THE NEW GLOBAL ECONOMIC ENVIRONMENT: PERSPECTIVES FOR THE FUTURE OF MARITIME TRANSPORTATION AND PORTS

# Containers port planning issues: Containerization determinants and bigger vessels arriving to Latin America and the Caribbean.


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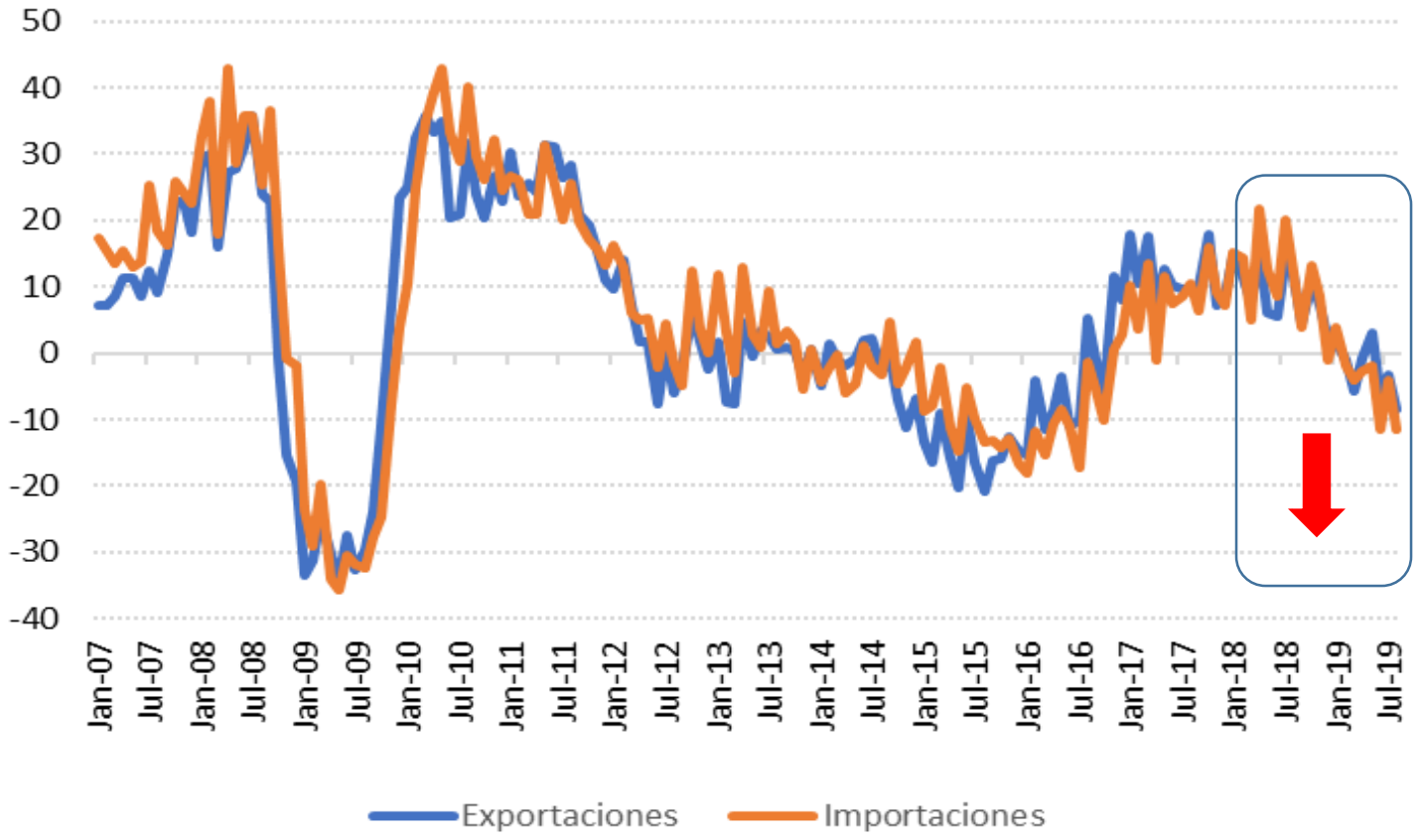
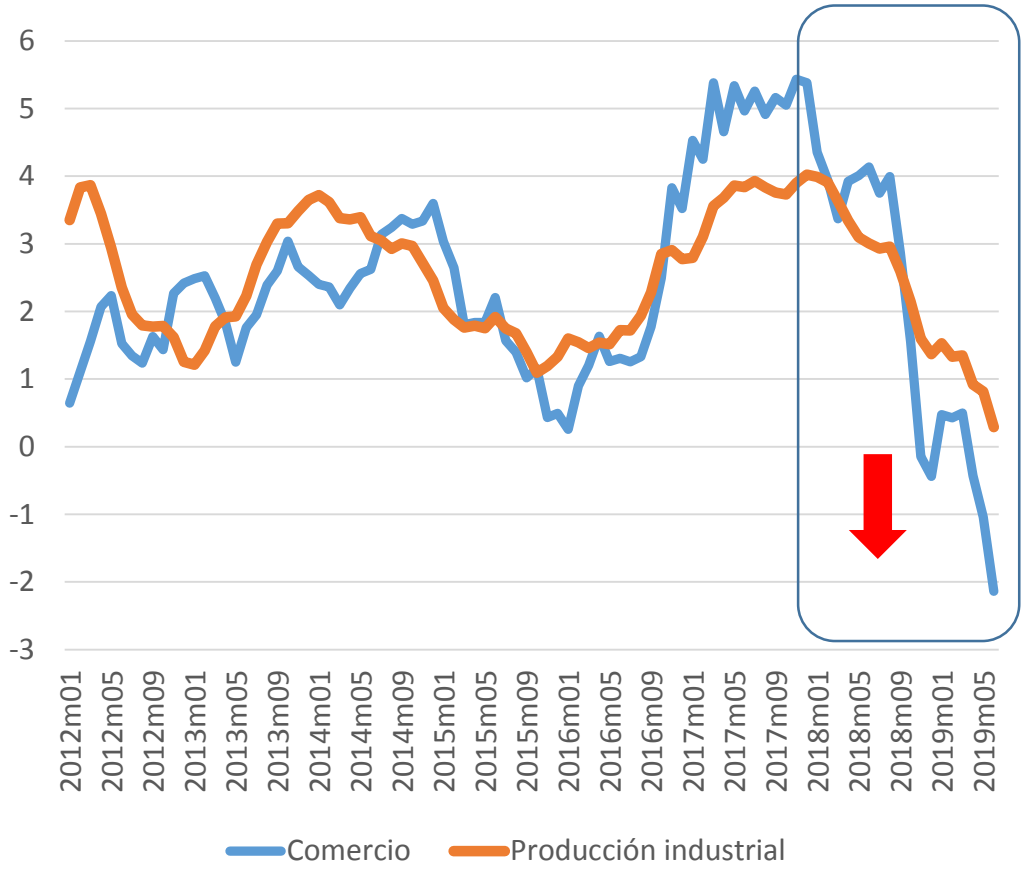
# LAC trade 2007-2019

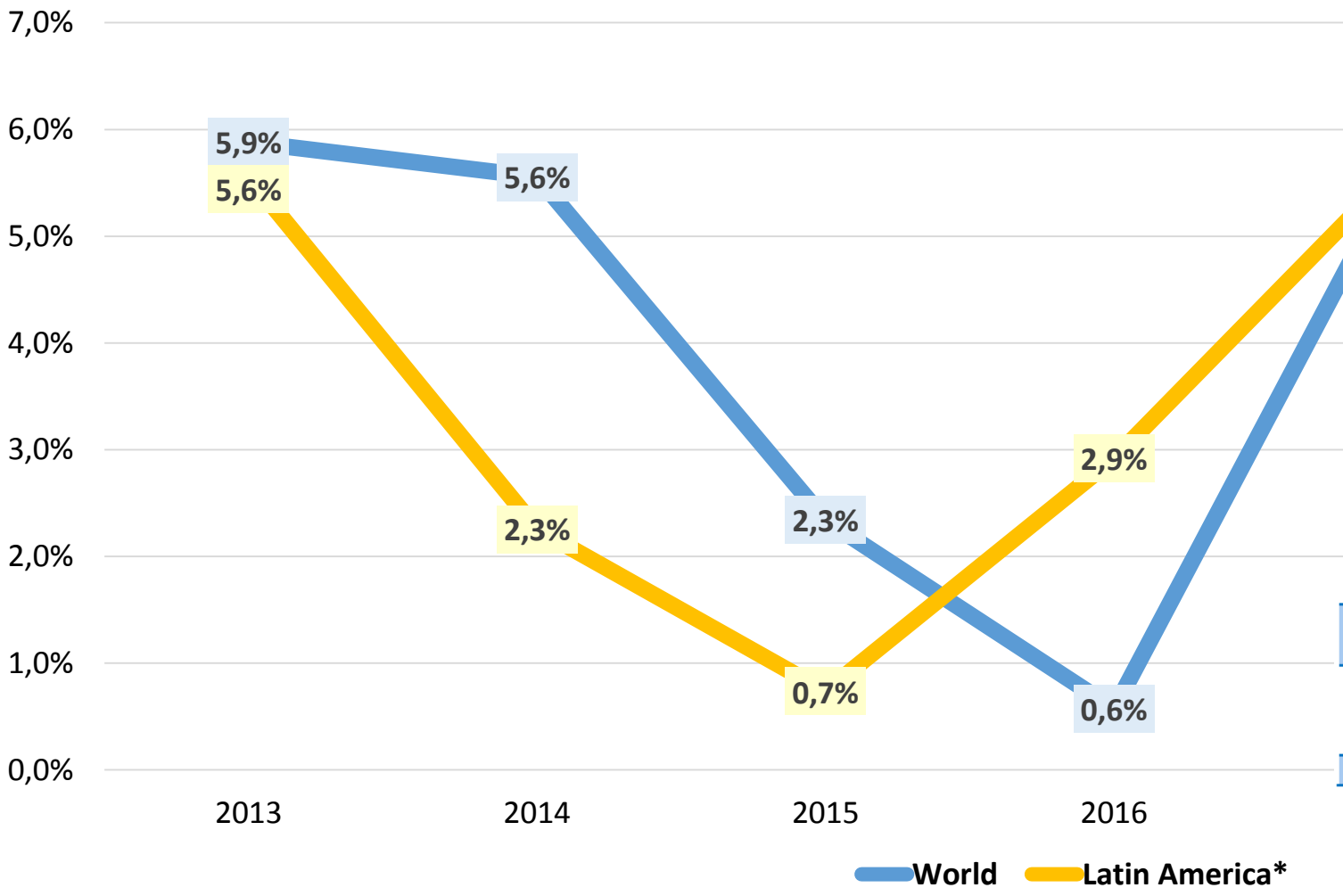



# Global trade and industrial production 2012-2019




Source: UN ECLAC (2019); International Trade Outlook for Latin America and the Caribbean 2019: Adverse global conditions leave the region lagging further behind.

# Trade: growth and behavior in 2019

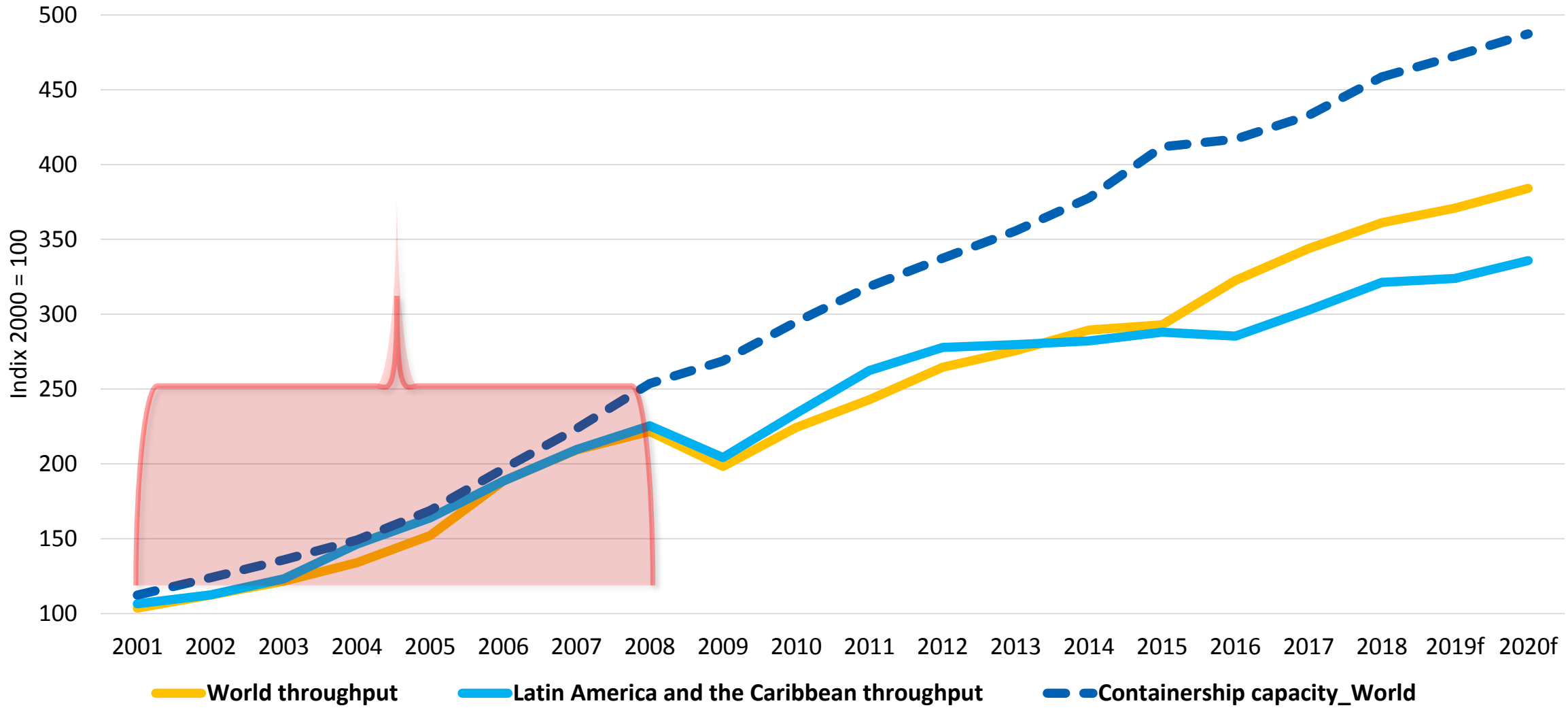



| Ex/Imports | Share 2019 | Growth '19/'18 | 1H19 TEU | 1H18 TEU | 1H17 TEU |
|---|---|---|---|---|---|
| Exports | 40% | -0.3% | 3,571,700 | 3,582,900 | 3,402,100 |
| imports | 50% | -2.0% | 4,456,500 | 4,548,300 | 4,115,000 |
| Intra-Latin America | 10% | 2.7% | 889,900 | 866,400 | 816,600 |
| **Total** | **100%** | **-0.9%** | **8,918,100** | **8,997,600** | **8,333,700** |

Source: Dynaliners

Source: Clarksons, various editions.
*Note: Latin America includes Asia, North America, Europe-Latin America.

# The evolution of containership nominal capacity & world and LAC throughput




Source: For Latin America, Maritime & Logistics Profile; For the world, Clarksons, various editions.

# Models

- In 2010: all estimates were made on the basis of nominal capacity in TEU

- In 2019: estimates were made for TEU, LOA and DWT

In the case of **TEU** estimation, the following models were used:

- Model 3: this is a pooled model in which the dynamic aspect is included through the incorporation of the lagged dependent variable
- Model 5: is an error correction model for the east coast
- Model 7: is an error correction pooled model

For the **LOA** estimation, a pooled model in which the dynamic aspect is included through the incorporation of the lagged dependent variable

# Some explaining variables

- **Total port activity (Pa)**

Port activity (throughput) represents the amount of cargo attended in ports on the East and West coasts, respectively, and is measured in TEUS. As a derived demand from economic activity, the port activity shows a similar behavior with global GDP.

- **Gap with main trade routes (Gap)**

The gap with the main trade routes denotes the percentage difference between the maximum size (in TEUS or LOA) of the vessels that arrive to South America and those that, in the same period of time, navigate the main global trade routes.

# Models with TEU

### Model 3

MAX_SAE = -245.84 - 745.17 + 0.77*MAX_SAE(-1) + 267.04*PA_SAE + 328.26*GAP_SAE(-3)

MAX_SAW = 245.84 - 745.17 + 0.77*MAX_SAW(-1) + 267.04*PA_SAW + 328.26*GAP_SAW(-3)

### Model 5

D(MAX_SAE) = 1919.74 - 0.68*MAX_SAE(-1) + 427.72*PA_SAE(-1) + 0.79*D(MAX_SAE(-1)) + 1.06*D(MAX_SAE(-2)) - 853.97*D(PA_SAE(-1)) - 1193.55*D(PA_SAE(-2)) - 891.95*D(PA_SAE(-3)) - 423.78*D(PA_SAE(-4)) + 835.74*D(GAP_SAE(-2)) - 1068.50*D(GAP_SAE(-4))

### Model 7

D(MAX_SAW(-0)) = -0.35*MAX_SAW(-1) + 396.64*PA_SAW(-1) - 0.67*D(MAX_SAW(-3)) - 169.63*D(PA_SAW(-2)) - 442.42*D(GAP_SAW(-1)) - 414.40*D(GAP_SAW(-3)) + 375.23

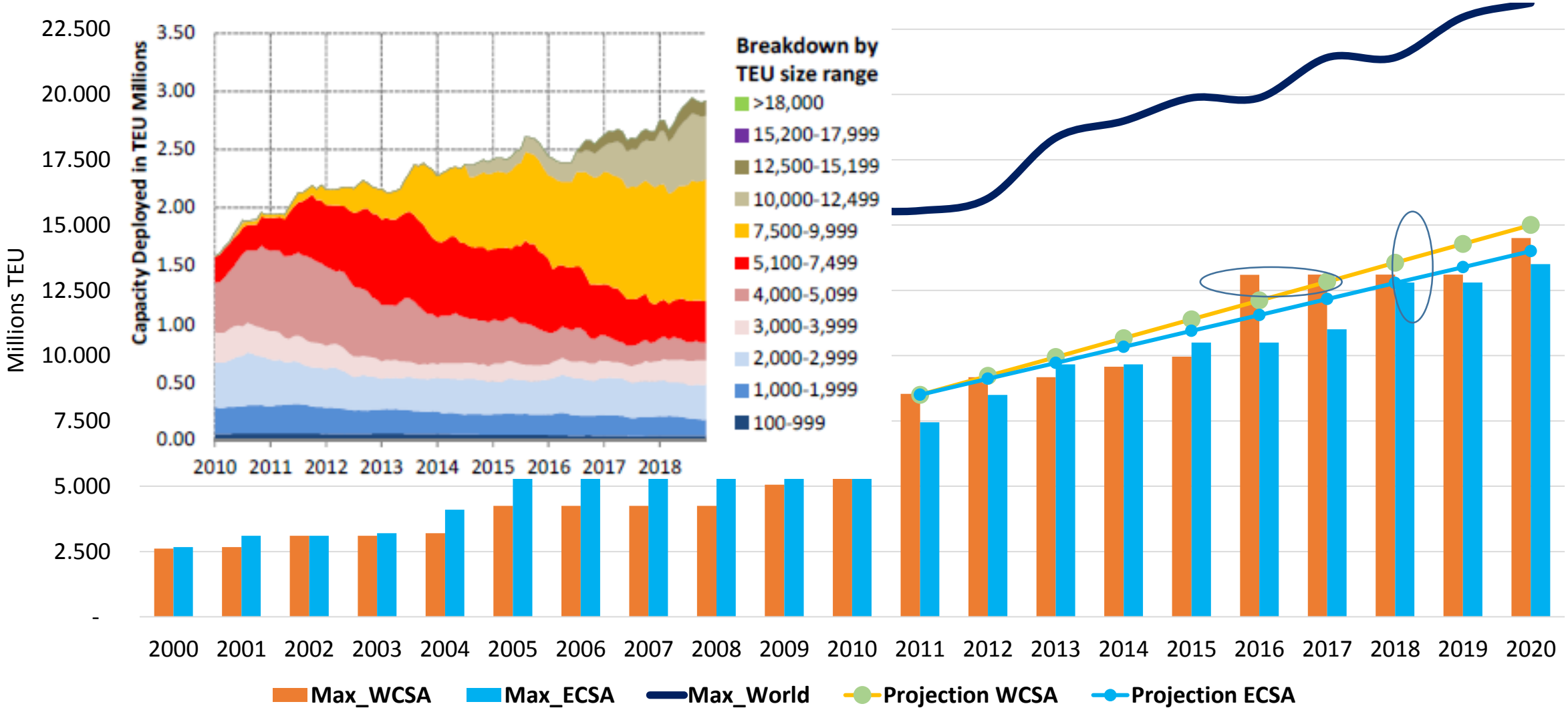
D(MAX_SAE(-0)) = -0.35*MAX_SAE(-1) + 396.64*PA_SAE(-1) - 0.67*D(MAX_SAE(-3)) - 169.63*D(PA_SAE(-2)) - 442.42*D(GAP_SAE(-1)) - 414.40*D(GAP_SAE(-3)) - 450.01

# Model with LOA

LOAMAX_SAE = -2.90 + 1.88 + 0.80*LOAMAX_SAE(-1) + 7.51*PA_SAE(-1) - 6.77*PA_SAE(-3) + 122.85*GAP_LOA_SAE(-1) + 37.62*GAP_LOA_SAE(-2) - 89.94*GAP_LOA_SAE(-3) + 2.48*@TREND

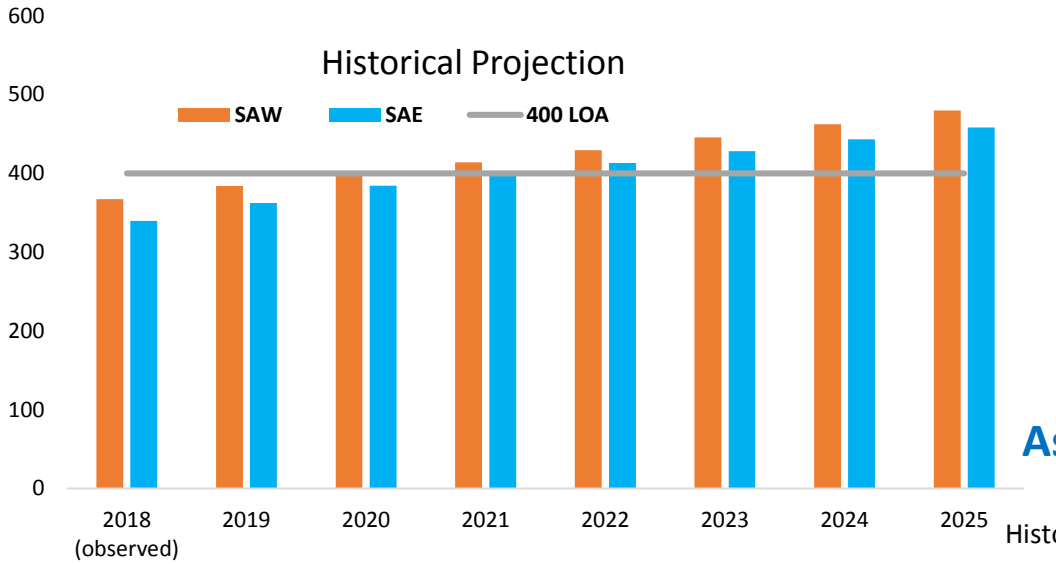
LOAMAX_SAW = 2.90 + 1.88 + 0.80*LOAMAX_SAW(-1) + 7.51*PA_SAW(-1) - 6.77*PA_SAW(-3) + 122.85*GAP_LOA_SAW(-1) + 37.62*GAP_LOA_SAW(-2) - 89.94*GAP_LOA_SAW(-3) + 2.48*@TREND

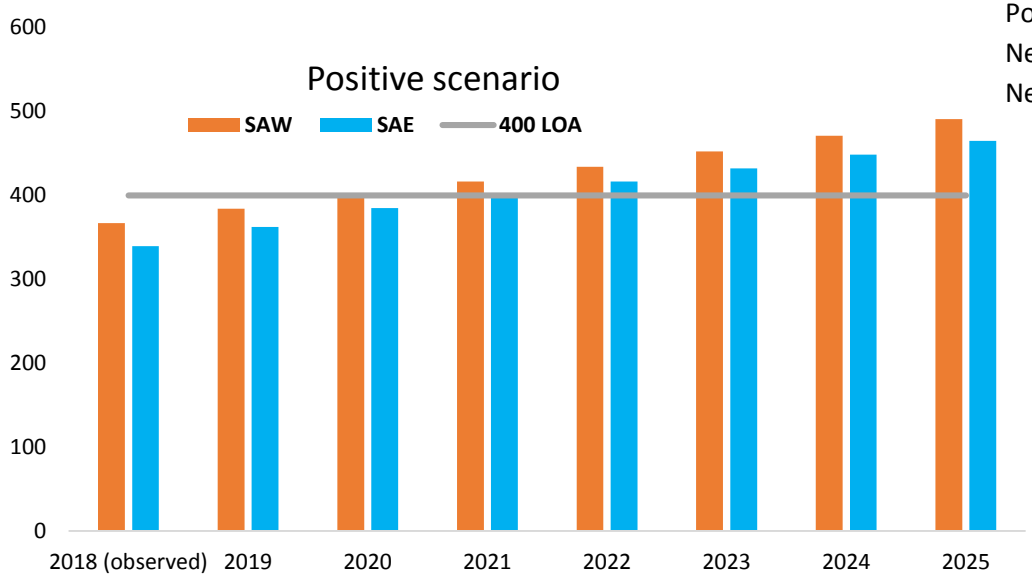
# Evolution and projections of the maximum size of containerships in the world and east coast and west coast in Latin America (2010 study)




Source: World, Alphaliner; LAC BlueWaterReporting and Ricardo J. Sánchez & Daniel Perotti.

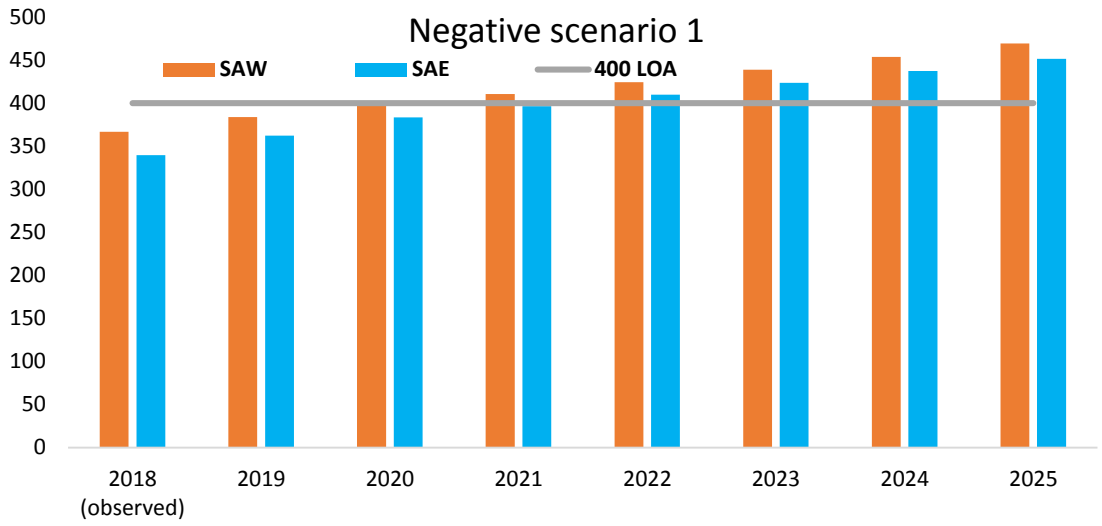
# Model with LOA

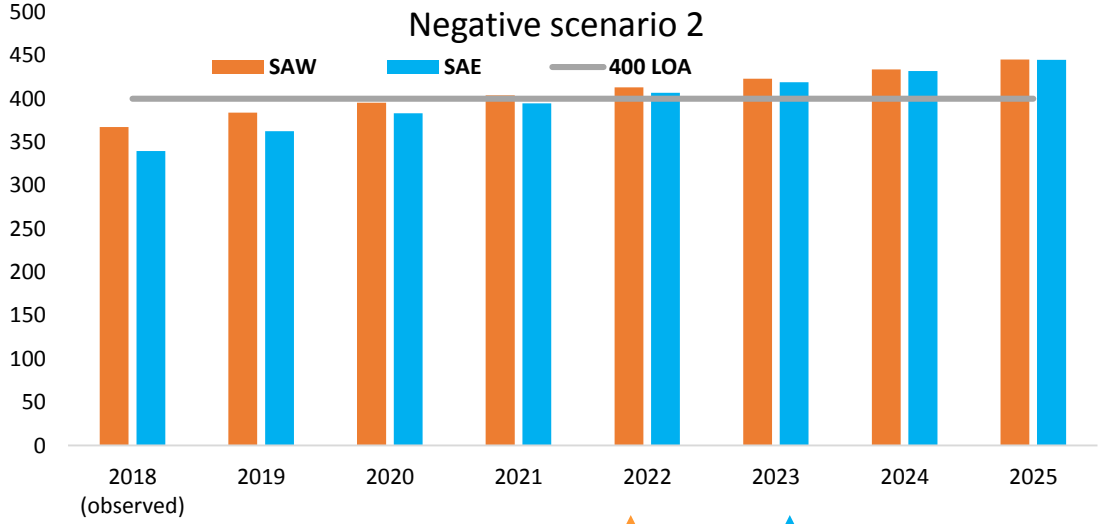


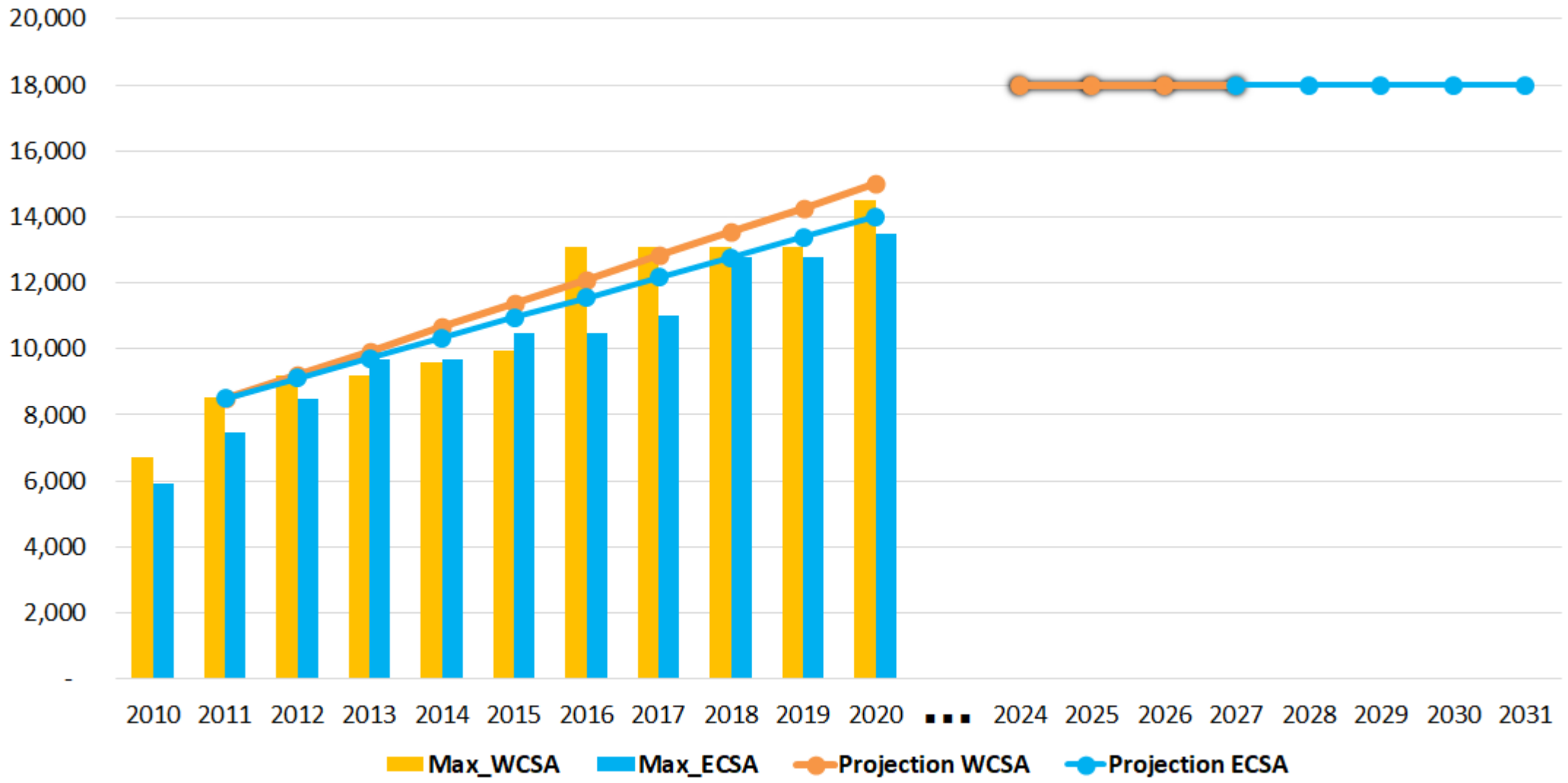

## Assumptions

| | Pa_saw | Pa_sae |
|---|---|---|
| Historical | 6% | 4% |
| Positive | 7% | 5% |
| Negative | 5% | 4% |
| Negative_2 | 3% | 3% |



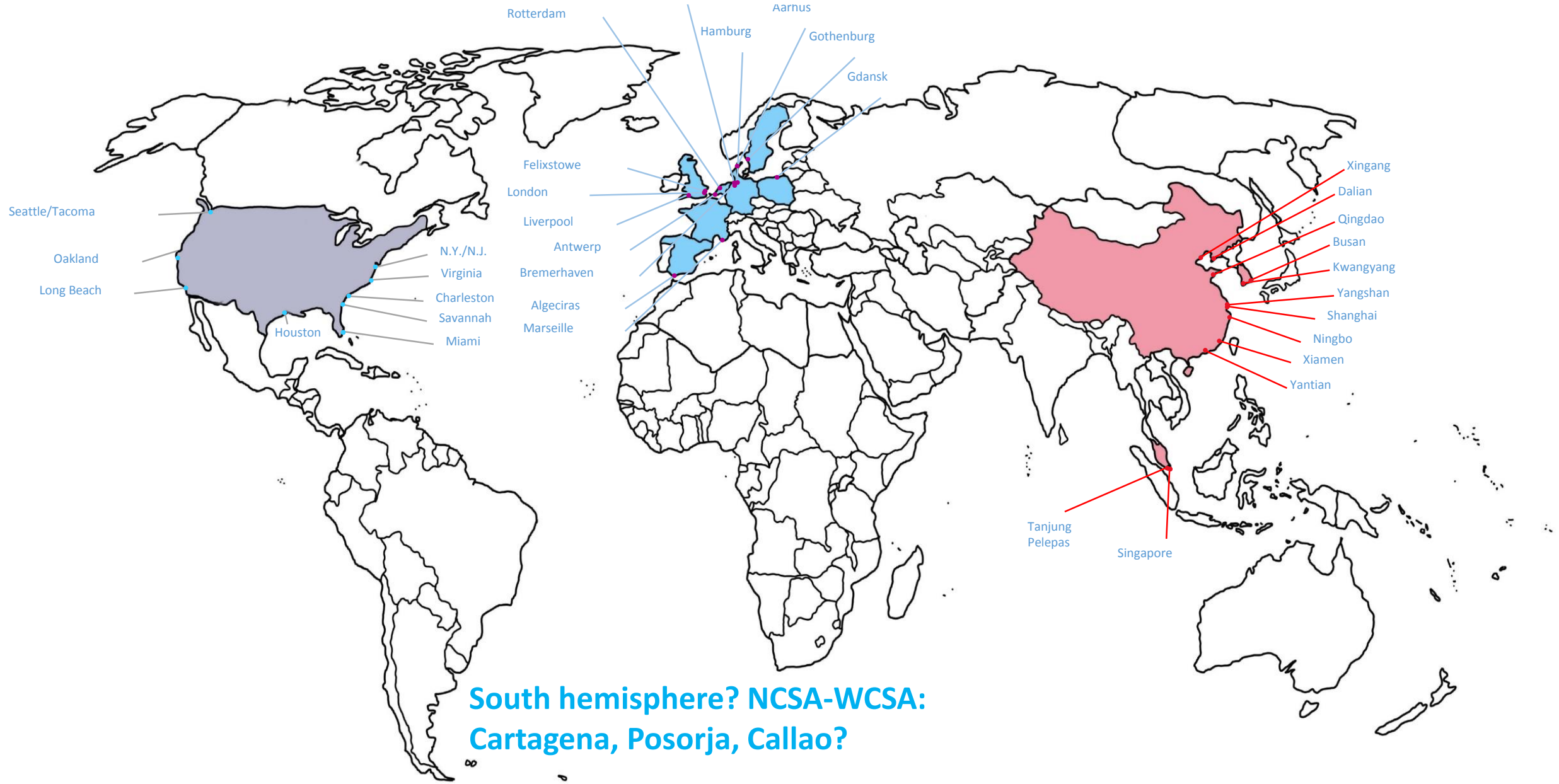



# MODEL with TEU: Evolution and projections of the maximum size of containerships in the world and ECSA and WCSA (2019 study)



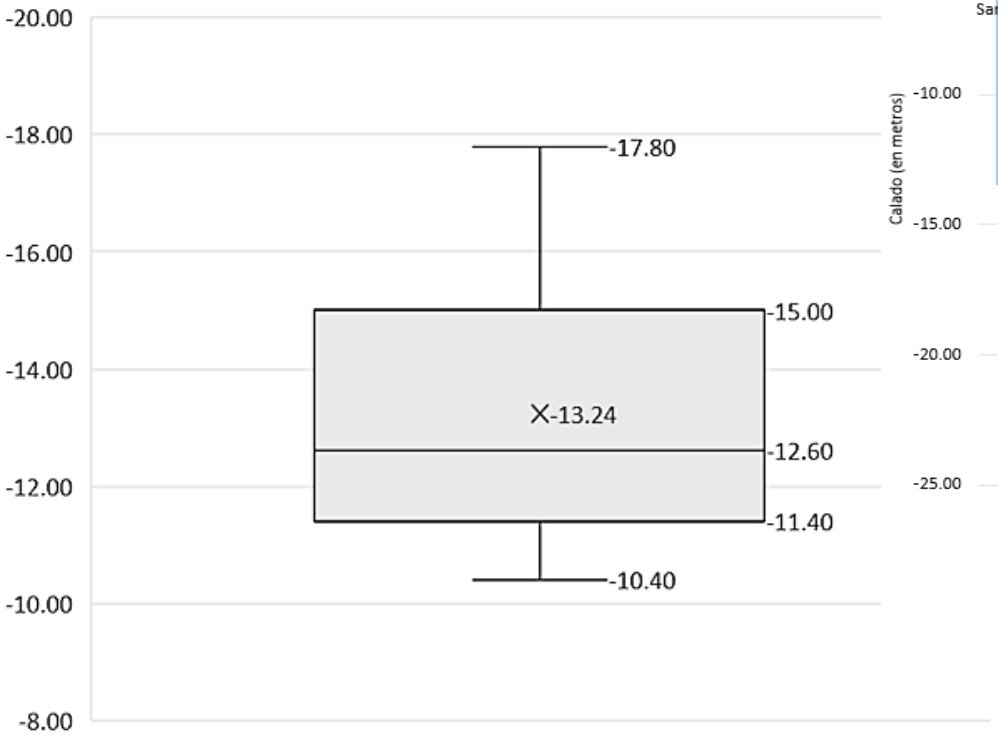

Source: World, Alphaliner; LAC BlueWaterReporting and Ricardo J. Sánchez & Daniel Perotti.

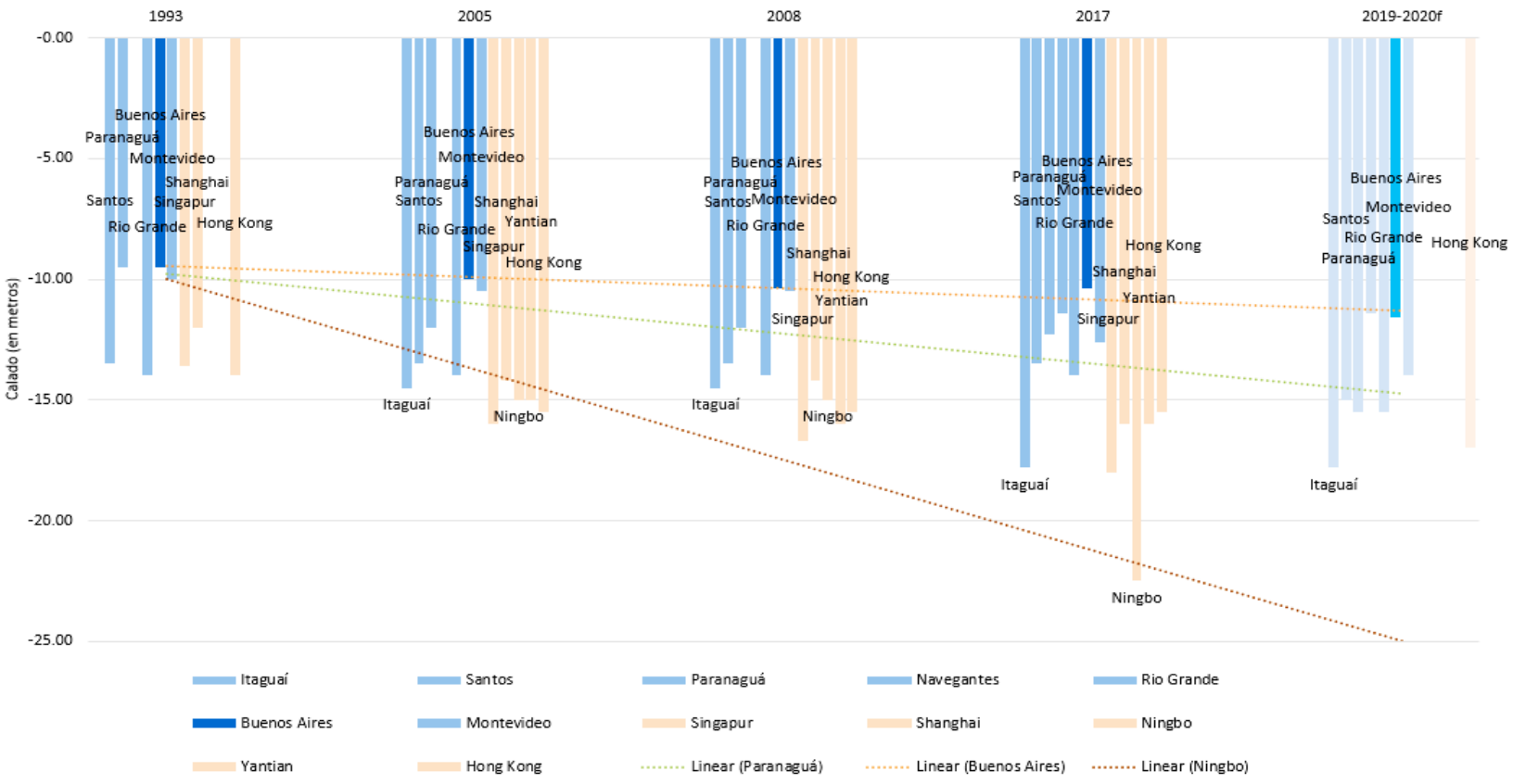
# World megaships ports




**South hemisphere? NCSA-WCSA:**
**Cartagena, Posorja, Callao?**

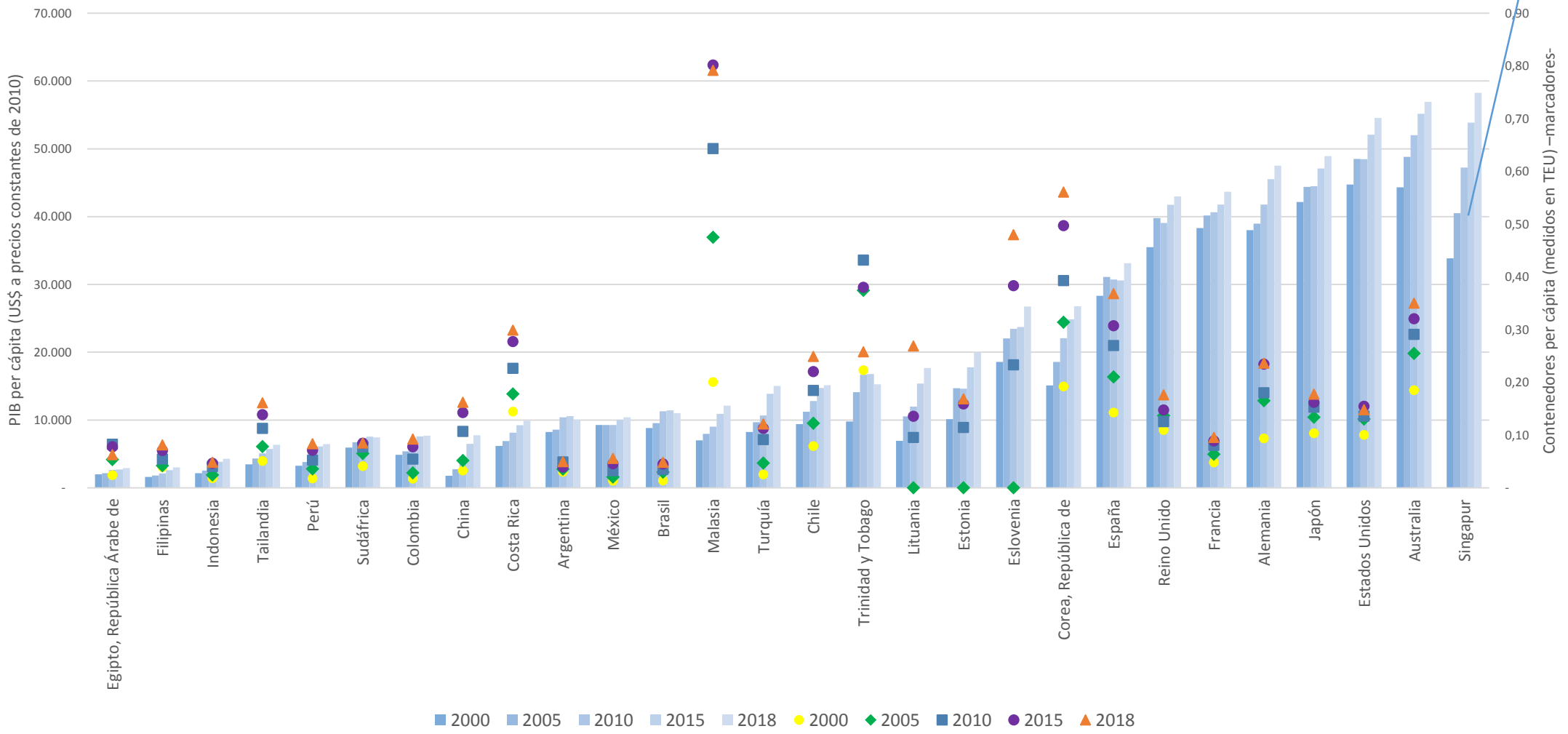
# Current situation ECSA




# GDP and containers (teu) per capita

Contenedores per cápita (SG)
2000 = 4.25
2005 = 5.44
2010 =5.74
2018 =6.49



# Spearman correlation (model 3)

| Key |
|---|
| *rho*<br>*Number of obs*<br>*Sig. level* |

| | rateteu | urbanpop | LSCI | fdi | ga | ICExp | ICImp | MHVAsh~2 | rhcepib2 |
|---|---|---|---|---|---|---|---|---|---|
| rateteu | 1.0000 | | | | | | | | |
| | 519 | | | | | | | | |
| | | | | | | | | | |
| urbanpop | 0.2261* | 1.0000 | | | | | | | |
| | 519 | 519 | | | | | | | |
| | 0.0000 | | | | | | | | |
| LSCI | 0.2658* | 0.2708* | 1.0000 | | | | | | |
| | 348 | 348 | 348 | | | | | | |
| | 0.0000 | 0.0000 | | | | | | | |
| fdi | 0.1664* | 0.0818 | -0.1636* | 1.0000 | | | | | |
| | 519 | 519 | 348 | 522 | | | | | |
| | 0.0001 | 0.0625 | 0.0022 | | | | | | |
| ga | 0.4803* | -0.2912* | -0.1391* | 0.3014* | 1.0000 | | | | |
| | 519 | 519 | 348 | 519 | 519 | | | | |
| | 0.0000 | 0.0000 | 0.0094 | 0.0000 | | | | | |
| ICExp | 0.1344* | 0.0209 | -0.4569* | 0.2782* | 0.2262* | 1.0000 | | | |
| | 519 | 519 | 348 | 519 | 519 | 519 | | | |
| | 0.0022 | 0.6351 | 0.0000 | 0.0000 | 0.0000 | | | | |
| ICImp | 0.4330* | -0.2204* | -0.0281 | 0.0970* | 0.4701* | 0.3259* | 1.0000 | | |
| | 519 | 519 | 348 | 519 | 519 | 519 | 519 | | |
| | 0.0000 | 0.0000 | 0.6018 | 0.0272 | 0.0000 | 0.0000 | | | |
| MHVAsh_ind~2 | 0.2479* | 0.1914* | 0.6019* | -0.3189* | 0.1156* | -0.3508* | 0.1018* | 1.0000 | |
| | 519 | 519 | 348 | 522 | 519 | 519 | 519 | 522 | |
| | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0084 | 0.0000 | 0.0204 | | |
| rhcepib2 | -0.4162* | -0.0716 | -0.2929* | -0.1428* | -0.3821* | 0.1275* | -0.2293* | -0.3433* | 1.0000 |
| | 519 | 519 | 348 | 519 | 519 | 519 | 519 | 519 | 519 |
| | 0.0000 | 0.1031 | 0.0000 | 0.0011 | 0.0000 | 0.0036 | 0.0000 | 0.0000 | |

# Thanks a lot !!!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