

NATO vs CSTO Aligned Countries

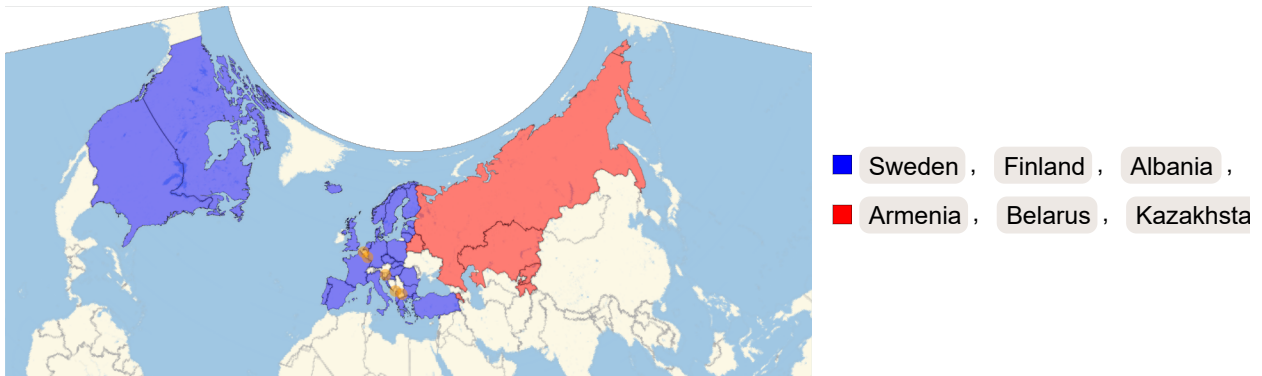
Including Sweden and Finland

```
In[31]:= NATO = CountryData["NATO"];  
CSTO = CountryData["CSTO"];  
NewNATO = Join[{CountryData["Sweden"], CountryData["Finland"]}, NATO];
```

Let's start with a simple plot.

Note: Unfortunately, some of the smaller countries appear to have been plotted as points, instead of regions, in this map. They appear yellow.

```
In[52]:= GeoListPlot[{NewNATO, CSTO}, PlotStyle → {Blue, Red}, GeoProjection → "Albers"]  
Out[52]=
```



Maps can be a little deceiving with how they portray areas, due to the challenges of flattening a globe to display on a 2D surface. Let's make a pie chart to directly compare the land size of the different alliances.

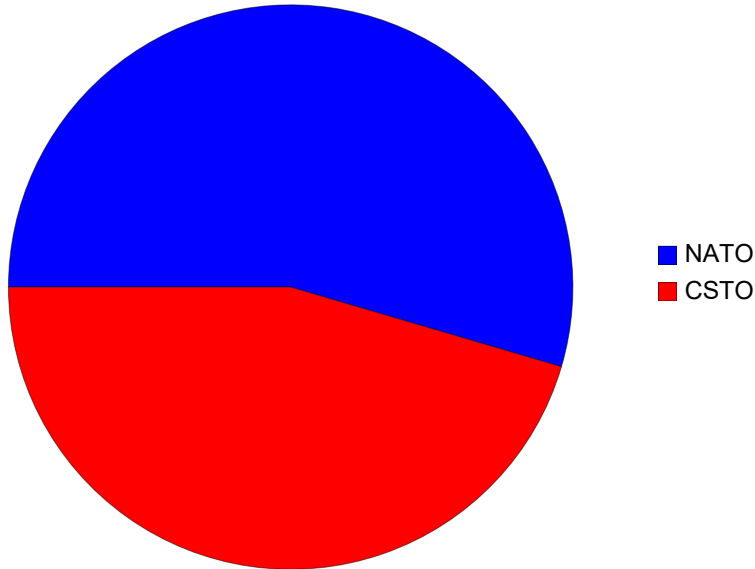
```
ComparisonPie[Category_] :=  
PieChart[{Total[DeleteCases[CountryData[#, Category] & /@ NewNATO, _Missing]],  
Total[DeleteCases[CountryData["CSTO", Category], _Missing]]},  
ChartLegends → {"NATO", "CSTO"},  
ChartStyle → {Blue, Red},  
PlotLabel → Category];
```

```
In[106]:=
```

```
ComparisonPie["LandArea"]
```

```
Out[106]=
```

LandArea



Note : Some data may be missing for some countries . In that case, it is removed before the pie charts are made . Mathematica pulls their data from a variety of sources, so I am assuming that missing entries contain a negligible quantity . Take, for example, Iceland. According to google, there are no public railways in Iceland. Asking Mathematica for this value gives:

```
In[105]:=
```

```
CountryData["Iceland", "RailwayLength"]
```

```
Out[105]=
```

```
Missing[NotAvailable]
```

Leveraging our pie chart function, we can compare the two alliances across quite a few categories.

```
In[55]:= CountryData["NATO", "Properties"]
```

```
Out[55]=
```

```
{AdultPopulation, AgriculturalProducts, AgriculturalValueAdded, Airports,
  AlternateNames, AlternateStandardNames, AMRadioStations, AnnualBirths, AnnualDeaths,
  AnnualHIV/AIDSDeaths, ArableLandArea, ArableLandFraction, Area, BirthRateFraction,
  BorderingCountries, BordersLengths, BoundaryLength, CallingCode, CapitalCity,
  CapitalLocation, CapitalLocationLink, CellularPhones, CenterCoordinates,
  CenterLocationLink, ChildPopulation, Classes, ClimateTypes, CoastlineLength,
  ConstructionValueAdded, Continent, Coordinates, Countries, CountryCode, CropsLandArea,
  CropsLandFraction, CurrencyCode, CurrencyName, CurrencyShortName, CurrencyUnit,
  CurrentAccountBalance, DeathRateFraction, Dependencies, DependencyParent,
  EconomicAid, ElderlyPopulation, ElectricalGridFrequency, ElectricalGridPlugImages,
  ElectricalGridPlugs, ElectricalGridSocketImages, ElectricalGridSockets,
```

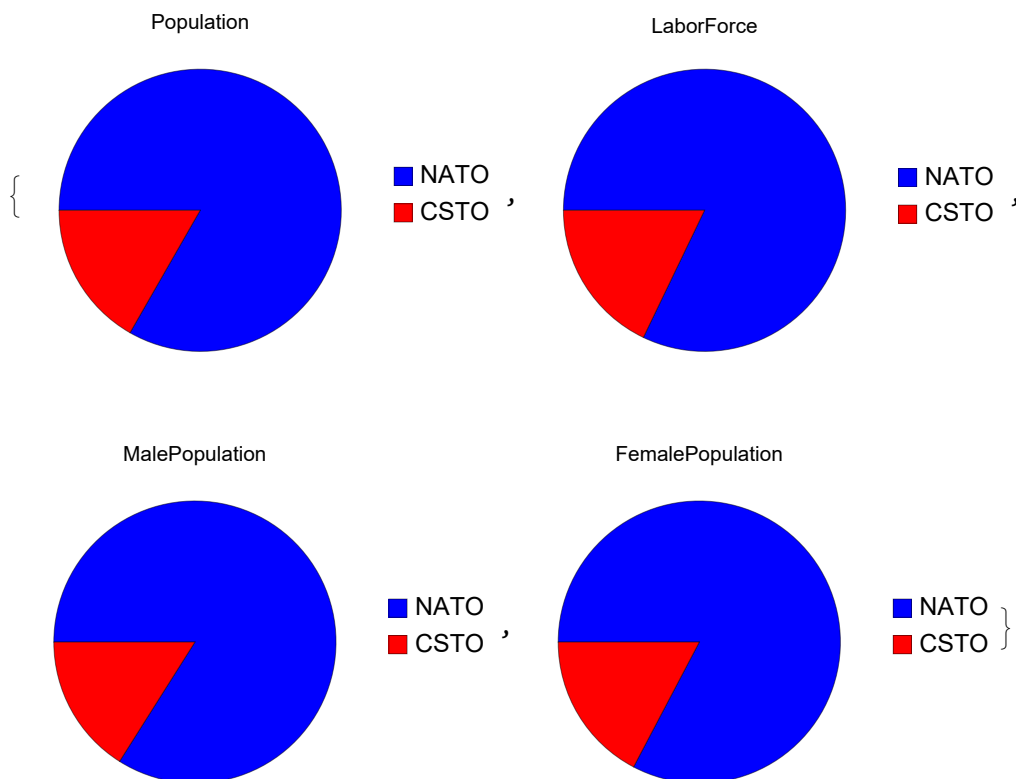
ElectricalGridVoltages, ElectricityConsumption, ElectricityExports, ElectricityImports,
 ElectricityProduction, EnvironmentalAgreements, EnvironmentalIssues, EthnicGroups,
 EthnicGroupsFractions, ExchangeRate, ExpenditureFractions, ExportCommodities,
 ExportPartners, ExportPartnersFractions, ExportValue, ExternalDebt,
 FemaleAdultPopulation, FemaleChildPopulation, FemaleElderlyPopulation,
 FemaleInfantMortalityFraction, FemaleLifeExpectancy, FemaleLiteracyFraction,
 FemaleMedianAge, FemalePopulation, FiscalYearDate, FixedInvestment, Flag,
 FlagDescription, FMRadioStations, ForeignExchangeReserves, ForeignOwnedShips,
 ForeignRegisteredShips, FullCoordinates, FullName, FullNativeName, FullPolygon,
 GDP, GDPAtParity, GDPPerCapita, GDPRealGrowth, GDPSectorFractions, GiniIndex,
 GovernmentConsumption, GovernmentDebt, GovernmentExpenditures, GovernmentReceipts,
 GovernmentSurplus, GrossInvestment, Groups, HighestElevation, HighestPoint,
 HIVAIDSDeathRateFraction, HIVAIDSFraction, HIVAIDSPopulation, HouseholdConsumption,
 ImportCommodities, ImportPartners, ImportPartnersFractions, ImportValue,
 IndependenceDate, IndependenceYear, IndustrialProductionGrowth, IndustrialValueAdded,
 InfantMortalityFraction, InfectiousDiseases, InflationRate, InternationalOrganizations,
 InternationalOrganizationsObserver, InternetCode, InternetHosts, InternetUsers,
 InventoryChange, IrrigatedLandArea, IrrigatedLandFraction, ISOName, LaborForce,
 LandArea, Languages, LanguagesDialects, LanguagesFractions, LargestCities,
 LifeExpectancy, LiteracyFraction, LowestElevation, LowestPoint, MajorIndustries,
 MajorPorts, MaleAdultPopulation, MaleChildPopulation, MaleElderlyPopulation,
 MaleInfantMortalityFraction, MaleLifeExpectancy, MaleLiteracyFraction, MaleMedianAge,
 MalePopulation, ManufacturingValueAdded, MaritimeClaims, MedianAge, Memberships,
 MerchantShips, MerchantShipsDeadWeight, MerchantShipsGross, MerchantShipTypes,
 MigrationRateFraction, MilitaryAgeFemales, MilitaryAgeMales, MilitaryAgePopulation,
 MilitaryAgeRate, MilitaryExpenditureFraction, MilitaryExpenditures, MilitaryFitFemales,
 MilitaryFitMales, MilitaryFitPopulation, MiscellaneousValueAdded, Name,
 NationalIncome, NationalityName, NativeName, NaturalGasConsumption, NaturalGasExports,
 NaturalGasImports, NaturalGasProduction, NaturalGasReserves, NaturalHazards,
 NaturalResources, OilConsumption, OilExports, OilImports, OilProduction,
 OilReserves, PavedAirportLengths, PavedAirports, PavedRoadLength, PhoneLines,
 Pipelines, Polygon, Population, PopulationGrowth, PovertyFraction, PriceIndex,
 RadioStations, RailwayGaugeLengths, RailwayGaugeRules, RailwayLength, RegionNames,
 Regions, Religions, ReligionsFractions, RoadLength, SchematicCoordinates,
 SchematicPolygon, SectorLaborFractions, Shape, ShortWaveRadioStations,
 SignedEnvironmentalAgreements, StandardName, SuffrageType, TelevisionStations,
 TerrainTypes, TimeZones, TotalConsumption, TotalFertilityRate, TradeValueAdded,
 TransportationValueAdded, UNCode, UnemploymentFraction, UNNumber, UnpavedAirportLengths,
 UnpavedAirports, UnpavedRoadLength, ValueAdded, WaterArea, WaterwayLength}

```
In[150]:=
PopulationCategories = {"Population", "LaborForce", "MalePopulation", "FemalePopulation"};
TradeCategories = {"GDP", "OilExports", "OilImports", "OilReserves"};
MilitaryCategories = {"MilitaryExpenditures", "MilitaryFitPopulation"};
TransportationCategories =
  {"LandArea", "RailwayLength", "PavedRoadLength", "UnpavedRoadLength", "Airports"};
```

Population

```
In[154]:=
Table[ComparisonPie[Category], {Category, PopulationCategories}]
```

```
Out[154]=
```



It appears that neither group of countries has a particularly large or small fraction of working adults compared to the young and old, so population fractions are consistent across categories.

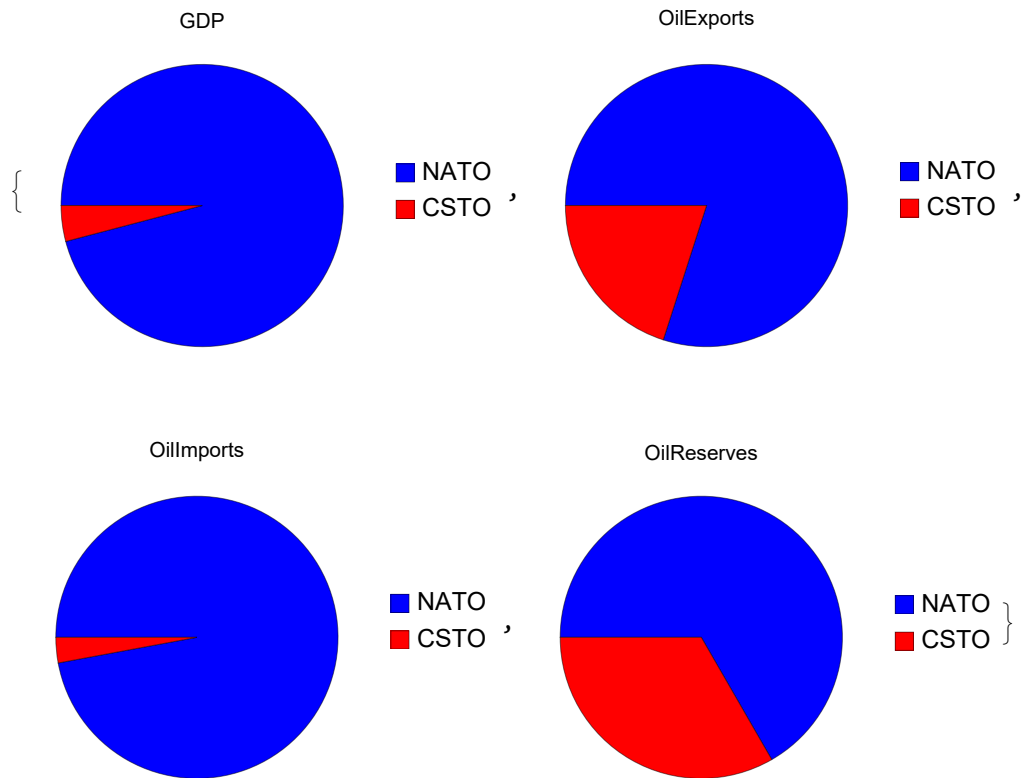
Trade

Trade/productivity is interesting, particularly when these fractions are compared to the population plots above. GDP Per Capita appears to be considerably less in CSTO countries, and we may want to investigate further the role of oil in the economies of these alliances.

In[113]:=

```
Table[ComparisonPie[Category], {Category, TradeCategories}]
```

Out[113]=



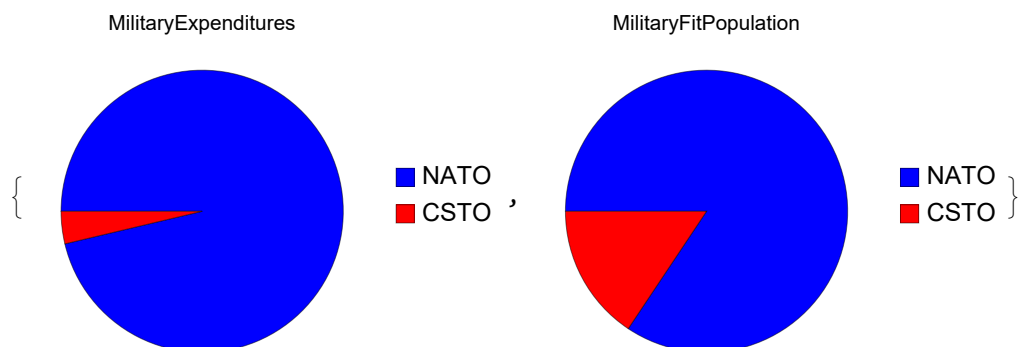
Military

Overall military expenditure tracks with GDP, and Military Fit Population tracks with overall population.

In[114]:=

```
Table[ComparisonPie[Category], {Category, MilitaryCategories}]
```

Out[114]=



```
In[155]:=
Total[CountryData[#, "MilitaryExpenditures"] & /@ NewNATO] /
  Total[CountryData[#, "MilitaryAgePopulation"] & /@ NewNATO] /. _Missing -> 0
Total[CountryData["CSTO", "MilitaryExpenditures"]] /
  Total[CountryData["CSTO", "MilitaryAgePopulation"]] /. _Missing -> 0
```

```
Out[155]=
$1823.21 per person per year
```

```
Out[156]=
$319.683 per person per year
```

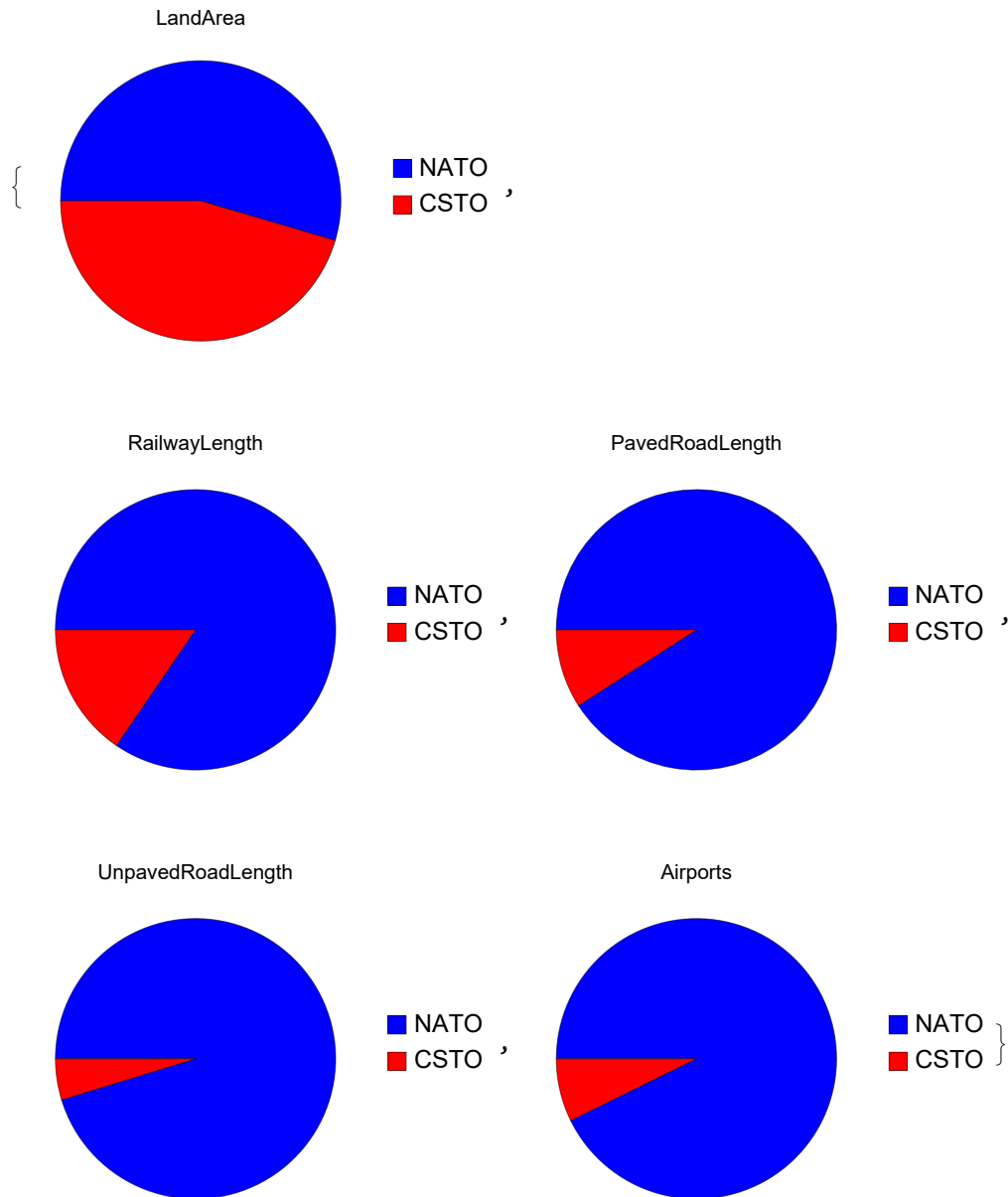
If it came down to it, these fractions equate to NATO being able to spend approximately 6x as much money on a per-soldier basis. This is a somewhat flawed comparison, however. We can see that the Military Fit Population is nearly the size of the Labor Force, so the war-time economies of such a scenario would likely be very different. Similarly, the fraction of the Military Fit Population is probably a poor proxy for standing army size. Although we don't immediately have this data, it would be interesting to see how much these alliances spend on a per-soldier basis in their current militaries.

Transport

In[149]:=

```
Table[ComparisonPie[Category], {Category, TransportationCategories}]
```

Out[149]=



It looks like CSTO countries may have a hard time getting around, considering the lack of transport relative to their land area. However, the *inhabited* areas of these countries should probably be taken into account, so we shouldn't draw any hasty conclusions.