# Critical Transition 10. Improving Gender Equality and Accelerating the Demographic Transition

Gender & Demography	مرم Better Futures Additional Investment Requirements 2030 (USD billions)	Better Futures Business Opportunity (USD billions)	Economic Prize from Hidden Cost Reductions (USD billions)	
	2030	2030	2030	2050
	\$15	n/a <sup>xviii</sup>	\$195	\$140

Women have a central role in food production and in decisions concerning nutrition, health and population. They have the potential to shape the transformation of food systems, but in most settings they have neither the power nor opportunity fully to exercise this influence. Ensuring women have equal opportunities to participate in and benefit from all the Critical Transitions is therefore a prerequisite for sustainable food and land use systems transformation. Strategies for implementing Critical Transitions need to target gender equity explicitly, given the widespread inequality experienced by women in food and land use systems today.<sup>202</sup>

Women make up 43 percent of the global agricultural workforce.<sup>203</sup> However, female farmers receive only ten percent of total aid for agriculture, forestry and fishing and as little as five percent of all agricultural extension services.<sup>204</sup> Beyond their work in producing, processing and marketing food, women also store, clean, prepare, cook and serve much of the food that is consumed, and care for children. In many households, women make the key decisions for their families related to nutrition and health.<sup>205</sup> These decisions are particularly important during pregnancy and the first two years of a child's life, since the nutrition of babies and children as they develop affects their future health.<sup>206</sup>

x<sup>wiii</sup> It would be very hard to quantify the business opportunities specifically related to this critical transition, not least because differences across health systems across the world means that it is hard to generalise on public or private provision and modalities of delivery. One could even argue that access to reproductive and perinatal care falls into fulfilling basic needs, and as such it should not be considered a business opportunity at all.

### **Goals and benefits**

Women's pivotal role in food production and household nutrition means the other transitions recommended in this report can only deliver their full impact if they explicitly promote gender equity in all aspects of their implementation. Consider the ownership and control of productive assets, especially land and water. Clarifying ownership of and access rights to these assets is a critical step towards achieving sustainable intensification of agriculture and reducing poverty. This is because having secure rights over land and water stimulates farmers and others to invest in these resources and related ecosystems (critical transition 3). Recognition of women's control of productive assets has been accompanied by positive outcomes at the household and individual levels.<sup>207</sup>

Improving women's access to knowledge and information is also likely to have a disproportionate impact on the speed and scale of the other transitions. For example, women farmers have so far had fewer opportunities to adopt climate-smart agriculture because most know relatively little about it. Even those who do may have limited access to finance. In some areas, literacy rates among women are low.<sup>208</sup> Moreover, women are often excluded from household and community decisions about changes in production, making it difficult for them to take advantage of new opportunities.

Promoting gender equity in the implementation of all the transitions will contribute to the broader goals of SDG5 (to achieve gender equality and empower all women and girls). It will ensure women have access to the nutritious food they need all year round for their families to enjoy good health, resulting in lower maternal and child mortality. It will reduce reliance on child labour by improving agricultural productivity. It will extend digital connectivity and digital services designed to close the gender access gap. And, most importantly, it will help putting the ingredients of stronger rural livelihoods within the reach of the whole population. These include enhanced access to education, training and finance, new employment opportunities in rural areas, and changes in the design of international food supply chains to support more equitable value-sharing.

Women smallholders will both contribute to and benefit from targeting the other transitions towards gender equity. Success in the other transitions will benefit the ecosystems (soils, water, forests, the ocean and biodiversity) on which women smallholder farmers depend. They will help them to adapt to unpredictable weather and climate change. And they will promote women's access to markets for the crops they produce.

In addition, as more women are able to access education and realise their rights to resources, information and finance, more are likely to seek out reproductive health care and choose to have smaller families. Smaller families, particularly in countries where large families have been the norm, will improve the lives of millions of people. As birth rates fall, for example, families and countries will be able to spend more per child on education and health, making children better prepared to participate in the work force.

There will be environmental benefits too: lower birth rates will reduce pressure on land. From a climate perspective, the larger the population, the greater the impact on global warming even if per capita greenhouse gas emissions fall. The countries most vulnerable to climate change, which already struggle to adapt to its consequences, also have the fastest-growing populations. Expanding populations put pressure on forests and other ecosystems, driving up emissions.<sup>209</sup> Similar chains of cause and effect will accelerate loss of soil health, ecosystems and biodiversity.

By reducing pressure on the climate, biodiversity and ecosystems, ensuring that women benefit from the other transitions recommended by this report will also considerably improve the odds of meeting the SDGs, the Paris Agreement targets and the post-2020 goals on biodiversity hopefully to be agreed in Kunming, China in 2020. The UN projects that by 2050 the world population may be anywhere between 8.1 billion and 10.6 billion people.<sup>210</sup> If it grows beyond ten billion, food security is likely to become impossible to maintain in a sustainable way. The most vulnerable countries and population groups would be hardest hit – but will also be the first to benefit if birth rates fall.

The annual economic gain from this transition is an estimated \$195 billion by 2030, and \$140 billion by 2050. These reductions are entirely attributable to public health through a reduction in the number of people at risk of malnourishment. There are, as explained above, numerous environmental and economic gains but these are allocated to other critical transitions. This is because the gender equality and the demographic critical transition is considered to be an enabler transition.

## **Priority actions**

Policy makers and investors must commit to making the investments needed for women to benefit from these transitions. Before implementing new policies and programmes, decision makers need to understand gender roles within the economy and society and how women will be affected by the proposed changes to ensure they leave them and their families better off.

Making sure women have equal access to resources such as land, labour and water should be central to policies concerning the transitions. However, they also need full access to other enabling inputs, such as information, credit and other services, to be sure of fully participating in and benefiting from the other critical transitions.

#### Use policy to ensure the rights and wellbeing of women and girls

Strongly upheld policies and interventions are needed to promote gender equality and expand opportunities for women. These include policies designed to increase access to education for girls, to improve access to finance and extension services for female agricultural workers, to improve maternal and child health and nutrition, and poverty reduction strategies that increase income-earning opportunities for low-income women.

#### Improve access to reproductive health services

Access to reproductive health services is the means to enable women to exercise their right to decide freely how many children to have and when to have them. Many women still face barriers that prevent them from getting reproductive health services. Governments, donors and civil society organisations can support efforts to improve their access and availability of health care services.

# The Need for Comprehensive, Integrated National Reform Agendas

In today's food and land use systems, policies, laws and regulations, (lack of) enforcement, fiscal (dis)incentives and general norms that set the rules of the game are encouraging behaviours that create massive hidden costs, and in aggregate undermine any chance of meeting the SDGs and Paris Agreement targets.

To remedy this, FOLU recommends – through the ten critical transitions – taking a comprehensive, integrated approach to the reform of national food and land use systems, harnessing the combined signalling and system-shaping powers of the whole range of system stakeholders, from heads of government to consumers. To this effect, we are supporting a number of ambitious and committed countries on their journeys (Box 39).

#### BOX 39

# Country efforts to implement food and land use transformations

Supporting the transformation of food and land use systems at the national level is essential to the global effort to bring about a more sustainable food and land use system. A wave of change around the world could be inspired through the growth of a network of national efforts in which countries can learn from one another, accelerate and scale up successful models, and track progress towards national and global goals.

Under the firm leadership of national institutions, FOLU is supporting work in Australia, China, Colombia, Ethiopia, India, Indonesia and the UK, as well as in a regional network in the Nordic countries (Norway, Sweden, Denmark, Finland and Iceland). Each of these countries faces a different set of issues and challenges, and the structure of the work is as diverse as the countries themselves.

FOLU country platforms (described in greater detail in Annex A) are diverse and dynamic. They bring together local actors from government, the private sector, civil society organisations and academic institutions. Their aim is to support the transformation of food and land use systems so that they deliver better outcomes for the environment, health and sustainable development. In countries such as Colombia, Ethiopia and Indonesia, the platforms support existing national government plans. In others, such as Australia, the platform (known as Land Use Futures) operates independently of, but in close consultation with, government, and is supported by philanthropy.

The approach to establishing Country Platforms depends on the unique circumstances of each country. However, a number of characteristics common to each national approach are emerging and are likely to be useful to other countries embarking on the same journey. The emerging Food and Land Use Transformational Approach at the country level comprises:

Long-term targets and policy/investment pathways. Country programmes encourage and support the adoption of explicit, ambitious, measurable targets related to food and land use transformation, as well as the establishment of the policy and investment pathways needed to meet those goals. These targets and pathways should be based on comprehensive stakeholder consultation and informed by national academic institutions.

A compelling, nationally appropriate case for change. The challenges and opportunities for food and land use transformation differ in each country. Country programmes support local partners to build the case for change based upon scientific and economic evidence, business and investment opportunities and political economy analysis. This helps leaders advocate for and explain change within their own domestic constituencies.

#### BOX 39 - Continued

**Integrated, systemic solutions.** By encouraging multi-stakeholder and inter-disciplinary approaches, country programmes aim to break down silos between environmental, agricultural, water, health, planning, infrastructure, trade and development interests and to support the development of holistic, integrated policy and investment frameworks. The solutions need to stem from dialogue between multiple actors and communities, from farmers to consumers. These conversations should be weighted towards those voices that are typically under-represented in top-down processes. In food and land use systems, profound change is never purely technical but requires comprehensive integration of social, political and economic factors.

Government leadership of system reform is essential. Governments have to set overall direction, establish tough, binding targets in line with the Paris Agreement and the SDGs, develop and implement integrated resource plans, create effective property rights, set fiscal policy, mobilise public resources to mitigate risks, encourage human capital formation and set the rules for international cooperation.

Leaders at the highest level of government need to drive the changes, working across traditional siloes. This is not a task for civil servants alone. The change programme will be tough. Reviewing each of the ten critical transitions, FOLU concluded that they all face significant implementation challenges in terms of policy, finance, technology and cultural/behavioural barriers (Exhibit 27). Only heads of state and government can convince a sufficiently broad spectrum of political stakeholders that delivering on a country's food and land use agenda is central to achieving key national goals. Political leadership is also critical to building the new coalitions of interest and civil society movements that can transform food and land use systems over the next ten to twenty years.

#### EXHIBIT 27

Scale of challenge Low Oddium Oddium	Policy & Regulation	Finance	کی Tech & Innovation	င်းပြ Behavioural Change	ر Overall Assessment
Healthy Diets	•	•	•	•	•
Productive & Regenerative Agriculture	•	•	•	•	•
Protecting & Restoring Nature	•	•	•	•	•
A Healthy & Productive Ocean	•	•	•	•	•
Diversifying	•	•	•	•	•
Food Loss & Waste	•	•	•	•	•
Local Loops & Linkages	•	•	•	•	•
Digital Revolution	•	•	•	•	•
Stronger Rural Livelihoods	•	•	•	•	•
Gender & Demography	•	•	•	•	•

# Implementation challenges of the ten critical transitions

Source: Food and Land Use Coalition, 2019

However, political leaders and governments – though they can set the rules of the game – will not be able to carry out the transformation alone. It requires hundreds of millions of people to change what they eat and how they farm. So it must be as much a bottom-up as a top-down exercise. And the top- down part has to start with developing a shared vision of future food and land use and a shared reform agenda through collaboration between government, civil society, the farming community, businesses large and small, finance and researchers.

Critical elements of the vision and reform agenda will be:

1. Defined goals and pathways. Individual countries need to develop national goals for the use of key natural resources – land, soil, freshwater, the ocean and biodiversity. They will need to specify their own and science-based pathways towards achieving social and economic development objectives that are consistent with the SDGs and the Paris Agreement targets. These goals and pathways must be compatible with a country's other national commitments and based on the same analysis and priorities. Such national commitments include those made under the UN climate change and biodiversity conventions, and those made on health and development. Planning tools for this work are becoming more available, including those developed through the work of the FABLE consortium (see Box 40). Developing these goals and pathways requires a systematic process that combines science, public health metrics, economics and the insights gained from social dialogue, and includes traditionally marginalised sections of the population such as indigenous peoples.

#### BOX 40

# The FABLE Consortium and new pathway development tools

The Food, Agriculture, Biodiversity, Land Use and Energy (FABLE) Pathways Consortium mobilises experts from leading knowledge institutions in 18 countries, including the European Union. The consortium supports the development of the data and modelling infrastructure needed to produce long-term pathways towards sustainable food and land use systems. It is convened by the Sustainable Development Solutions Network and the International Institute for Applied Systems Analysis, and works closely with EAT, the Potsdam Institute for Climate Impact Research and many other institutions.

The consortium pursues three broad sets of activities. The first is capacity development and sharing of best practice for data management and for modelling FABLE's "three pillars" of sustainable food and land use systems. The three pillars are efficient and resilient agriculture systems, conservation and restoration of biodiversity, and food security and healthy diets. Work for the first pillar consists of providing simplified assessments of land use and food systems for stakeholder engagement, integrating data to support policymaking, and integrated, geospatially explicit modelling with trade analyses. Work for the second pillar comprises the development of national pathways to the mid-century resting on consistent trade assumptions that can collectively achieve shared global targets. Work for the third pillar is the analysis of national policy options to enable governments and their stakeholders to test the impact of proposed policies across all three pillars.

The FABLE Consortium published its first report outlining its initial findings in July 2019. Albeit preliminary, the report represents the first coordinated effort by researchers from most G20 countries and other nations to chart long-term pathways towards sustainable land use and food systems. It presents a shared approach towards framing and analysing integrated strategies for land use and food systems, an initial set of global targets to be achieved by mid-century and 18 preliminary country pathways for achieving these targets.

As part of FOLU, FABLE is working with interested governments to improve policies and develop long-term transformation strategies, including the low-emission development strategies required under the Paris Agreement. FABLE's work shows that these strategies need to target a range of objectives, including net-zero greenhouse gas emissions and protecting and restoring biodiversity. FABLE plans to issue a second global report in 2020 in the run-up to the Conference of the Parties of the Convention on Biological Diversity in China, and the Conference of the Parties of the UN Framework Convention on Climate Change.

2. Aligned natural resource regulation. The goals and pathways should inform legal and regulatory frameworks for national land use, water and fisheries planning and resource allocation as well as enforcement mechanisms. Aligning laws, regulations and enforcement mechanisms with the goals and pathways should ensure efficient use of these resources from the combined perspectives of ecosystems protection and restoration, nutritional benefits, agricultural production, rural livelihoods and other uses of land (infrastructure, urban areas, fibre crops, timber).

#### BOX 41

# Using maps for sustainable food and land use<sup>211</sup>

Most of the challenges and solutions described in this report are location specific. This is because only certain areas are suitable for high-productivity agriculture, biodiversity and high natural carbon stocks are often confined to small areas, and companies' environmental footprints depend on where they source commodities. In addition, cities often depend on nearby watersheds for sustainable water supply, and climate change will affect parts of a country differently. Strategies towards sustainable food and land use therefore require geographic analyses and place-based solutions. Put simply, governments, businesses and civil society need to develop maps.

Yet few countries systematically use maps for the diagnosis of challenges facing their food and land use systems and the design of solutions. One interesting example is China, where maps are used extensively. Starting with large-scale restoration programmes covering an area the size of Australia, the country has mapped agriculture, biodiversity, ecosystem services and risks from natural disasters to identify areas that require protection, restoration and sustainable management practices. Using these maps, China has instituted an ambitious set of spatial zoning regimes (referred to as "red lines" in Chinese) that cover water, agriculture and ecological conservation. In each case, the government identifies areas that require protection and sustainable management food security, water availability, biodiversity conservation and protection from natural disasters. A range of policy tools – principally zoning and economic incentives, including the world's largest system of payments for ecosystem services to secure Beijing's water supply – are used to achieve long-term goals in economic policymaking.

Other examples of the use of maps for the design of land use policies include Brazil's Forest Code, the European Union's Mapping and Assessment of Ecosystems and their Services, Australia's National Outlook, and land zoning in Namibia and South Africa. Yet despite the urgent need for spatial analyses and policy tools, most countries' climate and biodiversity strategies make little use of maps. Hardly any NDCs under the Paris Agreement and only a small sub-set of national biodiversity strategies under the Convention on Biological Diversity include maps. But without high-resolution maps countries will struggle to identify and manage competing uses of land, including for food production, biodiversity conservation, urbanisation and industrial development. They need maps to design strategies for meeting the SDGs related to food and land use systems.

Fortunately, recent years have seen an explosion in the availability of spatial data and analysis tools to support sustainable land use. For example, high-resolution satellite data from the Landsat and many other programmes is freely available to monitor land use and environmental change. Global Forest Watch (see Box 22) tracks deforestation and other changes in forest cover. The Transparent Supply Chains for Sustainable Economies program (TRASE, see Box 23) combines spatial data to track the sustainability of international agricultural supply chains. And the recently launched Nature Map integrates high-resolution data on biodiversity, ecosystem services and natural carbon stocks to develop a decision-support tool allowing countries to "spatially operationalise" their objectives to halt and reverse the loss of nature.

The Paris Agreement calls on countries to submit long-term, low greenhouse gas emission development strategies by 2020. In addition to mitigating emissions from energy, the strategies must chart a course towards sustainable food and land use systems. Successful long-term climate strategies will therefore require extensive use of maps and place-based economic and regulatory policy mechanisms.

- 3. Aligned fiscal incentives and public spending. Policies and fiscal incentives should send clear signals to markets, helping to direct production and consumption activities in line with national priorities. Tailoring public procurement, fiscal transfers and agricultural support, as well as using pricing (through carbon or sugar taxes), to drive environmental, health and livelihood outcomes are measures with great promise for bringing about positive change.
  - Increased investment in human capital. Developing human capital is essential for nations to be able to take advantage of new technologies, develop new business models and create innovative policies, products and partnerships that meet national needs. But today, food and land use systems across the world suffer from systematic under-investment in technical colleges, extension services (digital and physical) and R&D. Public and private R&D resources for food and land use systems together account for 0.1 percent of global GDP.<sup>212</sup> The majority of private sector R&D is in incremental product development. It has barely begun to translate the hidden environmental and health costs into major new market opportunities. There are some incubators of risk capital, but on nothing like the scale in other sectors.
  - Strong risk management. The capacity of governments, communities, businesses and the financial community to assess and manage different risks, strengthen resilience and build safety nets is likely to become even more critical as severe weather events become more frequent. The deep complexity of food and land use systems is a further challenge to that capacity.

Business leadership is a necessary complement to political and government leadership. Lasting, large-scale change will only happen when progressive business and finance actors also step up to the plate. They can drive the transformation by endorsing national policy reform agendas, and by aligning their own businesses and investment portfolios with national policy goals and pathways. Some parts of the business community are now moving faster than policymakers, recognising the potential scale of new market opportunities linked to the ten critical transitions (see Chapter 4 for more details). But change at speed and scale will only occur if progressive private sector leaders embrace and support politicians and governments in putting new rules and policies in place. Business and finance leadership need to come out and advocate collectively for reforms that fix what's wrong in food and land use systems, just as they are advocating for reforms that fix climate change, human rights and modern slavery.

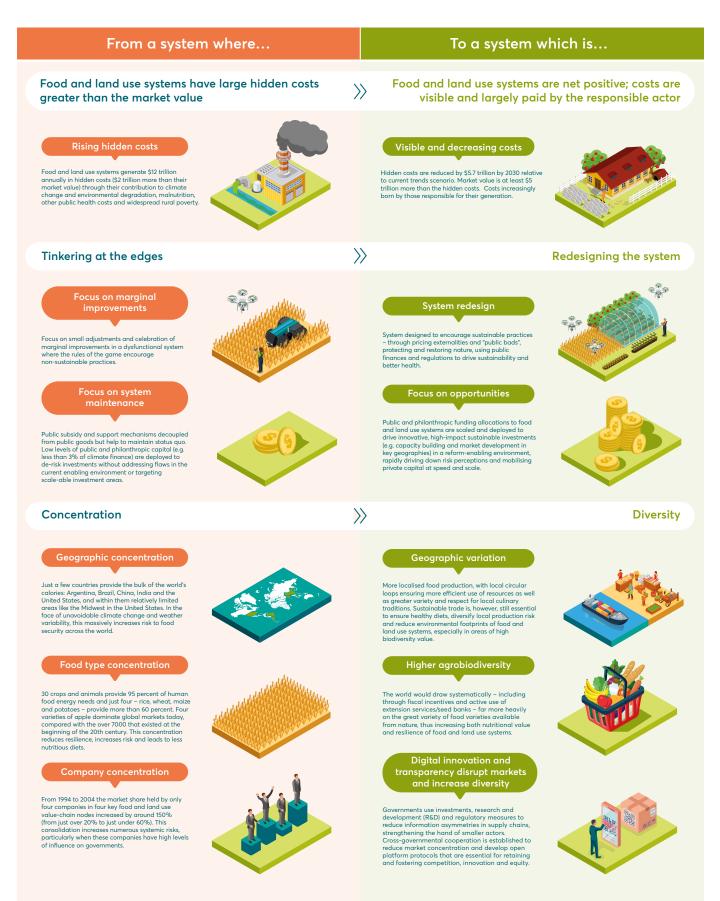
International cooperation is also needed to support national responses to the challenges and opportunities. Individual countries' room for manoeuvre is defined by international trade rules, including tariffs, quotas and subsidies. Changing patterns of global demand translate into local environmental and economic impacts over which individual countries have little control. And multinational branded companies have a disproportionate impact on how tastes evolve across the world.

Over coming years, the need for international cooperation is likely to rise. Radical, even interventionist international action may be required to address key risks, such as pests and diseases or catastrophic disruptions of food supplies. It will also be needed to coordinate the design and operation of international financing instruments that underpin several critical transitions, such as efficient global markets for ecosystem services.

The ten critical transitions are all part of one interdependent, mutually reinforcing transformation programme. For example, all depend on a successful forest transition. The forest transition itself depends on the more efficient use of land, driven, among other things, by dietary shifts, increased productivity of regenerative agriculture, greater supply chain transparency, reduced food loss and waste and so on. Better diets play a critical role in enabling many of the other shifts, whether through freeing up natural resources or by improving health and so unleashing human potential. Note that one child in five is stunted due to under-nutrition, creating lifetime damage to their wellbeing and potential. At the same time, better diets depend on an expanding supply of nutritious, affordable food, making the success of the transitions relating to a sustainable ocean, alternative proteins and circular local economies particularly important.

In other words, this is not a menu from which to pick and choose. Wholehearted commitment to all ten critical transitions is needed. Countries that make the commitment will reap massive gains for the local and global environment, for the nutrition and health of their citizens and for the livelihoods of their rural populations. The better food and land use future is truly a prize worth having. The following chapter expands on this theme.

# Transforming food and land use systems





# References

- 202. CGIAR Research Program on Water, Land and Ecosystems (WLE). 2018. Gender-equitable pathways to achieving sustainable agricultural intensification. Colombo, Sri Lanka: International Water Management Institute (IWMI). CGIAR Research Program on Water, Land and Ecosystems (WLE). (Towards Sustainable Intensification: Insights and Solutions Brief 5). doi: 10.5337/2018.204
- 203. FAO. 2011. The State of Food and Agriculture: Women in Agriculture. Rome: Food and Agriculture Organization of the United Nations.
- 204. FAO. 2012. Rural Women and the Millennium Development Goals. Inter-Agency Task Force. Available online at: http://www.fao.org/3/an479e/an479e.pdf
- 205. FAO,2012, Women in Agriculture, closing the gender gap for development
- 206. https://www.who.int/topics/early-child-development/child-nutrition/en/; The Lancet's special series on Maternal and Child Undernutrition in 2008 and on Maternal and Child Nutrition in 2013).
- $207. \ http://wle.cgiar.org/solutions/briefs/gender-equitable-pathways-achieving-sustainable-agricultural-intensification$
- 208. UNICEF data. Available online at: https://data.unicef.org/topic/education/literacy/
- 209. Bradshaw, C. and Di Minin, E. 'Socio-Economic Predictors of Environmental Performance among African Nations'. Scientific Reports 9, 1: 9306. https://doi. org/10.1038/s41598-019-45762-3.
- 210. UN Department of Economic and Social Affairs, World Population Prospects 2019.
- 211. Bai, Y., B. Jiang, M. Wang, H. Li, J.M. Alatalo, and S. Huang. 2016. "New ecological redline policy (ERP) to secure ecosystem services in China". Land Use Policy 55: 348–351; Bryan, B.A., L. Gao, Y. Ye, X. Sun, J.D. Connor, N.D. Crossman, M. Stafford-Smith, J. Wu, C. He, and D. Yu. 2018. "China's response to a national land-system sustainability emergency". Nature, 559(7713): 193–204. Gao, J. 2019. "How China will protect one-quarter of its land,". Nature, 569, 457.
- 212. Heisey, P., and Fuglie, K. 2018. Agricultural Research Investment and Policy Reform in High-Income Countries. ERR-249. U.S. Department of Agriculture, Economic Research Service; World Bank data, Global GDP.