarized Interstate Disputes (MID) dataset, used by Pollins (1989) and Morrow et al. (1998) collates 2000 military disputes between countries over the period 1816 and 1992 (Reuveny 2003). It does not extend to the time period we are interested in here, and nor are we focused only on military disputes.

[4] This is used as one measure of political conflict in Fuchs and Klann (2013) (but is found to be insignificant). It is also used as an additional explanatory variable by Davis et al. (2019), although they only incorporate negative (or conflict) events from the GDELT database.

The database allows for the identification of both government and military actors, and also of pure business events. We focus on government actors here (in part because the variation in military events is too limited for our estimation methods) to construct a bilateral political relations index (PRI) between Australia and China. Including pure business events would take into consideration private sector events which are not exogenous to our export measure. We focus mainly on those events in which the Australian government is the 'sender' and the Chinese government is the 'target'.[5] For example, the unilateral call for an independent inquiry into the origins of the COVID-19 pandemic by the Australian Foreign Minister would constitute an event with the Australian government as the sender and the Chinese government as the target. Both cooperation events (that is, those with a positive Goldstein Score) and conflict events (those with a negative Goldstein score) are aggregated to construct a single indicator of political relations at monthly frequency.

The PRI series constructed in this way still includes trade-related events that occur between state actors. Examples include the signing of an FTA or the imposition of formal or informal sanctions affecting certain goods. This is problematic because it is essentially tautological that such policies will have trade implications. Rather, our interest is in assessing whether the broader state of political relations can impact trade. Accordingly, we follow Du et al. (2019) in removing these effects by using the residuals of the following regression to construct a 'trade-filtered' version of the PRI, which for simplicity we call the 'PRI'[6]:

$$\log(PRI_{A,C}) = \alpha_0 + \alpha_1 \left(\frac{\#trade_{A,C}}{\#events_{A,C}}\right) + \varepsilon_{A,m} \qquad (1)$$

where $PRI_{A,C}$ is the trade-filtered PRI measure of Australia towards China in month *m*, $\#events_{A,C}$ is the total number of events recorded between Australia and China in month *m,* $\#trade_{A,C}$ is the total number of events in which the term 'trade' appears in the event

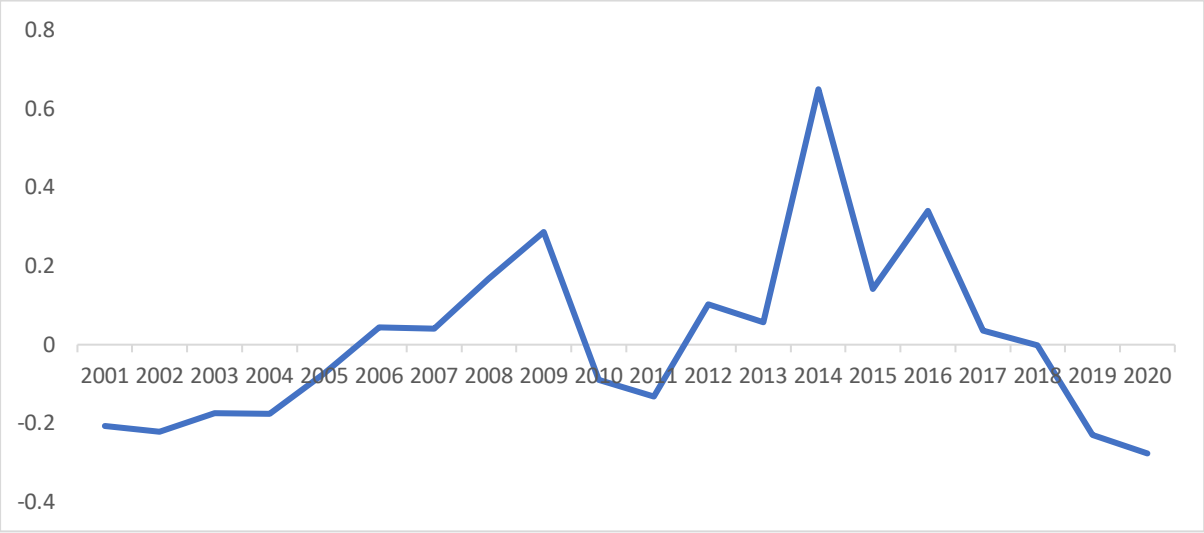
[5] This restriction on the direction of the political relations aids the estimation of the effects of actions by the Australian government towards the Chinese government on Australian exports to China. In other research we show that Chinese government PRI towards the Australian government closely follows the Australian government PRI towards the Chinese government (Golley, 2021).

[6] The non-trade filtered PRI follows very similar trends to the trade-filtered one we use here, although is in general slightly lower given that most trade events (such as the signing of the FTA) in the period analysed are positive ones.

descriptions recorded between Australia and China in month *m*, $\#events_{A,C}$ is the total number of events recorded between Australia and China in month *m*, and $\varepsilon_{A,t}$ are the residuals for Australia in month *m* and at time *t*. Normalising the trade event count by the total number of events reported in a given months removes nominal effects, such as seasonality and increasing media coverage, from the PRI series.[7]

Figure 1 presents the annual (normalised, trade-filtered) PRI for Australia towards China for the period 2001-2020. While there is a clear peak in 2014 (marked by Xi Jinping's visit to Australia), most commentators argue that the relationship between Canberra and Beijing really started its downturn from 2016. As such, we identify three sub-periods for further analysis: a relatively quiet and harmonious 2001-2005 (the "courtship"), followed by a generally rising trend over 2006-2015 (the long "honeymoon"), and entering more troubled times from 2016 onward. Figure 2 presents the monthly trade-filtered PRI for 2016-2020, to illustrate some of the 'cooperation highs' and the 'conflict lows' in Australia-China relations over this period.

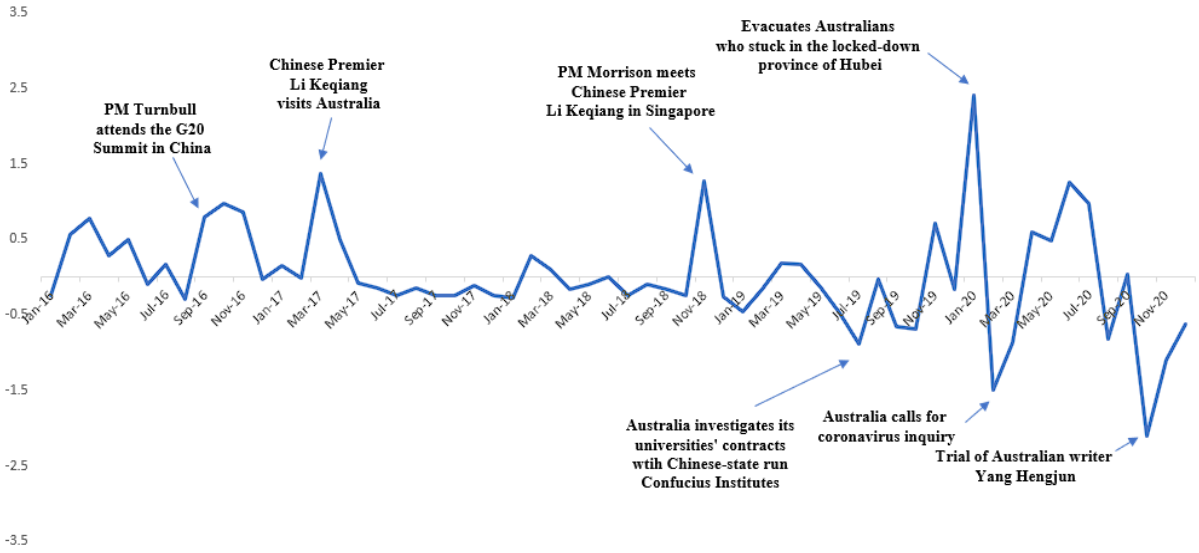
Figure 1: Annual PRI, Australia towards China, 2001-2020



Source: Authors' calculations using GDELT data.

Figure 2: Monthly PRI, Australia towards China, 2016-2020

[7] Note, we have constructed similar indices for a range of countries' PRIs with China, including the United States, Japan and India. See Agarwal and Golley (2022) for further details.



Source: Authors' calculations using GDELT data.

3.2 Empirical model and testable hypotheses

The empirical approach in this paper follows Du et al. (2017) and Agarwal and Golley (2022) by employing a simple gravity model of trade within a vector auto-regression (VAR) framework. This framework offers the flexibility for endogenous treatment of trade and political relations along with other covariates, by modelling multiple rather than single equations. The cost is that we need to restrict the number of covariates to prevent the loss of degrees of freedom. This is essentially a trade-off between mitigating reverse causality and allowing for omitted variables bias, and we maintain that the former is more pertinent given the complex and circular relationship between politics and trade revealed in the diverse empirical literature on the topic. The VAR framework also enables quantification of the dynamic effects of political shocks on trade, from short-run effects that last for one or several months, to long-run effects, which we define as lasting for two years. This distinction between short- and long-run effects is useful for the hypotheses we are interested in testing. Formally, the model estimated is:

$$x_{A.m} = \alpha_0 + \sum_{i=1}^{n} A_{A,i}(x_{A.m-i}) + e_{A.m} \quad (2)$$

$$where\ x_{A.m} = (\Delta ex_{A,m}, \Delta PRI_{A,m}, \Delta y_{C,m}, \Delta y_{A,m}, \Delta reer_{A,m})' \quad (3)$$

where the subscript *A* represents Australia and *m* represents the month = {January 2001, … December 2020}. The column vector $x_{A,m}$ contains, (i) the percentage change in Australia's exports to China at time *m* ($\Delta ex_{A,m}$), (ii) the percentage change in Australia's PRI towards China

at time *m* ($\Delta PRI_{A,m}$), (iii) the percentage change in China's industrial production index (IIP) at time *m* ($\Delta y_{C,m}$), (iv) the percentage change in Australia's industrial production index at time *m* ($\Delta y_{A,m}$) and, (v) the change in the ratio of Australia's real effective exchange rate to China's real effective exchange rate at time m ($\Delta reer_{j,m}$). The export data is drawn from the CEIC database for Chinese imports across twenty HS2 level sectors; the aggregated data is a summation of these. The PRI index is from the GDELT database described above, the IIP data is from the OECD Statistics Database (OECDStat)[8], and the real exchange rate data is from the Bruegels database.

The $A_{A,i}$'s in the model are *5x5* matrices that contain the VAR model coefficients and E(*ee'*] is the *5x5* variance-covariance matrix of contemporaneous error terms. The lag order *n* is selected using the Schwarz Information Selection Criterion (SC). Estimation of the model in differences is necessary because the PRI series is found to be non-stationary in levels but stationary in first differences. All other data-series are also found to be first-order integrated.

Estimation of VAR models requires a-priori assumptions regarding the causal ordering of contemporaneous shocks between system variables (Sims, 1980). We consider political shocks as the most exogenous followed by terms-of-trade shocks, export shocks, and consumptions shocks. These shocks can be interpreted as follows: an exogenous moderate political conflict event is initiated by Australia; and with a lag of at least one month, China retaliates through an attempt to change the terms-of-trade (measured as exchange rates) in its favour; subsequently, the changes in terms-of-trade impact trade flows; which in turn leads to changes in consumption for both countries.[9]

Following Du et al. (2017), the model is estimated using monthly rather than annual data. As they explain, aggregating data at the quarterly or annual level can lead to problematic inferences regarding the extent and timing of the effects of political shocks on trade. This is because mild and moderate political shocks, of the nature we see in the PRI above, are

[8] The Australian IIP data is quarterly, which we convert into monthly data using a cubic spline method.

[9] Agarwal (2022) develops a game theoretical model that provides a basis for this causal ordering of the effect of political shocks on trade. As a robustness check, he also estimates an alternative ordering in which the shock to consumption is placed before the shock to exports. In all cases, the results are virtually identical.

relatively short lived, using occurring in a matter of days or weeks. Aggregating this data to lower frequencies can reveal an "instantaneous causality" when none actually exists, a problem known as temporal aggregation or sampling bias. Agarwal (2022) uses spectral density analysis to confirm that 58.8 percent of Australia's trade-filtered PRI cycles occur within three months or less, confirming that analysis based on monthly data is appropriate for limiting this temporal aggregation problem in this study.

The dynamic effects of political shocks on exports to China can be measured using 'Orthogonalised Impulse Response' (OIR) functions generated using the VAR model described by equation (2) above, based on a one standard deviation positive shock to the PRI index. OIR functions are derived from a Choleski decomposition of the error variance-covariance matrix under the assumptions regarding the causal ordering of shocks and help illustrate the changes over time due to a shock on one variable in the system on all other system variables (Sims 1980, Du et al. 2017). We then compute the cumulative long-run effects of PRI shocks on export growth implied by the VAR model over a time horizon of two years, for the entire period (2001-2020), for different sub-periods, and for different sectors as well.

The testable hypotheses drawn from the theoretical foundations above in the Australia-China context can be summarised as follows:

> *Hypothesis 1* (Globalisation): a positive (or negative) shock to the PRI will have no significant short- or long-run effects on the growth of Australian exports to China.
>
> *Hypothesis 2* (Politics determines trade): a positive shock to the PRI will have positive and significant short- and long-run effects on the growth of Australian exports to China. This can be interpreted either as an *increase* in political cooperation leading to *higher* export growth or an *increase* in conflict leading to *lower* export growth.
>
> *Hypothesis 3* (Accidental deviations): a positive (negative) shock to the PRI will have only short-run positive (negative) effects on Australian export growth.

Hypothesis 4 (Doubling Down): a negative shock to the PRI will have a positive effect on the growth of Australian exports to China, in the short or long run.

Hypothesis 5 (Dropping the Ball): a positive shock to the PRI will have a negative effect on the growth of Australian exports to China, in the short or long run.

In the case of hypotheses 4 and 5, the methodology and data presented above do not enable us to distinguish whether it is cooperative or conflict events that are driving the results. We provide some preliminary evidence on this point by separating the PRI into two separate cooperation and conflict indexes (constructed using only positive and only negative GDELT events, respectively) as the final part of our analysis below. We now turn to the results.

4. Results

4.1 Aggregated Australian Exports to China

Table 1 shows the composition and value of Australian merchandise exports to China for 2001-2020 and 2016-2020. Mineral products, which include iron ore, natural gas and coal – clearly dominate, accounting for over three quarters of exports on average over the entire period and in the final sub-period. Other significant exports are precious stones and metals (6.85% in 2016-2020), base metals (3.1%), live animals and products (2.75%), and textiles and textile articles (2.36%). Given that mineral products are so dominant, we present the aggregated results excluding them as well.

Table 1. Composition of Australian merchandise exports to China

	2001-2020		2016-2020	
Product description	Exports value (US$ mil.)	Share of exports to China (%)	Exports value (US $ mil.)	Share of exports to China (%)
Live animals & products	22257.26	1.95	13821.83	2.75
Vegetable products	22296.19	1.95	9613.89	1.91
Animal or vegetable fats	2780.12	0.24	821.75	0.16
Beverages	13364.42	1.17	8649.26	1.72
Mineral products	860077.7	75.22	386173.8	76.75
Chemical products	32064.33	2.80	8019.17	1.59
Plastics and rubber	3738.71	0.33	919.98	0.18
Raw hides and leathers	9326.69	0.82	2055.88	0.41
Wood; articles of wood	10739.75	0.94	6449.37	1.28
Pulp of Wood	4262.04	0.37	1223.05	0.24
Textiles; textile articles	40160.84	3.51	11856.42	2.36

Footwear	28.15	0.00	21.42	0.01
Articles of stone	219.49	0.02	58.22	0.01
Precious stones & metals	44364.62	3.88	34436.73	6.84
Base metals	64939.89	5.68	15862.82	3.15
Machinery	9103.26	0.80	1949.53	0.39
Transport equipment	938.91	0.08	215.74	0.04
Optical instruments	2438.07	0.21	909.78	0.18
Misc. manufactures	244.4	0.02	125.77	0.025
Works of art	5.92	0.00	1.95	0.00

Source: CEIC Database and authors' calculations

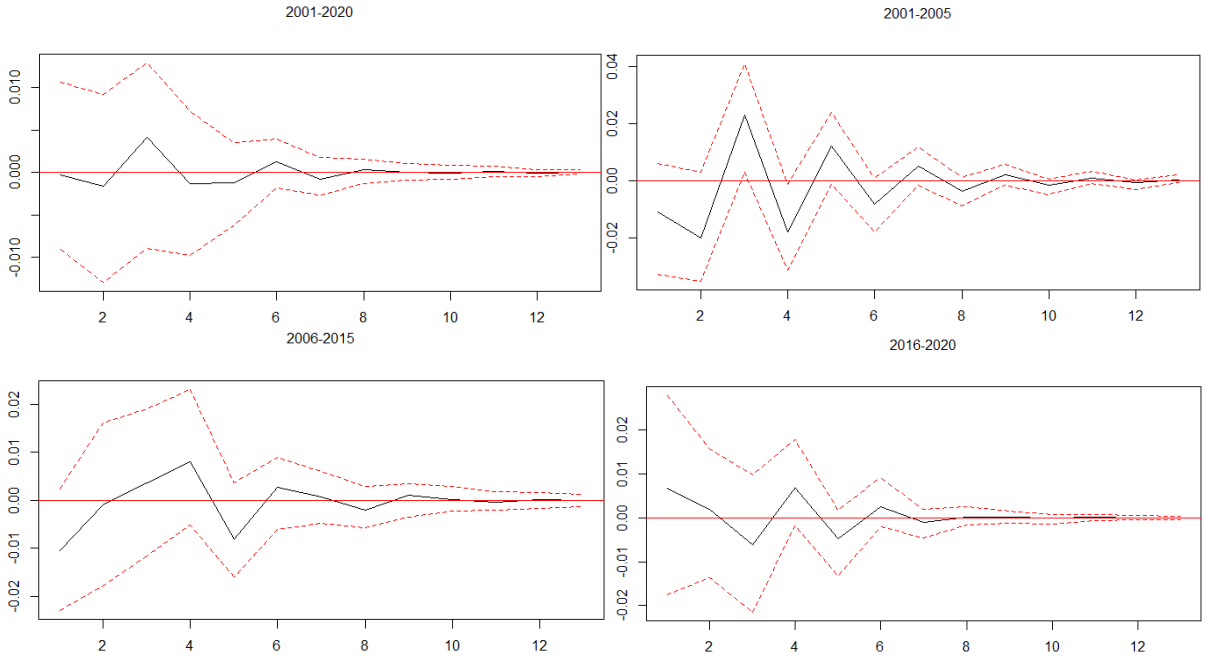
We begin with the short-run effects of a one standard deviation positive shock to the PRI on Australia's aggregate exports to China. Figure 3 displays the OIRs associated with this shock for the period 2001-2020 as well as three sub-periods, 2001-2005, 2006-2015 and 2016-2020. The red dotted lines show 90% confidence bands using a bootstrap method. Note that a negative shock produces export effects of the same magnitude, but with the opposite sign.

The panels in Figure 3 reveal that there are no short-run effects in aggregate for 2001-2020, 2006-2015 and 2016-2020, while there is small, positive short-run effect in the third month for 2001-2005, implied by the fact that the lower and upper bound estimates in red both lie above zero (for all others, they lie on either side, which implies insignificant coefficients). An associated coefficient of 2.3 implies that a one percent standard deviation positive shock to the PRI causes a 2.3% increase in export growth three months after the shock in this period.

Figure 4 repeats the analysis but excludes minerals products. Interestingly, these reveal significant *negative* short-run effects for 2001-2005 and 2006-2015. For 2001-2005, this negative effect takes place in the second month, with the coefficient implying that a one standard deviation positive shock results in a 2.5% *decrease* in export growth; for 2006-2015, the negative effect takes place in the first month and amounts to a 1.8% *decrease* in export growth.

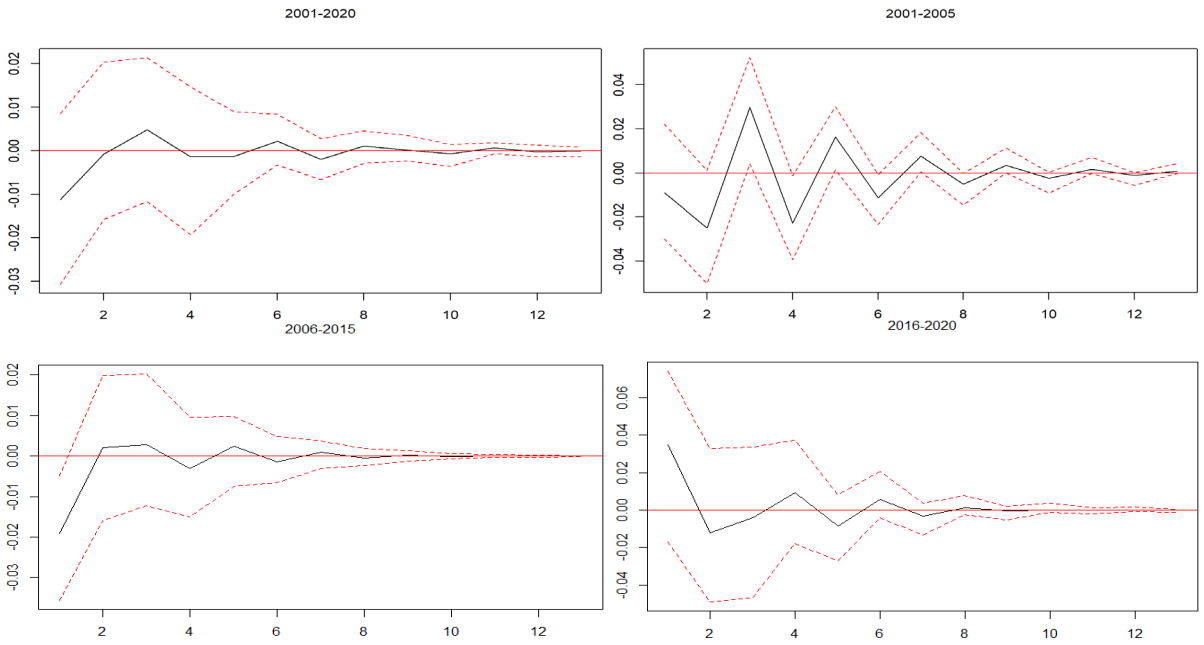
Given the small magnitude of these short-run effects, and the non-significance for the other periods in question, it is not surprising to see that there are no long-run effects for the aggregated data, either with or without mineral products, in any of the time periods. This can be seen in in Table 2, where for each point estimate the lower and upper bounds are negative and positive respectively, indicating no statistically significant coefficients.

Figure 3. Short-run effects of trade-filtered PRI shocks on export growth to China



Note: These figures depict the dynamic effects of a one standard deviation negative shock to the trade-filtered PRI series on Australia's export growth to China as implied by the VAR model (Eq. (2) in the text. The red lines show the upper and lower limits at a 90% confidence interval using a bootstrap method.
Source: Authors' calculations using method described in the text.

Figure 4. Short-run effects of trade-filtered PRI shocks on export growth to China, excluding minerals



Note: These figures depict the dynamic effects of a one standard deviation negative shock to the trade-filtered PRI series on Australia's export growth (excluding minerals) to China as implied by the VAR model (Eq. (2) in the text. The red lines show the upper and lower limits at a 90% confidence interval using a bootstrap method.

Source: Authors' calculations using method described in the text.

Table 2: Long-run effects of shocks to tfPRI on aggregate export growth

	Including Mineral Products			Excluding Mineral Products		
Period	Lower bound	Estimate	Upper bound	Lower bound	Estimate	Upper bound
2001-2020	-1.32	-0.5	0.33	-2.47	-0.90	1.07
2001-2005	-3.78	-1.79	0.7	-4.21	-1.72	1.64
2006-2015	-1.89	-0.54	0.78	-3.11	-1.59	0.24
2016-2020	-1.55	0.61	2.42	-1.96	2.31	6.65

Note: This table displays the cumulative effects of a one standard deviation positive shock to the trade-filtered PRI series on Australia's export growth to China, implied by the VAR model introduced above. The long-term horizon is two years. All values are in percentages. None of the estimates are statistically significant.
Source: Authors' calculations using method described in the text.

4.2 Disaggregated Results: Digging Deeper

The difference between the aggregated results including and excluding mineral products is the first indication that there is heterogeneity in the response of different sectors to political shocks. To investigate this further, we estimate the short- and long-run effects of PRI shocks on exports disaggregated by product-type, at the HS2 section level shown in Table 1. Table 3 presents the long-run estimates for 19 of the 20 product categories (omitting works of art as the data is too limited for effective estimation). In general, this lends support to the aggregate findings above, in that for the majority of sectors there is no significant long-term effect of a political shock on export growth. However, there are several sectors for which long-run effects are observed, and all of these are negative: that is, running counter to the direction predicted by hypotheses 1-3 above. For precious stones and metals in the period 2006-2015, for example, a one standard deviation increase in the PRI is associated with a 10.9% increase in export growth. Other significant long-run effects are observed for plastics and rubber (2001-2005), and raw hides and leather and optical instruments (2016-2020).

Table 3: Long-run effects of PRI shocks on HS2-level export growth

	Point estimate			
Product description	2001-2020	2001-2005	2006-2015	2016-2020
Live animals; products	1.48	1.24	2.04	-0.38
Vegetable products	-4.32	-7.19	-2.72	-4.09
Animal or vegetable fats	0.17	-3.54	-0.48	-1.51
Beverages	0.38	-6.97	-0.84	-1.36
Mineral products	0.13	-2.30	-0.41	-0.44
Chemical products	0.20	-1.85	0.92	-0.27
Plastics and rubber	1.37	**-4.65***	2.71	2.18
Raw hides and leathers	-0.46	-0.93	-0.07	**-3.25***
Wood; articles of wood	1.12	-0.45	0.47	-2.40
Pulp of Wood	0.27	-0.88	-0.65	-0.42
Textiles; textile articles	-0.46	-2.40	0.25	0.31
Footwear	0.78	0.27	-0.04	3.89
Articles of stone	0.06	-0.13	1.62	-1.07
Precious stones & metals	-1.73	4.05	**-10.90***	7.04
Base metals	-0.09	-0.74	-1.78	-2.63
Machinery	0.32	0.85	1.82	-2.21
Transport equipment	1.36	12.70	-3.90	4.22
Optical instruments	-1.96	3.65	-1.22	**-4.65***
Misc. manufactures	-1.34	-6.37	-0.01	-4.87
Works of art	n/a	n/a	n/a	n/a

Note: This table displays the cumulative effects of a one standard deviation positive shock to the trade-filtered PRI series on Australia's export growth to China, implied by the VAR model introduced above. The long-term horizon is two years. All values are in percentages. * indicates significance at the 10% level.
Source: Authors' calculations using method described in the text.

Tables 4-6 present the results for all those sectors with significant short-run effects in each of the three sub-periods. This is an alternative way of presenting the short-run effects illustrated in Figures 3 and 4, but now for each sector. For all sectors, there is no evidence of effects beyond the fifth month (for 2006-2015) or the fourth month (for 2016-2020). Several interesting points emerge. First, there is variation across time periods in terms of which products are affected by a political shock and in which month. Beverages – the only product with significant effects in all sub-periods – are particularly interesting in this sense, experiencing a growth reduction in month four during the period 2001-2005 (Table 4); a growth increase in month four in 2006-2015 (Table 5); and a growth reduction in month one in 2016-2020 (Table 6).

Second, the majority of products reveal negative coefficients. The only exceptions are beverages, transport equipment and optical instruments (2006-2015) and footwear (2016-2020). For precious stones and metals, the results for 2006-2015 indicate that a one standard deviation positive PRI shock is associated with a 9.4% reduction in export growth (followed

by an 8.5% reduction in month two); this explains the long-run negative coefficient in Table 3. During 2016-2020, an equivalent shock is associated with a 26.4% reduction in export growth in month two.

Table 4: Short-run effects of political shocks on aggregate trade, 2001-2005

Product description	1	2	3	4	5
Beverages	-0.67	-11.57	9.41	**-6.94**	4.56
Chemical products	-0.46	**-4.37**	**5.23**	**-3.73**	2.40
Plastics and rubber	**-3.38**	-2.74	2.36	-1.35	0.71
Base metals	-1.29	-0.67	3.15	**-2.94**	1.33
Machinery	0.60	-1.65	6.57	**-8.86**	5.50

Note: This table displays the point estimates for the effects of a one standard deviation positive shock to the trade-filtered PRI series on Australia's export growth to China in the first five months following the shock, implied by the VAR model introduced above. All values are in percentages. Only those sectors which had significant coefficients in at least one month are reported.
Source: Authors' calculations.

Table 5: Short-run effects of political shocks on aggregate trade, 2006-2015

Product description	1	2	3	4	5
Live animals & products	3.47	2.01	**-9.07**	**8.85**	**-3.14**
Beverages	-0.01	-0.23	-3.26	**4.94**	-3.02
Mineral products	-0.75	-0.34	0.59	0.90	**-1.17**
Articles of Stone	0.54	4.43	**-7.29**	6.23	-2.23
Precious stones & metals	**-9.35**	**-8.53**	**9.04**	-1.77	-0.35
Transport equipment	-5.84	5.26	-8.10	**8.08**	**-4.42**
Optical instruments	-3.87	3.46	0.74	-3.75	**3.60**

Note: This table displays the point estimates for the effects of a one standard deviation positive shock to the trade-filtered PRI series on Australia's export growth to China in the first five months following the shock, implied by the VAR model introduced above. All values are in percentages. Only those sectors which had significant coefficients in at least one month are reported.
Source: Authors' calculations.

Table 6: Short-run effects of political shocks on aggregate trade, 2016-2020

Product description	1	2	3	4
Animal vegetable fats	-4.22	8.08	**-8.40**	3.45
Beverages	**-6.89**	**8.24**	**-4.03**	1.83
Wood & wood articles	**-4.02**	1.77	-1.42	0.68
Raw hides and leathers	**-6.34**	4.26	-0.72	0.63
Textiles and textile articles	-1.85	2.55	-3.57	**6.01**
Footwear	**3.63**	0.19	0.14	-0.12
Precious stones & metals	18.43	**-26.42**	**24.08**	**-13.82**
Machinery	4.03	-5.08	**-9.77**	13.27
Optical instruments	**-9.37**	6.18	-1.91	0.30
Miscellaneous manufacturing	0.68	-6.20	**-12.11**	**21.52**

Note: This table displays the point estimates for the effects of a one standard deviation positive shock to the trade-filtered PRI series on Australia's export growth to China in the first four months following the shock (there are none thereafter), implied by the VAR model introduced above. All values are in percentages. Only those sectors which had significant coefficients in at least one month are reported.
Source: Authors' calculations.

4.3 Doubling down or dropping the ball?

The negative coefficients found for numerous sectors above are consistent with our two new hypotheses, "dropping the ball" and "doubling down". Our intuition leads us to suspect that it may be the former during the "honeymoon" period" (2006 and 2015), while it may be the latter during the "rocky patch" (2016-2020). In this final section, we separate out the PRI into a cooperation index (in which only positive events are included) and a conflict index (in which only negative events are included) to confirm whether this is the case.

During the period 2006-2015, precious stones and metals were the only sector with a long-run negative significant effect (see Table 3). Table 7 reveals that it is the only sector for which this remains true when separate conflict and cooperation indexes are used, and that the significant result is entirely driven by the cooperation index. As shown in Table 8, three other products have statistically significant short-run effects in this period: live animals and products has a positive coefficient when using only conflict events, although its magnitude (of 3.49) is smaller than the negative coefficient when only using cooperation events (of -8.39). The other two products only have negative short-run effects for the cooperation index. These, and the results for precious stones and metal, are consistent with the "dropping the ball" hypothesis for this period.

Table 7: Significant long-run effects of political shocks (to Conflict and Cooperation) on export growth, 2006-2015

	Conflict index			Cooperation index		
Product description	Lower bound	Estimate	Upper bound	Lower bound	Estimate	Upper bound
Precious stones & metals	-3.30	3.40	10.10	-19.50	**-10.90**	-1.98

Note: This table displays the cumulative effects of a one standard deviation positive shock to the trade-filtered PRI series on Australia's export growth to China, implied by the VAR model introduced above. The long-term horizon is two years. All values are in percentages. * indicates significance at the 10% level.
Source: Authors' calculations using method described in the text.

Table 8: Short-run effects of political shocks (cooperation) on aggregate trade, 2006-2015

Product description	1	2	3	4	5
<u>*Conflict Index*</u>					
Live animals & products	**3.49**	-0.65	-3.00	3.75	-1.58
<u>*Cooperation Index*</u>					
Live animals & products	3.73	0.97	**-8.39**	**8.89**	**-3.72**
Articles of Stone	0.91	5.1	**-7.08**	5.3	-1.43
Precious stones & metals	-8.02	**-8.22**	5.23	1.04	-0.88

Note: This table displays the point estimates for the effects of a one standard deviation positive shock to the trade-filtered PRI series on Australia's export growth to China in the first five months following the shock, implied by the VAR model

introduced above. All values are in percentages. Only those sectors which had significant coefficients in at least one month are reported.
Source: Authors' calculations.

Even more striking are the results for the period 2016-2020, in which six products reveal long-run effects, with five of them – now including mineral products – doing so for the conflict index only (Table 9). Even more products have significant short-run effects when the conflict index is used, and all of these (with the exception of chemical products) have coefficients that are consistent with our "doubling down" hypothesis (Table 10). We reflect on this somewhat unexpected finding in our concluding discussion, to which we now turn.

Table 9: Significant Long-run effects of political shocks (to Conflict and Cooperation) on export growth, 2016-2020

Product description	Conflict index			Cooperation index		
	Lower bound	Estimate	Upper bound	Lower bound	Estimate	Upper bound
Beverages	-3.61	-0.815	2.04	0.24	**4.13**	7.23
Mineral products	0.661	**2.35**	4.01	-0.622	1.56	3.54
Plastics and rubber	0.717	**4.00**	7.77	-4.59	-0.562	4.45
Precious stones & metals	2.55	**22.0**	39.7	-35.8	-12	7.22
Base metals	2.82	**7.92**	12.2	-6.44	-2.37	2.03
Misc. manufactures	6.79	**12.5**	18.1	-14.9	-3.68	6.38

Note: This table displays the cumulative effects of a one standard deviation positive shock to the trade-filtered PRI series on Australia's export growth to China, implied by the VAR model introduced above. The long-term horizon is two years. All values are in percentages. * indicates significance at the 10% level.
Source: Authors' calculations using method described in the text.

Table 10: Short-run effects of political shocks (cooperation) on aggregate trade, 2016-2020

Product description	1	2	3	4
Conflict Index				
Mineral products	**2.16**	0.76	-0.96	0.54
Chemical products	2.46	**-5.41**	1.68	2.46
Plastics and rubber	2.85	**3.68**	**-3.66**	1.26
Pulp of Wood	-1.46	**6.14**	**-4.09**	1.36
Footwear	**4.34**	1.48	-1.06	0.32
Articles of stone	**6.65**	-2.4	0.55	-0.01
Precious stones & metals	**37.26**	-19.30	4.08	1.05
Base metals	**8.25**	0.74	-1.47	0.27
Machinery	**6.72**	-2.46	1.24	-0.75
Misc. manufactures	8.58	**16.61**	**-22.73**	**13.2**
Cooperation Index				
Live animals; products	-0.34	-2.65	**1.91**	-0.79
Beverages	**4.88**	-1.31	1.05	-0.8

Mineral products	**2.28**	-1.07	0.45	-0.11
Articles of stone	**-4.63**	-0.13	1.12	-0.82

Note: This table displays the point estimates for the effects of a one standard deviation positive shock to the trade-filtered PRI series on Australia's export growth to China in the first four months following the shock (there are none thereafter), implied by the VAR model introduced above. All values are in percentages. Only those sectors which had significant coefficients in at least one month are reported.
Source: Authors' calculations.

5. Conclusions

Our examination of the impact of political shocks on Australian exports to China has revealed support for each of the three mainstream hypotheses, depending on the level of disaggregation and the time sub-period examined. Consistent with the globalisation hypothesis, there was no evidence of either short- or long-term effects on Australia's aggregate export growth following a one standard deviation shock to the PRI. However, small, short-run effects were found in two of the sub-periods when minerals were excluded: and with negative coefficients, these estimations ran counter to those presumed by the "politics affects trade" and "accidental deviations" hypotheses. In a further exploration of HS2 sectoral-level exports for three different sub-periods, only a small number of products had significant long-run effects, while a larger number had short-run effects, with the vast majority of these being negative (9 of the 10 products in the 2016-2020 period). A final analysis that distinguished cooperative events from conflict events revealed that shocks to the former could explain these findings in 2006-2015, while shocks to the latter could explain them in 2016-2020.

As noted earlier, these findings do not challenge the essentially tautological observation that specific policy measures enacted by states can have positive or negative impacts on trade (or other economic connections). Rather, they deliver support for an assessment that shifts in the broader political climate between Canberra and Beijing have been, in general, of limited consequence for Australia-China trade. Further, to the extent that impacts are significant, more often than not these appear to be the inverse of common expectations. We argue these findings should not be regarded as surprising for several reasons.

First, trade is overwhelmingly undertaken by companies and households, and these non-state actors are principally motivated by economic considerations, such as profits, costs, and quality. In turn, these considerations reflect cross-country variation in production

complementarities and purchasing power. These economic fundamentals are distinct from the preoccupation of many capitals with geopolitical alignment and other factors commonly cited as being of significance like “shared values”. It is economic drivers that meant by 2018 two-thirds of countries traded more with China than the United States (Leng and Rajah, 2019).

Second, in the presence of geopolitical risk, companies have access to a suite of mitigation mechanisms that lessen the need to pre-emptively cut exposure to a given market. At the same time, companies are cognizant that geopolitical tensions can fluctuate over time and may maintain connections with a lucrative market even if the short- or medium-term risks are elevated. The Australian experience of trade disruption with China since May 2020 is illustrative. Despite the breadth of disruption, the costs incurred both by individual industries and the Australian economy as a whole has been limited. For most of the affected industries, access to competitive, global markets enabled companies to quickly and at low cost re-direct their sales from China to other markets (e.g., coal, cotton). For those in other industries, “grey channels” have provided the means to circumvent restrictions (e.g., lobster). Those in others still have been able to adjust their output mix to produce goods not covered by the disruptive measures (e.g., wood) (Ferguson, et al., 2022). Even in Australian industries that have suffered relatively more, like wine, many companies have embraced a long-term horizon. When one Australia’s largest wine producers, Treasury Wine Estates (TWE) faced “anti-dumping tariffs” of 175.6 percent, its Chief Executive Officer responded, “We remain committed to China, we are just going to work out a different way to achieve it” (Korporaal, 2021). What emerged was a strategy of selling TWE-branded wine sourced from the US and France, and investing in China’s domestic wine industry (Evans, 2022).

As political relations between Canberra and Beijing have deteriorated in recent years, interviews with Australian company executives reveal more effort than ever has been put into building positive brand perceptions and strengthening relationships with customers and government officials in China (Korporaal, 2021). This effort is in line with our “doubling down” hypothesis and may help to explain the empirical finding of an increase in political conflict between Canberra and Beijing being associated with short-run positive trade effects in some sectors and time sub-periods. For its part, Canberra endorsed the Australian business community stepping up to engage their Chinese counterparts in such efforts, viewing them

as valuable for stabilising the broader bilateral relationship (Tehan, 2021). In a September 2021 speech otherwise calling for Australian businesses to boost their resilience through greater market diversification, then-Treasurer Josh Frydenberg acknowledged that many Australian businesses had "worked hard to access the lucrative Chinese market". This, he said, had "brought great benefits to them and to Australia overall. And they should continue to pursue these opportunities where they can" (Frydenberg, 2021).

Taken together, the empirical findings of this paper, combined with the availability of plausible explanations for them, provides some optimism that the Australia-China economic marriage can remain vibrant even if the state of political relations between Canberra and Beijing continues to be rocky. Of course, strictly interpreted, the empirical findings only apply to the period of analysis from 2001-2020 and there may be threshold levels of political disagreement yet to be broached. Further, as the fallout from Russia's invasion of Ukraine demonstrates, geopolitical disputes can reach a level at which capitals abandon a reluctance to pro-actively implement policy measures that disrupt trade. In an extreme (hypothetical) case in which 95% of Australia-China trade is shut down, modelling by Tyers and Zhou (2020) estimate that Australia's GDP and real disposable income per capita would fall by 6% and 14%, respectively. At the same time, the possibility of such extreme policy activism in the context of Australia and China should not be exaggerated. Laurenceson (2021), for example, outlines a host of factors that constrain the willingness and ability of Canberra and Beijing to implement such measures. Membership in the Regional Comprehensive Economic Partnership (RCEP), enacted at the beginning of 2022, demonstrate that both Canberra and Beijing remain focused on promoting closer regional economic integration, not greater economic distance. The change of Australian government in May 2022 has also seen a stabilisation in political relations between the two capitals, even if the future trajectory remains uncertain.

Finally, caveats on the methodology used in this paper and avenues for further research should also be noted. First, the GDELT database codifies political events based on media reports. However, several interactions between countries may not be reported in the media. Second, the paper utilised a parsimonious VAR model in which only a handful of confounding variables were considered. This choice highlights the trade-off between using single-equation

cross-section models with several confounding variables, but which do not adequately account for reverse causality between trade and political relations. Creative research designs that control for omitted variables and account for reverse causality to identify the causal effect of political relations on trade is a promising area for future research; coupled with further investigation into whether our new hypotheses hold up to closer scrutiny. Third, the empirical analysis was restricted to the bilateral relationship between China and Australia; future research may consider the use of panel-VAR models that can account for several partners simultaneously and thus consider interrelationships between multiple trading partners. In a world where political alliances seem to be taking on an increasingly important role, this step will be crucial for understanding whether bilateral economic “matches made in heaven” can be sustained into the future.

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