**DataScienceGO Hackathon**

**September 30, 2020**

**THE CONTEXT**

Meat consumption is related to living standards, diet, livestock production and consumer prices, as well as macroeconomic uncertainty and shocks to GDP. Compared to other commodities, meat is characterized by high production costs and high output prices.



Meat demand is associated with higher incomes and a shift - due to urbanization - to food consumption changes that favors increased proteins from animal sources in diets. While the global meat industry provides food and a livelihood for billions of people, it also has significant environmental and health consequences for the planet.

**THE DATA**

**Meat Consumption:** This indicator is presented for beef and veal, pig, poultry, and sheep. Meat consumption is measured in thousand tons of carcass weight (except for poultry expressed as ready to cook weight) and in kilograms of retail weight per capita. Carcass weight to retail weight conversion factors are: 0.7 for beef and veal, 0.78 for pig meat, and 0.88 for both sheep meat and poultry meat. *OECD total excludes Iceland but includes all EU28 countries.*

**GDP:** Gross domestic product (GDP) is the standard measure of the value added created through the production of goods and services in a country during a certain period. As such, it also measures the income earned from that production, or the total amount spent on final goods and services (less imports). While GDP is the single most important indicator to capture economic activity, it falls short of providing a suitable measure of people's material well-being for which alternative indicators may be more appropriate. This indicator is based on nominal GDP (also called GDP at current prices or GDP in value) and is available in different measures: US dollars and US dollars per capita (current PPPs). All OECD countries compile their data according to the 2008 System of National Accounts (SNA). This indicator is less suited for comparisons over time, as developments are not only caused by real growth, but also by changes in prices and PPPs.

**Crop Production:** Crop production depends on the availability of arable land and is affected in particular by yields, macroeconomic uncertainty, as well as consumption patterns; it also has a great incidence on agricultural commodities' prices. The importance of crop production is related to harvested areas, returns per hectare (yields) and quantities produced. Crop yields are the harvested production per unit of harvested area for crop products. In most of the cases yield data are not recorded, but are obtained by dividing the production data by the data on area harvested. The actual yield that is captured on farm depends on several factors such as the crop's genetic potential, the amount of sunlight, water and nutrients absorbed by the crop, the presence of weeds and pests. This indicator is presented for wheat, maize, rice, and soybean. Crop production is measured in tons per hectare, in thousand hectares and thousand tons.

**Investment:** Gross fixed capital formation (GFCF), also called "investment", is defined as the acquisition of produced assets (including purchases of second-hand assets), including the production of such assets by producers for their own use, minus disposals. The relevant assets relate to assets that are intended for use in the production of other goods and services for a period of more than a year. The term "produced assets" means that only those assets that come into existence as a result of a production process are included. It therefore does not include, for example, the purchase of land and natural resources. This indicator is available in different measures: GFCF at current prices and current PPPs in US dollars, and annual growth rates of GFCF at constant prices, as well as quarterly data for percentage change over previous period and percentage change over same period last year. All OECD countries compile their data according to the 2008 System of National Accounts (SNA). The indicator at current prices and current PPPs is less suited for comparisons over time, as developments are not only caused by real growth, but also by changes in prices and PPPs.

**Population:** Population is defined as all nationals present in, or temporarily absent from a country, and aliens permanently settled in a country. This indicator shows the number of people that usually live in an area. Growth rates are the annual changes in population resulting from births, deaths and net migration during the year. Total population includes the following: national armed forces stationed abroad; merchant seamen at sea; diplomatic personnel located abroad; civilian aliens resident in the country; displaced persons resident in the country. However, it excludes the following: foreign armed forces stationed in the country; foreign diplomatic personnel located in the country; civilian aliens temporarily in the country. Population projections are a common demographic tool. They provide a basis for other statistical projections, helping governments in their decision making. This indicator is measured in terms of annual growth rate and in thousands of people.

**Fertility Rate:** The total fertility rate in a specific year is defined as the total number of children that would be born to each woman if she were to live to the end of her child-bearing years and give birth to children in alignment with the prevailing age-specific fertility rates. It is calculated by totalling the age-specific fertility rates as defined over five-year intervals. Assuming no net migration and unchanged mortality, a total fertility rate of 2.1 children per woman ensures a broadly stable population. Together with mortality and migration, fertility is an element of population growth, reflecting both the causes and effects of economic and social developments. The reasons for the dramatic decline in birth rates during the past few decades include postponed family formation and child-bearing and a decrease in desired family sizes. This indicator is measured in children per woman.

**Poverty Rate:** The poverty rate is the ratio of the number of people (in a given age group) whose income falls below the poverty line; taken as half the median household income of the total population. It is also available by broad age group: child poverty (0-17 years old), working-age poverty and elderly poverty (66-year-olds or more). However, two countries with the same poverty rates may differ in terms of the relative income-level of the poor.

**Income:** Income is defined as household disposable income in a particular year. It consists of earnings, self-employment and capital income and public cash transfers; income taxes and social security contributions paid by households are deducted. The income of the household is attributed to each of its members, with an adjustment to reflect differences in needs for households of different sizes. Income inequality among individuals is measured here by five indicators. The Gini coefficient is based on the comparison of cumulative proportions of the population against cumulative proportions of income they receive, and it ranges between 0 in the case of perfect equality and 1 in the case of perfect inequality. S80/S20 is the ratio of the average income of the 20% richest to the 20% poorest; P90/P10 is the ratio of the upper bound value of the ninth decile (i.e. the 10% of people with highest income) to that of the first decile; P90/P50 of the upper bound value of the ninth decile to the median income; and P50/P10 of median income to the upper bound value of the first decile. The Palma ratio is the share of all income received by the 10% people with highest disposable income divided by the share of all income received by the 40% people with the lowest disposable income.

**Pollution:** Greenhouse gases refer to the sum of seven gases that have direct effects on climate change: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), Sulphur hexafluoride (SF6) and nitrogen trifluoride (NF3). The data are expressed in CO2 equivalents and refer to gross direct emissions from human activities. CO2 refers to gross direct emissions from fuel combustion only and data are provided by the International Energy Agency. Other air emissions include emissions of Sulphur oxides (SOx) and nitrogen oxides (NOx) given as quantities of SO2 and NO2, emissions of carbon monoxide (CO), and emissions of volatile organic compounds (VOC), excluding methane. Air and greenhouse gas emissions are measured in thousand tons, tons per capita or kilograms per capita except for CO2, which is measured in million tons and tons per capita.

**Built-up area:** "Built-up area" is defined as the presence of buildings (roofed structures). This definition largely excludes other parts of urban environments or human footprint such as paved surfaces (roads, parking lots), commercial and industrial sites (ports, landfills, quarries, runways) and urban green spaces (parks, gardens).

**Land cover change:** Loss of natural and semi-natural vegetated land is presented as a proxy for pressures on biodiversity and ecosystems. This includes tree cover, grassland, wetland, shrubland and sparse vegetation converted to any other land cover type. Gains of natural and semi-natural vegetated land are conversions in the opposite direction. The denominator used is the ‘stock' of natural and semi-natural land at the start of the period.

**Water withdrawals:** Water withdrawals, or water abstractions, are defined as freshwater taken from ground or surface water sources, either permanently or temporarily, and conveyed to a place of use. If the water is returned to a surface water source, abstraction of the same water by the downstream user is counted again in compiling total abstractions: this may lead to double counting. The data include abstractions for public water supply, irrigation, industrial processes, and cooling of electric power plants. Mine water and drainage water are included, whereas water used for hydroelectricity generation is normally excluded. This indicator is measured in m3 per capita (a cubic meter is the equivalent of one thousand 1-liter bottles).

**Obesity:** The overweight or obese population is defined as the inhabitants with excessive weight presenting health risks because of the high proportion of body fat. The most frequently used measure is based on the body mass index (BMI), which is a single number that evaluates an individual's weight in relation to height (weight/height², with weight in kilograms and height in meters). Based on the WHO classification, adults with a BMI from 25 to 30 are defined as overweight, and those with a BMI of 30 or over as obese. This indicator is presented both for "self-reported" data (estimates of height and weight from population-based health interview surveys) and "measured" data (precise estimates of height and weight from health examinations) and is measured as a percentage of the population aged 15 years and older.

**Unemployment:** The unemployed are people of working age who are without work, are available for work, and have taken specific steps to find work. The uniform application of this definition results in estimates of unemployment rates that are more internationally comparable than estimates based on national definitions of unemployment. This indicator is measured in numbers of unemployed people as a percentage of the labor force and it is seasonally adjusted. The labor force is defined as the total number of unemployed people plus those in employment. Data are based on labor force surveys (LFS). For European Union countries where monthly LFS information is not available, the monthly unemployed figures are estimated by Eurostat.

**Average wages:** Average wages are obtained by dividing the national-accounts-based total wage bill by the average number of employees in the total economy, which is then multiplied by the ratio of the average usual weekly hours per full-time employee to the average usually weekly hours for all employees. This indicator is measured in USD constant prices using 2016 base year and Purchasing Power Parities (PPPs) for private consumption of the same year.

**General Government Revenue:** Governments collect revenues mainly for two purposes: to finance the goods and services they provide to citizens and businesses, and to fulfil their redistributive role. Comparing levels of government revenues across countries provides an indication of the importance of the government sector in the economy in terms of available financial resources. The total amount of revenues collected by governments is determined by past and current political decisions. This indicator is measured in terms of thousand USD per capita, and as a percentage of GDP. All OECD countries compile their data according to the 2008 System of National Accounts (SNA 2008).

**General Government Spending:** General government spending provides an indication of the size of government across countries. The large variation in this indicator highlights the variety of countries' approaches to delivering public goods and services and providing social protection, not necessarily differences in resources spent. This indicator is measured in terms of thousand USD per capita, and as percentage of GDP. All OECD countries compile their data according to the 2008 System of National Accounts (SNA).

**General Government Production Costs:** General government production costs are decisions about the amount and type of goods and services governments produce, as well as on how best to produce them. They are often political in nature and based on a country's social and cultural context. Governments use a mix of their own employees, capital, and outside contractors (non-profit institutions or private sector entities) to produce goods and services. Government production costs include: compensation costs of general government employees; goods and services used and financed by general government (including intermediate consumption and social transfer in kind via market producers paid for by government); and other costs, including depreciation of capital and other taxes on production less other subsidies on production. The data include government employment and intermediate consumption for output produced by the government for its own use, such as roads and other capital investment projects built by government employees. This indicator is measured as a percentage of GDP.