Anthony A. Pezzola, The Deep Roots of Protectionism in the Southern Cone: Constituent Interests and Mercosur’s Common External Tariff. *Latin American Politics and Society* vol. 60, no. 4 (Winter 2018).

**Web Appendix**

1. Descriptive Statistics
2. List of industries included in models
3. Discussion of the Variable Subnational Production
4. Alternative Specifications of 
5. Model fits for different weights of 

|  |
| --- |
| **Descriptive Statistics** |
| **Variable** |  | **Calculation** |
|  |  | Min | 1st Qu. | Mean | 3rd Qu. | Max |
| CET*p* |  |  0.000 | 6.000 | 11.390  | 16.000 | 20.000 |
| Production*i* |  | 204,172.000 | 1,284,427.000. | 2,232,319.000 | 3,278,281.000 | 7,139,620.000 |
| log(Production*i*) |  |  12.230 | 14.070 | 14.490 | 15.000 | 15.780 |
| Political Concentration*i* |  |  0.220 | 0.430 | 0.490 | 0.580 | 0.790 |
| Subnational Production*i* |  |  3.280 | 35.250 | 59.050 | 72.770 | 242.500 |
| log(Subnational Production*i*) |  |  1.190 | 3.560 | 3.970 | 4.290 | 5.490 |
| Wage*i* |  | 449.670 | 3,769.930 | 6,267.800 | 7,615.730 | 2,070.240 |
| log(Wage*i*) |  | 6.110 | 8.230 | 8.640 | 8.940 | 9.900 |
| Import Demand Elasticity*p* |  | -314.880 | -3.800 | -7.910 | -0.380 | 0.000 |
| Import Penetration*i*  |  | 0.000 | 0.000 | 0.040 | 0.010 | 0.310 |
| Intra-industry Trade*o*  |  | 0.000 | 0.000 | 0.050 | 0.010 | 0.960 |
| Revealed Comparative Advantage*p* (RCA*p*) |  | 0.000 | 0.153 | 1.260 | 0.530 | 132.780 |
| asinh(RCA*p*) |  | 0.000 | 0.015 | 0.480 | 0.510 | 5.580 |
| Note: Where *i* indicated the industry, *p* indicates the product.  |

|  |
| --- |
| **Industries Included in Quantitative Models** |
| Brazilian Industrial Categories | Associated Product Lines | Included in Analysis |
| Cement and cement cylinders | 24 | Yes |
| Cement pieces and structures | 9 | No |
| Glass and articles of glass | 87 | Yes |
| Non-metallic mineral manufactures, n.e.s. | 129 | Yes |
| Iron and steel | 354 | Yes |
| Non-ferrous metals | 228 | Yes |
| Smelting and casting of steel | 1 | No |
| Other steel products, n.e.s. | 274 | Yes |
| Fabrication of machinery and equipment | 966 | Yes |
| Fabrication of tractors and heavy machinery, including parts | 95 | Yes |
| Maintenance and repair of tractors and heavy machinery |  | No |
| Equipment for the production and distribution of electricity | 114 | Yes |
| Fabrication of wire, cable, and other materials for the distribution of electricity | 13 | No |
| Electronic equipment and appliances, excluding domestic appliances, typewriters, and computers | 645 | Yes |
| Domestic appliances, typewriters, and computers, including parts and accessories | 253 | Yes |
| TVs, radios, and communication equipment | 72 | Yes |
| Cars, Trucks, and buses | 64 | Yes |
| Motors and parts for vehicles | 48 | Yes |
| Naval industry | 18 | No |
| Manufacture and repair of railway and tramway locomotives and rolling stock | 27 | Yes |
| Other vehicles, n.e.s. | 57 | Yes |
| Manufactures of wood and cork, except the manufacture of furniture | 97 | Yes |
| Manufacture of Furniture | 25 | Yes |
| Charcoal |  | No |
| Cellulose and other pastes for the production of paper | 109 | Yes |

|  |
| --- |
| **Industries Included in Quantitative Models (cont.)** |
| Brazilian Industrial Categories | Brazilian Industrial Categories | Brazilian Industrial Categories |
| Paper, cardboard, and paper products | 47 | Yes |
| Publishing, printing and reproduction of recorded media | 48 | Yes |
| Manufacture of rubber and rubber products | 205 | Yes |
| Non petro and carbochemical chemical product | 1499 | Yes |
| Alcohol distillation |  | No |
| Petroleum refining | 39 | Yes |
| Basic and intermediate chemicals | 54 | Yes |
| Resins and man-made fibers | 33 | Yes |
| Fertilizers and soil additives | 40 | Yes |
| Chemical products, n.e.s. | 39 | Yes |
| Pharmaceutics | 816 | Yes |
| Perfume, soap, and candels | 373 | Yes |
| Plastic sheeting | 94 | Yes |
| Plastic products | 83 | Yes |
| Spinning, weaving and finishing of natural fibers | 197 | Yes |
| Spinning, weaving and finishing of artificial fibers | 245 | Yes |
| Other textile products, n.e.s. | 197 | Yes |
| Wearing apparel and accessories | 281 | Yes |
| Tanning and dressing of leather; manufacture of luggage, handbags, and harness | 73 | Yes |
| Footwear | 33 | Yes |
| Processing of coffee | 7 | No |
| Processing of rice | 12 | No |
| Wheat milling and products | 9 | Yes |
| Processing and preservation of fruit and vegetables, including juices and condiments | 95 | Yes |
| Processing of other vegetable products for food | 167 | Yes |
| Tobacco products | 10 | No |
| Processing and preservation of meat (except foal) | 124 | Yes |
| Processing and preservation of fowl | 25 | Yes |
| Processing and preparation of dairy products | 50 | Yes |
| Processing and preparation of sugar and products | 62 | Yes |
| Processing and preservation of vegetable oils | 28 | Yes |
| Refining oils and fats, n.e.s. |  | No |
| Animal feed | 7 | No |

|  |
| --- |
| **Industries Included in Quantitative Models (cont.)** |
| Brazilian Industrial Categories | Brazilian Industrial Categories | Brazilian Industrial Categories |
| Other food stuffs | 70 | Yes |
| Processing and preservation of beverages | 79 | Yes |
| Miscellaneous manufactured articles, n.e.s. | 183 | Yes |
| Notes:Given the impossibility of reconciling the specific products associated with some industries due to the lack of a correspondence table for Brazils early industrial classifications (e.g. Fertilizers and soil additives), it was not possible to assign some industries products.Due to the estimation requirements of the statistical model, industries with fewer than twenty products were excluded from the analysis. |

**Discussion of the Variable *Subnational Production***

The aggregate subnational importance of an industry as a producer within each subnational economy is calculated: *Subnational Productioni* , where *productioni,k*is the value of production of industry *i* in jurisdiction *k* and *GDPk* is the size of the subnational economy *k*, and *n* is the total number of jurisdictions.

This measure takes into account the importance of the rural, government, and service sector, something that the absolute size of an industry cannot do. Unfortunately, the indicator cannot directly measure the importance of the rural sector within a state’s economy and cannot capture the potential influence of rural corporatist machine politics in the member countries. However, this measure does make a significant advance in the incorporation of non-industrial economic interests. Until data for the rural and service economy are fully and accurately reported at the provincial (state) level, there is no way to directly model the influence of these different sectors.

While, this measure does not have the well-known properties of the Herfindahl index, the Gini coefficient, or an Atkinson index, none of these measures of concentration can accurately capture the subnational importance of an industry in individual jurisdictions. What we do know about the measure is that it has a lower limit of zero and an upper limit equal to the ratio of national industrial production to GDP. While the measure may seem to strictly increase with the number of jurisdictions in which the industry appears, it does not. This is because the value of the numerator does not change with the number of jurisdictions that an industry appears in. We do know that if an industry is located within smaller subnational economies, the value of the measure is greater than if it were located in more robust economies. Higher values of this measure of subnational importance, therefore, indicate that the industry has a more significant role in the economy of at least one subnational jurisdiction.

While the measure may seem to strictly increase with the number of jurisdictions in which the industry appears, it does not. This is because the value of  does not change with the number of jurisdictions that an industry appears in. If we assume that the industrial economies of all economies are the same size (=), then the value of the measure does not change, for a given size of an industry, regardless of how many jurisdictions it operates in. Once the size of the industrial economy of each jurisdiction is allowed to vary, no direct relationship exists between the size of an industry, the number of jurisdictions that it is present in, and its measure of subnational importance. We do know that if an industry is located within smaller economies, the value of the measure will be greater than if it was located in more robust economies.

The greatest limitation of this measure is that there is no way to determine whether an increase of 0.1 is due to an industry representing an additional 10% of one jurisdiction’s economy or an additional 1% of ten jurisdictions’ economies. A Herfindahl index of subnational importance was calculated and integrated into the statistical models, but proved to be non-significant.

**Alternative Specifications of **

As Olarreaga et al. (1999) observe, the interests of Brazil dominated the formation of the CET. This is because in most sectors Brazilian industry outweighed the combined production of Argentina, Paraguay, and Uruguay (e.g. basic chemical products). However, in many sectors there was a balance between Brazil and the other countries (e.g. forestry products) and in some industries the other member states outweighed Brazil (e.g. leather goods and luggage). In industries where Brazilian production dominated it is expected that Brazilian interests would dominate because they have more at stake and vice-a-versa. Even though the Brazilian economy much larger than those of its partners, there is no reason to believe that the interests of the other member states did not shape policy outcomes with regard to industries were they had an important stake.

Bianculli and Botto (2009) argue that Brazil was able to impose its own tariff schedule on the other member. However, the CET does not mirror only the interests of Brazil. Using the same political and economic variables, the seven models descripted above were estimated using four new weighting methods for the countries (). The results suggest that the interests of all four countries were taken into account. The four new methods of calculating consist of: 1) using only data from Brazil ; 2) using only data from Argentina and Brazil ; 3) giving equal weight to each country ; and, 4) giving equal weight to Argentina and Brazil . As can be seen in Table 2, almost all the models, including those giving an equal weight to all the countries, outperform the models that only take into account Brazil. These results confirm that weighting the political and economic variable based on the participation of each country in the total regional production of each industry best represents the political and economic consideration behind the formation of the CET.

|  |
| --- |
| **Model Fits for Different Weighting () of Explanatory Variables** |
|  | Model 1 | Model 2 | Model 5 | Model 7 |
| Average sq. out-of-sample error(10-fold cross-validation) |  |  |  |  |
| Weights based on Production:  | 31.99 | 34.48 | 32.06 | 31.39 |
| Only data from Brazil: | 38.43 | 38.64 | 38.43 | 38.72 |
| Only Argentina and Brazil:   | 34.10 | 35.92 | 34.08 | 33.98 |
| Equal weight to each country: | 38.24 | 38.78 | 38.23 | 38.26 |
| Only Argentina and Brazil with equal weights: | 32.62 | 35.74 | 31.57 | 31.53 |
| Bayesian Information Criterion (BIC) |  |  |  |  |
| Weights based on Production:  | 48833.77 | 48838.06 | 48842.78 | 48860.18 |
| Only data from Brazil: | 50196.33 | 50197.56 | 50205.41 | 50200.88 |
| Only Argentina and Brazil:  | 50069.09 | 50073.91 | 50078.18 | 50096.30 |
| Equal weight to each country: | 50149.40 | 50151.41 | 50157.75 | 50168.27 |
| Only Argentina and Brazil with equal weights: | 50071.68 | 50082.96 | 50080.72 | 50098.87 |