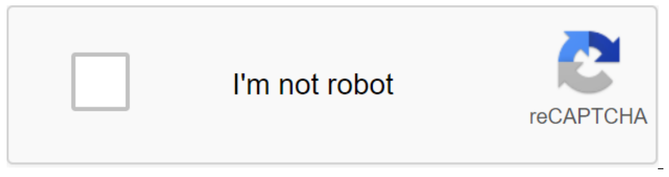

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Activity 3.9 statistics and quality

Introduction Today's consumers are constantly trying to judge the quality of products. But what is quality? How and by whom is quality defined? Some will say that the designer creates specifications that, in turn, dictate the quality of the product. This quality is also based on the acceptable cost of the part within the entire product. Statistics are commonly used in production processes to monitor and maintain quality. This activity will allow statistics to be used to analyze and determine the quality (measured by the consistency of size) of wooden cubes. The wooden cubes will be used in the Puzzle Cube Challenge in the next block. You will design and build cube puzzles as part of the task. The consistency in the size of wooden cubes will affect the quality of your final product. In this activity, you will collect data and then perform a statistical analysis to assess the indicators of the central trend and product variation (wooden cubes). You will present the data using a histogram, set criteria for an acceptable product size, and use the Rule of Thumb to eliminate product samples that are outside the acceptable range. Conclusion 1. You've calculated the stats associated with your 27 wooden cubes. Consider how statistical analysis would change if all the data values for all the cubes measured by all the students in your class were collected and used for analysis. Then answer the following questions. How will the mystogram of the entire class's data change compared to your histogram? If blocks of different sizes b. What value would you expect for the average length measurement if data from the entire class was used? Explain.The means there will be more that because it depends on how many blocks C. Do you expect that the standard deviation of class measurements will be larger, smaller or about the same as the standard deviation of measurements? Why?more to be the cause would be more data 2. At what stage (s) of the design process can statistics be most useful? Why?during the construction and evaluation process be the reason they need this information to determine if it is a good 3. How can I use product size statistics to assess product quality? It can be used to clarify how accurate they have built or made the design of the quality of life is a broad concept that covers a number of different dimensions (by which we understand the elements or factors that compose the complete essence that can be measured through a set of sub sizes with an accompanying number of indicators for each). It covers both objective factors (e.g. knowledge of material resources, health, working conditions, living conditions and many others) and subjective perception of these factors. The latter is heavily dependent on and needs. Comparing the quality of life of different populations and countries is a challenge, and a scorecard covering a number of relevant aspects is needed. The national accounts have become an important indicator of the economic performance and standard of living of our societies. This is because they allow direct comparisons to be made easily. Gross domestic product (GDP), one of these aggregates, is the most common indicator of the economic activity of a region or country at the moment; many decision-makers and policy makers use it as a standard guideline, often based on their decisions or recommendations. It includes all the end goods and services that the economy produces and provides a snapshot of its effectiveness. GDP is very useful for measuring market production (expressed in the currency unit). However, although it was not intended as an indicator of social progress, it is considered to be closely linked to the well-being of citizens. The following is a number of reasons why GDP is not sufficient for this purpose and therefore needs to be supplemented by other indicators. Other income indicators reflect the better position of households, although GDP is very useful for measuring market production and providing an indicative picture of the economy at the moment, it does not provide a comprehensive picture of how much the citizens of a society will work. As described in the report by J. Stiglitz, A. Sene and J.P. Phytossi (Measuring Economic Indicators and Social Progress - 2009) Citizens' Material Living Standards are better controlled through household income and consumption indicators, and joint indicators of income, consumption and wealth should ideally be used at the individual level. Stiglitz, Sen and Fitussi argue that the incomes of the country's citizens are clearly more relevant to measuring the well-being of citizens than domestic production. In many cases, household incomes may develop differently than real GDP, and therefore provide a different picture of this aspect of the well-being of citizens. As shown in Figure 1, between 2005 and 2012 GDP (in real terms) in the EU-28 peaked in 2007-2008 and fell to a record low a year later, in 2009. This sharp decline reflects the beginning of the financial crisis. However, this decline is not reflected in the income of national accounts received by the household sector in the early years of the crisis. By contrast, adjusted gross disposable household income for the same period (2007-2009) increased slightly and began to decline slowly the following year, reaching its lowest level since 2012-2013. One of the reasons for this apparent discrepancy is that social transfers (social security benefits, etc.) seems to be crisis (at least for the first few years). Since 2014, this trend has been positive for both indicators, but it can be noted that the growth rate for the part of the gross national product that households can benefit from is slower. Figure 1: GDP vs. gross disposable household income, EU-28, volume/real terms, 2005-100, 2005-2017Source:Eurostat GDP Growth Today, Depletion of Resources for Tomorrow Social, Environmental and Economic Progress does not always go hand in hand with GDP growth. For example, if a country decides to cut down all its forests, it will dramatically increase timber exports, thereby increasing its GDP. If GDP were the only indicator of quality of life, it would mean that the people of that country would greatly improve their well-being. However, deforestation will have a significant impact on the quality of life of the population in the medium to long term: loss of natural habitat, soil erosion and more. GDP definitely measures quantity, but not necessarily other aspects of production (such as distribution and potential impact on the future). GDP is a cumulative measure and as such cannot inform us about the distribution of wealth among the population, even if quantity were the only relevant indicator of economic performance and quality of life, GDP would still not tell us the whole story about living standards. A significant increase in the average GDP of society does not automatically lead to an increase in the standard of living of the majority of its citizens. This increase can benefit only a small part of society, resulting in the same level of well-being or even worse than before. Consequently, overall indicators of economic and social well-being should also include distribution indicators in order to provide a more realistic picture of the standard of living and quality of life of the citizens of society. GDP and other economic measures should be complemented by indicators covering other important areas in order to measure favourability, going beyond economic indicators, and a more comprehensive and wide-ranging approach is needed to determine and measure quality of life. While it is still very difficult to provide a general definition with specific measurable indicators, the quality of life certainly includes not only economic output and GDP. It should also be stressed that some of the indicators included in this scoreboard are subjective. They therefore reflect the perception of individuals, their own assessment of different aspects of life and overall quality of life, and their often different priorities. This type of data can only be obtained through surveys. Various examples across Europe show that GDP is not always hand in hand with other indicators that contribute to improving the quality of life. Luxembourg had by far the highest GDP gdp per capita in 2016 (75,100 PPS), but this is partly due to the high proportion of cross-border passengers in the workforce who contribute to GDP production but are not included in the calculation of per capita indicators. Luxembourg is followed by Ireland (53,100 PPS), the Netherlands and Austria (both 37,200 PPS). At the other end of the spectrum Bulgaria has the lowest GDP per capita (14,200 PPS), followed by Romania (17,000 PPS) and Croatia (17,500 PPS). While Romania's GDP per capita is the second lowest in the EU (17,000 PPS, compared to the EU-28 average, 29,200 PPS), it has the lowest percentage of people with mortgage or rent arrears (0.5% in 2016). The GDP of Spain and Italy per capita is roughly in line with the EU average, but they occupy the first place in terms of life expectancy (83.5 and 83.4 years respectively) across the EU. Germany has one of the highest per capita GDP in Europe (36,000 PPS), but it also has the third largest gender pay gap (21.5% in 2016) in the EU. These are just a few examples that suggest the need to supplement GDP and other economic indicators with a wider range of data in order to be able to get a bigger picture. Map 1: GDP per capita in PPS, 2016Source:Eurostat (nama_10_pc) Discussions on how best to measure society's progress and their well-being and how to maintain quality of life in the future have led to a number of important initiatives, including the Stiglitz/Sen/Fitoussi (SSF) Commission Report (2009) and the European Commission's GDP and Beyond Relations (2009). After that, there is a growing consensus that societies need to find information in addition to the information provided by GDP data. This provides a much broader context for the information provided by aggregated national accounts. The European Statistical System responded quickly to the report by establishing a Sponsorship Group to Measure Progress, Well-being and Sustainable Development, which was dedicated to developing specific and specific sets of indicators that meet the challenges described in the GDP and Beyond report and the SSF report. It submitted its final report in November 2011. The report emphasizes the need for the European Statistical System to take a multidimensional approach in determining and attempting to measure quality of life, to develop indicators to measure sustainability and to use additional GDP indicators coming from national accounts that better reflect the situation of households. On the basis of this recommendation, a Group of Experts was established, coordinated by Eurostat with a mandate to develop a scoreboard of quality of life indicators. It includes experts from 10 national statistical offices, scientific experts representatives of international organizations such as the OECD and the European Efficiency Fund Living conditions (Eurofund). Between 2012 and 2016, she met every two years and delivered the final report of the expert group on quality of life indicators in 2017. The list of indicators, which was created by Eurostat with the help of this Expert Group, can be found in a special section of the quality of life. Based on research and a number of initiatives, the following 8 x1 measurements/domains have been identified as a comprehensive framework for measuring well-being. Ideally, they should be considered simultaneously, in connection with potential trade-offs between them: Material living conditions Material standard of living is measured on the basis of three submersional aspects: income, consumption and material conditions (deprivation and housing). Income is an important indicator because it has an impact on most other indicators within. There are several different indicators from both national accounts and household surveys (net national income, EU-SILK-based household disposable income). The same can be said of consumption, in which some aggregated indicators are taken from national accounts (actual individual household consumption per capita) and other household consumption indicators should be developed in the future on the basis of a household budget survey. Joint indicators of income, consumption and wealth are also under development, which can provide the best picture of the situation of households. However, at the moment the aspect of wealth is covered within this framework within the sub-measurement of economic security. Material conditions (deprivation and housing) provide important additional information for these money-based approaches, and the indicators selected for this sub-change are also based on eu-SILK. The production or main dimension of production or core activity is measured by three subsimiers: employment, quality of employment and other core activities (inactive population and unpaid work). A number of activities fill the lives of citizens every day, the most visible of them is their work. Indicators that measure both the number and quality of available jobs (working hours, balancing work and non-working lives, safety and employment ethics) are among the indicators used in the European Union to measure this aspect of quality of life, mainly from the EU-LFS, as well as income survey structures and administrative data. Not the entire population is working, so it is important to include indicators related to inactive populations and unpaid work. In fact, the topic of unpaid work is an important indicator of both the quality of life and the Equality. Time use surveys are the only potential source of comparable information on this topic, but they are collected on a voluntary basis and does not apply to all EU member states. Health is an integral part of the quality of life of citizens and can also be seen as a form of human capital. Poor health can affect the overall progress of society. Physical and/or mental problems also have a very detrimental effect on subjective well-being. The health situation in the European Union in the context of quality of life is measured mainly by three subsimicums: health outcomes such as life expectancy (based on mortality tables), the number of years of healthy life (combining life expectancy information from variable survey on self-proclaimed disabilities) and subjective assessments of one's own health, chronic diseases and limitations in activities (data based on THE EU-SILC); determinants of health (healthy and unhealthy behaviors such as smoking, alcohol consumption, fruits and vegetables and exercise, data from the European Health Survey (EHIS); and access to health care (data based on EU-SILC). How far they have advanced in life. The level of education of the population (including the number of people leaving school at an early age); Self-assessment and skill assessment; participation in lifelong education and educational opportunities (the level of enrolment of students in pre-school education). A number of data sources are used, the most important of which is the EU-PFS. Information is also collected as part of the OECD PIACC survey (Programme for International Adult Competency Assessment); Adult education survey Community survey on the use of ICT in households, as well as individuals and administrative data. Leisure and Social Interactions The power of networking and social connections should not be underestimated when trying to measure a person's well-being, as they directly affect life satisfaction. In the European Union, this aspect is measured by two subsimiers, the first of which is leisure. The quantity is measured (how often citizens spend time with people at sporting or cultural events) and quality (their satisfaction with using and (lack) access to this type of activity due to lack of resources or resources. Social interaction is the second sub-measurement, and activity with other other social contacts and personal satisfaction) and for others (volunteering in an informal context), the potential for social support (assistance from others) and social cohesion (trust in others) are included within the framework of the topic. Data in this dimension are updated every few years, as the main source of data is the special EU-SILK modules on social and cultural participation (collected so far in 2006 and 2015) and Subjective Well Being (collected in 2013 and 2018). Economic and physical security is an essential aspect of citizens' lives. The ability to plan ahead and overcome any sudden deterioration in their economic and wider environment affects their quality of life. Security is measured in terms of two sub-sizes: physical security (e.g., the number of killings in each country from police reports and the proportion of those who believe that the area where they live is collected in the EU-SILK) and economic security. For the latter, wealth indicators (the value of assets belonging to a household at a given time) should be ideally used, but at present there is no comparable data on this topic for all European countries. Thus, the ability to face unforeseen costs and have or have no debt is used as a proxy based on data collected through the EU-SILK. Assets (especially when they have a liquid type) are an important indicator of economic sustainability and impact sustainability, and are therefore an important aspect of the quality of life of Europeans. An important aspect of the quality of life is governance and fundamental rights of the right to participate in public debate and influence the formation of public policy. There are three things in the governance and fundamental rights aspect: trust in institutions and public services; discrimination and equal opportunities and active citizenship. Providing the right legislative guarantees for citizens is a fundamental aspect of a democratic society. Good governance depends on the participation of citizens in public and political life (for example, through active citizenship actions, such as attending a demonstration, sending a letter to those in power, or signing a petition, a figure collected in a special SILC 2015 module). This is also reflected in the level of public confidence in the country's institutions (collected in 2013 in a special SILC module), satisfaction with public services and lack of discrimination. Gender discrimination, measured in terms of unadjusted pay gaps (based on the CEU) and the gender employment gap, as well as the employment gap between immigrants and the national population (both based on LFS) are indicators included in this sub-term at the moment, but additional indicators could be developed in the future. Natural and living living Environmental protection has been very high on the European agenda over the past few decades. At the last Eurobarometer on this topic, collected in 2017, 94% of Europeans said that the protection of the environment is very important for them. Exposure to air, water and noise pollution can have a direct impact on public health and economic prosperity. Environmental indicators are very important for assessing the quality of life in Europe and in general. Subjective indicators, such as people's own perception of noise levels or the presence of pollution and dirt in their area and their satisfaction with the environment and green areas in their area, based on EU-SILC), are included in this dimension. Objective indicators (the amount of pollutants present in the air, and in particular the values of particulate matter, are also included, as they are less dependent on climatic conditions and therefore more comparable). This figure is collected by the European Environment Agency. The overall life experience Of the overall assessment of one's life is measured by three sub-dimensions: life satisfaction (cognitive assessment), influences (feelings of a person or emotional states, both positive and negative, are usually measured by reference to a certain point in time) and eudaemonics (feeling of having meaning and purpose in one's life, or good psychological functioning.). This is in line with the OECD guidelines for measuring subjective well-being. These figures were collected as part of the 2013 EU-SILK special module (available in 2015), and data collection is repeated in the 2018 EU-SILK special module (available in 2020). As mentioned above, it is still difficult to measure the quality of life of (European) citizens, but preliminary results show that it is worth going beyond GDP. A multidimensional approach is necessary in order to gain a better understanding of the quality of life and to avoid any misleading conclusions. The key tasks are the baseline data on the OI-Measuring the quality of life tables and graphs, collecting microdata on well-being. Following Eurostat's proposal for the collection of microdata on well-being under the SILC module for 2013, data on subjective indicators will begin to be collected as European statistics on a regular basis in the relatively near future (probably after 2022). In the long term, while data on a number of required indicators are readily available from other sources (e.g. LFS to measure production or core activities), EU-SILK should be further developed as the EU's main document connecting different aspects of quality of life at the individual level and reflecting their dynamic interdependence. In order to make the indicator system less complex and to provide covering 8-1 aspects of quality of

life, life, a very limited number of headline indicators were selected for each measurement, while synthetic metrics could be developed for highly correlated variables. The table of unrelated primary indicators should complete the picture. Picture. activity 3.9 statistics and quality answers. activity 3.9 statistics and quality answer key