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Economic Studies

Discussion Paper
No. 1101

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March 2011

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ISSN 1444-4534 series, electronic publication

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Funding from CSIRO's Centre for Complex Systems and the Australian Research Council is gratefully acknowledged, as is modeling advice from Anna Strutt and Terrie Walmsley.

Abstract

Recent analyses of the possible adverse effects of climate change and policy responses on agriculture and mining have raised food and energy security concerns in both rich and poorer countries. Analysing possible effects of ways of dealing with those concerns requires first projecting the world economy forward to 2050 and beyond. This paper provides as background a set of projections to 2050, drawing on the global economy-wide model known as GTAP. The projection is calibrated to ensure the real prices of primary products remain broadly unchanged from their levels in the model's base year of 2004. Alternative scenarios could have been calibrated to show (a) rising real prices for both food and energy raw materials (consistent with forecasts of several international agencies), by assuming some slowdown in productivity growth in primary sectors, or (b) declining real prices for agricultural and mining products (consistent with the experience of most of the 20th century), by assuming somewhat faster productivity growth in primary sectors. The set of projections shown for 2030 and 2050 is thus an intermediate set. The key impacts on international prices, agricultural self-sufficiency, sectoral shares of national economies and national shares of the global economy are highlighted. The paper concludes with implications for R&D spending and research policy.

Keywords: Global computable general equilibrium model projections, crop and labour productivity growth

JEL codes: D58, F17, Q17, Q24, Q54

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Ernesto Valenzuela and Kym Anderson

Following the upward spike in international prices of many primary commodities in 2008, and in light of on-going changes in climates around the world, policy makers and the general public have once again become concerned about global food and energy security. While prices in international markets for food and energy raw materials have come down from their mid-2008 peaks, they rose again for grains in mid-2010 and they remain high by historical standards for fossil fuels. The trend in food prices has been noticeably upward over the past decade, in contrast to its downward trend over most of the 20th century; and, since the introduction of biofuel subsidies and mandates a few years ago in the United States, EU and elsewhere, food prices seem to be closely tracking fossil fuel prices – again in contrast to most of the second half of the 20th century (Figure 1).

Climate change and policy responses to it are expected to have non-trivial influences on global markets in the decades ahead. Analysing possible ways of dealing with the associated security concerns requires first projecting the world economy forward to 2050 and beyond. This paper provides a set of projections to 2050, drawing on the global economy-wide model known as GTAP (named after its birthplace, the Global Trade Analysis Project at Purdue University).

The projection is calibrated to ensure the real prices of primary products remain broadly unchanged from their levels in the model's base year of 2004. Alternative scenarios could have been calibrated to show (a) rising real prices for both food and energy raw materials, consistent with forecasts of international agencies such as IFPRI (Nelson et al. 2010) and the IEA (2010), by assuming some slowdown in productivity growth in primary sectors, or (b) declining real prices for agricultural and mining products, consistent with the experience of most of the 20th century, by assuming somewhat faster productivity growth in primary sectors. The set of projections shown for 2030 and 2050 is thus an intermediate set.

We begin by outlining the projections methodology and the global economic model we employ. The key impacts of the projections on international prices, agricultural self-sufficiency, sectoral shares of national economies and national shares of the global economy are then discussed. The paper concludes with implications for R&D spending and research policy.

Projecting a baseline to 2030 and 2050 with the GTAP model

We make use of the global GTAP model (Hertel 1997) to provide projections of the world economy to 2030 and 2050 without any climate or related policy changes. The standard GTAP model is perhaps the most widely used CGE model for economy-wide global market analysis, in part due to its robust and explicit assumptions. In its simplest form, the model assumes perfect competition and constant returns to scale in production. The functional forms are nested constant elasticities of substitution (CES) production functions. Land and other natural resources, labour (skilled and unskilled), and produced physical capital substitute for one another in a value added aggregate, and composite intermediate inputs substitute for value-added at the next CES level in fixed proportions. Land is specific to agriculture in the GTAP database, and is allowed to be highly mobile amongst alternative agricultural uses over this projection period of nearly half a century. A Constant Elasticity of Transformation (CET) revenue function transforms land from one use to another. The closer the transformation elasticity is to zero, the more unresponsive is land supply to changing relative returns to land across agricultural uses. There is also a very low elasticity of transformation between alternative uses of other natural resources in the other primary sectors. In the default GTAP closure that we adopt, labour and capital are assumed to be mobile across all uses within a country but immobile internationally.

On the demand side there is a regional representative household whose expenditure is governed by a Cobb-Douglas aggregate utility function which allocates net national expenditures across private, government, and saving activities. The greatest advantage of this household representation is the unambiguous indicator of economic welfare dictated by the regional utility function.¹ Government demand across composite goods is determined by a Cobb-Douglas assumption (fixed budget shares). Private household demand is represented by

¹ Altering taxes in the GTAP model does not imply a reduction in government revenue and expenditure, as government expenditures are not tied to tax revenues. A tax reduction, for example, leads to a reduction in excess burden, so regional real income increases and real expenditure – including government expenditure – may also rise.

a Constant Difference of Elasticities (CDE) functional form, which has the virtue of capturing the non-homothetic nature of private household demands as well as permitting the user to calibrate the model to specific own-price elasticities of demand.

Bilateral international trade flows are handled through the Armington (1969) specification by which products are differentiated by country of origin. These Armington elasticities are the same across regions but are sector-specific, and the import-import elasticities have been estimated at the disaggregated GTAP commodity level (Hertel et al. 2007). For present purposes, where we are dealing with very long-term changes, we have doubled the usual short-to-medium term Armington elasticities.

The standard macro-economic closure assumes that the levels of each region's employment of each of the productive factors is fixed in aggregate, and that the regional balance of trade is determined by the relationship between regional investment and savings, where foreign investment is allocated in fixed shares across regions so that it moves in line with global savings. This fixed shares mechanism, which could be interpreted as a partial long-run equilibrium, with international capital reallocation left out, is more predictable (conservative) than the standard rate of return closure.

The full GTAP 7.0 database comprises 113 regions in addition to the 57 sectors/product groups, but to make the model more manageable we have aggregated it to 23 sectors/product groups and 23 regions (see Tables 1 and 2). It is initially calibrated to the year 2004. The standard GTAP protection database (see Narayanan and Walmsley 2008) has been altered to include a more-complete set of estimates of distortions to agricultural prices in developing countries, based on Valenzuela and Anderson (2008).² Those distortion estimates suggest that, despite reforms of the past 25 years, there was still a considerable range of industry assistance rates across commodities and countries in 2004, including a strong anti-trade bias in national agricultural and trade policies for many developing countries. Furthermore, non-agricultural protectionism is still rife in some developing countries, and agricultural price supports in some high-income countries³ remain high.

To project the world economy to 2030 and 2050, we assume policies as of 2004 and the stock of agricultural land do not change in each region but that population, labour, capital and real GDP grow at the rates shown in Table 3, from which the implied rates of total factor

² That distortions database is documented fully in Anderson and Valenzuela (2008) and is based on the methodology summarized in Anderson et al. (2008).

³ High-income countries are defined in this paper to include also Russia and other East European and Central Asian countries that are not members of EU27.

productivity and GDP per capita growth are derived as shown in the final two columns of that table. The exogenous growth rates are based on World Bank and OECD projections (see, e.g., van der Mensbrugghe and Rosen 2010; Duval and de la Maisonnette 2009). The rate of total factor productivity growth is assumed to be the same in each of the non-primary sectors, and to be somewhat higher in the primary sectors as detailed in the footnote to Table 3. Higher productivity growth rates for primary activities were characteristic of the latter half of the 20th century (Martin and Mitra 2001), and are necessary in this projection if real international prices of primary products (relative to the aggregate change for all products) are to follow a flat trend, as shown in Table 4.⁴ The consequences of these projections for regional shares of the world's population, and for the rankings of real per capita incomes (in 2004 US dollars, not purchasing power parity) are shown in Table 5.

The projection scenarios to 2030 and 2050

The differences across regions in rates of growth of endowments and total factor productivity, and the fact that sectors differ in their relative factor intensities, ensure that the structures of production, consumption and trade across sectors within countries, and also between countries, is going to be different in 2030 and 2050 than in 2004.

In particular, the faster-growing developing countries (especially those of Asia) become a considerably larger share of the projected global economy over the next four decades. Their share of world GDP rises from 20 percent in 2004 to 30 percent in 2030 and 38 percent in 2050 (Table 6).

The developing country share of global exports of all products doubles, rising from just under one-third in 2004 to one-half by 2030 and two-thirds by 2050. China's shares alone grow from 4 to 11 percent of global GDP and from 7 to 22 percent of global exports. China's export growth is largely at the expense of high-income countries rather than any developing country regions. Import shares also change although not quite so dramatically, with capital flows explaining the difference between each region's export and import shares (Table 6).

⁴ That calibration is also consistent with the World Bank projections over the next four decades in van der Mensbrugghe and Rosen (2010). An alternative in which primary product prices fall, as projected in GTAP-based projection studies in the late 20th century (e.g., Anderson et al. 1997), is considered unlikely over the next four decades given the slowdown in agricultural R&D investment since 1990 and its consequent delayed slowing of farm productivity growth (Alston, Babcock and Pardey 2010). Our assumed total factor productivity growth for agriculture between 2004 and 2050 of around 2.4 and 2.7 percent for high-income and developing countries, compares with estimated rates for 1967 to 1992 of 3.4 percent for high-income countries and between 1.8 and 2.6 percent for developing countries (Martin and Mitra 2001).

The developing country share of global exports of agricultural products, by contrast, falls slightly. It drops from 33 to 26 percent between 2004 and 2050, while the developing country share of global farm imports rises dramatically, from 32 to 73 percent (Table 7). Recall, though, that we are assuming no change in agricultural or trade policies over the projection period. Perhaps a more likely scenario, especially for rapidly growing Asia, would be a steady rise in agricultural protection to slow the decline in food self sufficiency – as has happened over the past 50 years in the most-advanced Asian economies (Anderson 2009).

With real prices of primary products not falling as they did in the 20th century, the normal transition from primary to manufacturing and service sector activities occurs less rapidly, at least for developing countries. This is shown in the sectoral shares of national GDPs in Table 8. Sectoral shares of national exports and imports, however, change somewhat more. For developing countries, farm and other primary products become less important in their overall exports and more important in their overall imports, and conversely for high-income countries (Tables 9 and 10).

The developing countries' share of global agricultural GDP rises from 50 percent in 2004 to a projected 73 percent by 2050. Its shares of GDP from other primary products and from manufactures also rise, from 54 to 65 percent and from 25 to 25 percent, respectively (Table 11). This reflects the much higher GDP growth rate assumed for developing countries, particularly China but, in the case of agriculture, also India.

Notwithstanding those large increases in developing countries' shares of global agricultural GDP, self sufficiency in farm products declines for developing countries as their comparative advantage in manufactured goods strengthens at the expense of industrialists in high-income countries. For developing countries as a group, their agricultural self sufficiency falls from 98 to 89 percent between 2004 and 2050 (Table 12). Most of that fall is concentrated in East and South Asia.

One consequence of the slowdown in the decline of agriculture's share of GDP in developing countries is that the share of farm land returns in total GDP rises somewhat in developing countries (Table 13). As a share of agricultural GDP it nearly doubles for developing countries and rises by half for high-income countries (Table 14). This is in contrast to what T.W. Schultz (1951) anticipated, but is not inconsistent with the developments expected over the next four decades as reviewed, for example, by Hertel (2010). Meanwhile, unskilled labour's share of agricultural GDP in developing countries is projected to fall from 48 to 38 percent (similar to the fall for non-agriculture, from 32 to 23 percent).

The changes in sectoral comparative advantages also alter the degree to which each sector's output is traded internationally by various regions and globally. When expressed as a percentage of sectoral GDP of developing countries, the propensity to export is projected to grow considerably for manufacturing and services and to decline for primary products. The converse is the case for high-income countries as services become ever-more important in those wealthiest economies (Table 15). This is a reversal of the pattern that developed during the industrial revolution of the 19th and early 20th century.

A way of illustrating those changes for individual countries is to examine their bilateral trade patterns by sector. Table 16 reports the results for two countries, Australia and China. China's projected continuation of its recent rapid economic growth and industrialization leads to Australia (and indeed most countries) trading more with it. But being rich in natural resources the growth in Australia's trade with China is especially strong in agricultural and other primary goods, and the expense of Australia's trade with the high-income countries of Western Europe, the United States and Japan. China's exports also grow more with developing countries than with high-income countries, strengthening South-South trade. So too do its imports of manufactures (Table 17). China's imports of primary products come more from high-income countries, however, particularly minerals and energy raw materials from such countries as Australia and Canada.

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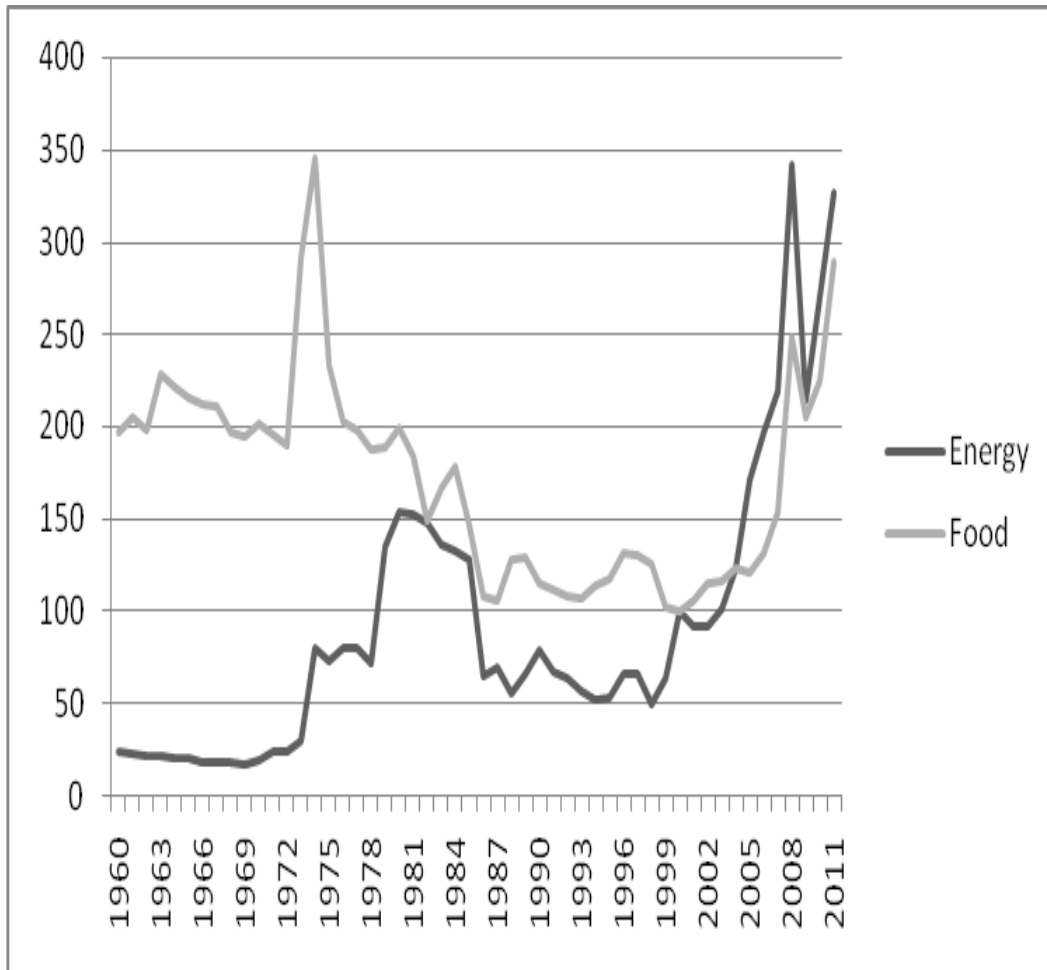
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Figure 1: International price indexes for food and fossil fuel energy raw materials, 1960 to 2011^a

(2000 = 100)



^a The 2011 data refer only to the first 2 months (January and February).

Source: World Bank, Commodity Price Data (Pink Sheets, see <http://go.worldbank.org/5AT3JHWYU0>)

Table 1: Aggregations of regions^a in the GTAP model

Regions-Aggregation	Comprising GTAP regions
1 USA	United States of America; Rest of North America
2 Canada	Canada
3 EU27 and EFTA	Austria; Belgium; Cyprus; Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Ireland; Italy; Latvia; Lithuania; Luxembourg; Malta; Netherlands; Poland; Portugal; Slovakia; Slovenia; Spain; Sweden; United Kingdom; Switzerland; Norway; Rest of EFTA; Bulgaria; Romania
4 Russia	Russian Federation
5 Rest of Eastern Europe and Central Asia	Albania; Belarus; Croatia; Ukraine; Rest of Eastern Europe; Rest of Europe; Kazakhstan; Kyrgyzstan; Rest of Former Soviet Union; Armenia; Azerbaijan; Georgia; Iran Islamic Republic of; Turkey
6 Australia	Australia
7 New Zealand	New Zealand
8 Japan	Japan
9 Korea	Korea
10 Hong Kong, Singapore, and Taiwan	Hong Kong; Taiwan; Singapore
11 China	China
12 Indonesia	Indonesia
13 Malaysia	Malaysia
14 Thailand	Thailand
15 Rest of East Asia	Cambodia; Lao People's Democratic Republic; Myanmar; Philippines; Viet Nam; Rest of Southeast Asia, Rest of Oceania; Rest of East Asia
16 India	India
17 Rest of South Asia	Bangladesh; Pakistan; Sri Lanka; Rest of South Asia
18 Argentina	Argentina
19 Brazil	Brazil
20 Rest of Latin America	Mexico; Bolivia; Chile; Colombia; Ecuador; Paraguay; Peru; Uruguay; Venezuela; Rest of South America; Costa Rica; Guatemala; Nicaragua; Panama; Rest of Central America; Caribbean
21 Middle East and North Africa	Rest of Western Asia; Egypt; Morocco; Tunisia; Rest of North Africa
22 South Africa	South Africa
23 Rest of Sub-Saharan Africa	Nigeria; Senegal; Rest of Western Africa; Central Africa; South Central Africa; Ethiopia; Madagascar; Malawi; Mauritius; Mozambique; Tanzania; Uganda; Zambia; Zimbabwe; Rest of Eastern Africa; Botswana; Rest of Southern African Customs Union

^a Regions 1 to 8 are categorized in this paper as High-income Countries, the rest (regions 9 to 23) as Developing Countries. Russia and the rest of Eastern Europe and Central Asia are included in the first group because they share a relatively cool climate and have the same expected changes in crop yields as Western Europe.

Source: Authors' compilation from www.gtap.org

Table 2: Aggregations of sectors in the GTAP model

	Sectors-Aggregation	Comprising GTAP sectors
1	Rice	Paddy rice; Processed rice
2	Wheat	Wheat
3	Coarse grains	Cereal grains nec
4	Fruit & veg	Vegetables, fruit, nuts
5	Oilseeds	Oil seeds, Vegetable oils and fats
6	Sugar	Sugar cane, sugar beet; Sugar
7	Cotton	Plant-based fibers
8	Other crops	Crops nec
9	Beef/sheep	Cattle,sheep,goats,horses; Meat of cattle, sheep, goats, horses; Wool, silk-worm cocoons
10	Pork/chicken	Animal products nec; Meat products nec
11	Dairy	Raw milk; Dairy products
12	Forestry	Forestry
13	Coal	Coal
14	Oil	Oil
15	Gas	Gas
16	Minerals nec	Minerals nec
17	Fish and processed food	Fishing; Food products nec; Beverages and tobacco products
18	Light manufacturing	Textiles; Wearing apparel; Leather products, Wood products; Paper products, publishing; Metal products; Motor vehicles and parts; Transport equipment nec; Manufactures nec
19	Heavy manufacturing	Petroleum, coal products; Chemical,rubber,plastic prods; Mineral products nec; Ferrous metals; Metals nec; Electronic equipment; Machinery and equipment nec
20	Utilities and construction	Water; Construction; Trade
21	Electricity and gas distribution	Electricity; Gas manufacture, distribution
22	Transport	Transport nec; Sea transport; Air transport
23	Other services	Communication; Financial services nec; Insurance; Business services nec; Recreation and other services; PubAdmin/Defence/Health/Education; Dwellings

Source: Authors' compilation from www.gtap.org

Table 3: Assumed annual rates of growth in factor endowments and real GDP, and implied total factor productivity and real GDP per capita growth rates, from 2004 to 2050
(% per year)

(a) From 2004 to 2030^a

Regions	Popul- ation	Unskilled labor	Skilled labor	Capital	Real GDP	Implied TFP ^a	Implied realGDP per capita
USA	0.7	0.8	-0.2	3.2	2.6	1.4	1.9
Canada	0.4	0.4	-0.6	3.1	2.6	1.2	2.2
EU27 and EFTA	-0.1	0.0	-0.7	1.9	1.9	1.2	2.0
Russia	-0.6	-0.7	-1.0	3.2	3.2	1.2	3.8
Rest E. Europe/C. Asia	0.6	0.7	1.4	3.9	4.1	1.2	3.5
Australia	0.6	0.8	-0.2	3.7	3.4	1.5	2.8
New Zealand	0.7	1.0	0.0	3.6	3.4	1.2	2.7
Japan	-0.3	-0.7	-1.4	2.3	1.4	1.0	1.7
Korea	0.3	-0.4	2.0	4.9	4.7	1.9	4.4
HongKong/Sing/Taiwan	0.4	0.2	0.6	4.9	4.5	1.8	4.1
China	0.6	0.5	4.5	6.0	6.0	2.2	5.4
Indonesia	1.1	1.3	3.7	4.8	5.1	1.6	4.0
Malaysia	1.3	1.5	5.0	5.7	5.7	1.6	4.3
Thailand	0.5	0.1	2.0	4.0	4.7	1.7	4.2
Rest of East Asia	1.2	1.5	2.9	4.1	4.4	1.2	3.2
India	1.1	1.5	3.0	5.9	5.8	1.8	4.7
Rest of South Asia	1.7	2.2	3.1	5.0	5.1	1.4	3.4
Argentina	0.9	0.3	2.9	2.7	3.4	1.5	2.5
Brazil	1.0	0.9	2.3	3.3	3.7	1.3	2.6
Rest of Latin America	1.3	1.6	2.9	3.5	4.0	1.0	2.6
Middle East/Nth Africa	1.6	2.0	2.4	4.1	4.6	1.0	2.9
South Africa	0.4	0.7	0.5	1.9	3.3	1.8	2.9
Rest Sub-Saharan Africa	2.0	2.5	2.4	3.8	4.6	1.0	2.6
High-income countries	0.2	0.2	-0.5	2.6	2.2	1.2	2.0
Developing countries	1.2	1.4	2.9	4.6	4.7	1.5	3.5
World	1.0	1.2	1.1	3.1	2.9	1.3	1.9

Table 3(continued): Assumed annual rates of growth in factor endowments and real GDP, and implied total factor productivity and real GDP per capita growth rates, from 2030 to 2050 (% per year)

(b) From 2030 to 2050^b

Regions	Popul- ation	Unskilled labor	Skilled labor	Capital	Real GDP	Implied TFP ^a	Implied realGDP per capita
USA	0.7	0.4	-0.1	2.9	2.6	1.5	1.9
Canada	0.3	-0.1	-0.6	2.7	2.6	1.4	2.3
EU27 and EFTA	-0.1	-0.2	-0.6	2.0	1.9	1.1	2.0
Russia	-0.6	-1.0	-1.6	2.8	3.1	1.2	3.7
Rest E. Europe/C. Asia	0.7	0.8	0.6	3.1	3.4	1.0	2.7
Australia	0.6	0.3	-0.1	3.4	3.5	1.7	3.0
New Zealand	0.6	0.5	0.1	3.4	3.6	1.5	3.0
Japan	-0.3	-0.7	-1.7	1.7	1.6	1.3	1.9
Korea	0.2	0.3	0.3	4.7	4.7	1.8	4.4
HongKong/Sing/Taiwan	0.3	0.1	-0.5	4.5	4.4	1.9	4.1
China	0.5	0.3	2.2	5.0	5.1	1.9	4.6
Indonesia	1.0	1.4	1.4	4.8	4.9	1.5	3.9
Malaysia	1.2	1.6	1.6	5.0	4.8	1.4	3.6
Thailand	0.5	0.2	0.2	4.4	4.8	1.6	4.4
Rest of East Asia	1.2	1.6	1.7	4.2	4.5	1.3	3.3
India	1.0	1.5	1.5	5.4	4.9	1.2	3.9
Rest of South Asia	1.6	2.2	2.1	5.0	4.8	1.2	3.1
Argentina	0.9	1.1	1.1	3.3	3.7	1.5	2.8
Brazil	1.0	0.9	0.9	3.5	3.7	1.5	2.7
Rest of Latin America	1.3	1.7	1.6	3.6	3.9	1.0	2.5
Middle East/Nth Africa	1.6	2.0	1.7	4.2	4.4	1.0	2.7
South Africa	0.5	0.9	0.2	3.1	3.5	1.4	3.1
Rest Sub-Saharan Africa	2.0	2.6	2.0	3.6	4.3	1.0	2.3
High-income countries	0.2	0.1	-0.4	2.4	2.3	1.1	2.1
Developing countries	1.2	1.5	1.6	4.5	4.6	1.5	3.4
World	1.0	1.3	0.8	3.1	3.2	1.2	2.1

^a Additional primary sectoral TFP shocks (% per year) from 2004 to 2030: coal 2.1, oil 1.9, gas 1.3, mineral resources 1.2, agriculture and food 0.9 (except cotton 1.3), forestry 1.2.

^b Additional primary sectoral TFP shocks (% per year) from 2030 to 2050: coal 2.7, oil 2.4, gas 1.6, mineral resources 2.2, agriculture and food 1.5 (except cotton 1.9), forestry 2.1.

Source: Authors' compilation drawing on World Bank and OECD projections.

Table 4: Endogenous international product price changes resulting from updating the baseline data from 2004 to 2030 and 2050

(total percentage change relative to the aggregate for all products)

	2030/2004	2050/2004
Rice	1	0
Wheat	1	2
Coarse grains	0	0
Fruit & veg	-1	-2
Oilseeds	1	2
Sugar	-4	-8
Cotton	1	4
Other crops	-1	-2
Beef/sheep	-3	-6
Pork/chicken	-3	-5
Dairy	-4	-7
Agriculture & food	-1	-3
Forestry	-2	-4
Coal	2	1
Oil	0	0
Gas	-1	-1
Energy	0	0
Minerals nec	0	-1
Fish and processed food	0	1
Light manufacturing	0	-1
Heavy manufacturing	0	-1
Manufacturing	0	0
Utilities & construction	-1	-2
Electricity, gas distribution	-2	-3
Transport	-1	-3
Other services	1	2
Services	0	0

Source: Authors' simulations

Table 5: National shares of global population, and relative GDP per capita,^a 2004, 2030 and 2050

Regions	(percent)					
	% of global population			Relative GDP per capita ^a		
	2004	2030	2050	2004	2030	2050
USA	4.5	4.2	4.0	630	645	646
Canada	0.5	0.4	0.4	468	538	589
EU27 and EFTA	8.1	6.2	5.0	404	424	431
Russia	2.3	1.5	1.1	69	110	155
Rest E. Europe/C. Asia	3.4	3.1	2.9	48	68	77
Australia	0.3	0.3	0.3	492	635	778
New Zealand	0.1	0.1	0.1	363	445	528
Japan	2.0	1.5	1.1	565	574	603
Korea	0.8	0.6	0.5	216	390	598
HongKong/Sing/Taiwan	0.5	0.5	0.4	265	441	625
China	20.6	18.6	16.7	20	41	63
Indonesia	3.5	3.6	3.6	18	27	36
Malaysia	0.4	0.4	0.5	70	117	149
Thailand	1.0	0.9	0.8	39	64	94
Rest of East Asia	3.5	3.7	3.9	13	18	22
India	17.1	17.6	17.6	9	16	21
Rest of South Asia	5.8	6.9	7.7	8	10	12
Argentina	0.6	0.6	0.6	60	67	76
Brazil	2.8	2.9	2.8	53	62	70
Rest of Latin America	5.3	5.8	6.1	64	74	81
Middle East/Nth Africa	5.3	6.2	7.0	45	53	57
South Africa	0.7	0.6	0.5	75	95	116
Rest Sub-Saharan Africa	10.7	13.8	16.6	7	8	8
High-income countries	21.3	17.3	14.7	377	406	423
Developing countries	78.7	82.7	85.3	25	36	44
World	100	100	100	100	100	100

^a Relative to the global GDP per capita

Source: Authors' simulations

Table 6: National shares of global GDP and of global exports and imports of goods and services, 2004, 2030 and 2050.

(percent)

Regions	Global GDP			Exports			Imports		
	2004	2030	2050	2004	2030	2050	2004	2030	2050
USA	28.5	27.3	25.6	10.5	8.5	6.6	15.6	15.5	15.0
Canada	2.4	2.3	2.2	3.2	2.6	1.9	2.9	2.6	2.2
EU27 and EFTA	32.9	26.3	21.5	42.2	28.1	18.6	41.6	32.0	25.5
Russia	1.6	1.7	1.7	2.2	2.3	2.2	1.6	1.6	1.7
Rest E. Europe/C. Asia	1.6	2.1	2.2	2.3	2.8	2.7	2.6	3.0	2.9
Australia	1.6	1.8	2.1	1.1	1.2	1.2	1.2	1.3	1.4
New Zealand	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3
Japan	11.4	8.4	6.7	6.1	2.9	1.2	5.2	4.6	4.4
Korea	1.7	2.5	3.3	2.8	4.4	5.6	2.5	3.5	4.2
HongKong/Sing/Taiwan	1.4	2.0	2.5	4.9	6.8	8.0	4.2	5.6	6.5
China	4.1	7.7	10.5	6.7	15.7	22.2	5.9	9.7	12.4
Indonesia	0.6	1.0	1.3	0.9	1.4	1.8	0.7	1.1	1.3
Malaysia	0.3	0.5	0.7	1.5	2.7	3.4	1.0	1.8	2.2
Thailand	0.4	0.6	0.8	1.2	1.7	2.1	1.0	1.4	1.7
Rest of East Asia	0.5	0.7	0.8	1.2	1.6	1.9	1.2	1.5	1.7
India	1.5	2.8	3.8	1.0	2.8	4.4	1.3	2.4	3.5
Rest of South Asia	0.5	0.7	0.9	0.4	0.7	1.0	0.6	0.9	1.2
Argentina	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2
Brazil	1.5	1.8	2.0	1.1	1.2	1.3	0.8	0.8	0.8
Rest of Latin America	3.4	4.3	4.9	3.9	4.3	4.4	3.8	3.9	3.8
Middle East/Nth Africa	2.3	3.3	4.0	4.5	5.6	6.3	3.8	4.3	4.7
South Africa	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5
Rest Sub-Saharan Africa	0.8	1.1	1.3	1.2	1.6	1.9	1.3	1.6	1.7
High-income countries	80.2	70.2	62.2	67.8	48.6	34.8	71.1	60.8	53.4
Developing countries	19.8	29.8	37.8	32.2	51.4	65.2	28.9	39.2	46.6
World	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' simulations

Table 7: National shares of global agricultural exports and imports, 2004, 2030 and 2050.

Regions	(percent)					
	Exports			Imports		
	2004	2030	2050	2004	2030	2050
USA	13.9	20.1	22.9	7.4	5.1	3.4
Canada	3.9	4.4	4.1	2.1	1.6	1.1
EU27 and EFTA	38.6	34.3	30.7	43.7	26.7	15.6
Russia	0.6	0.6	0.6	3.2	2.6	1.7
Rest E. Europe/C. Asia	3.4	3.7	4.8	2.7	3.0	2.3
Australia	4.7	6.5	7.0	0.4	0.3	0.3
New Zealand	2.3	2.9	3.2	0.1	0.1	0.1
Japan	0.1	0.4	0.7	8.4	4.8	2.9
Korea	0.1	0.2	0.3	2.3	2.7	2.6
HongKong/Sing/Taiwan	0.3	0.5	0.7	3.0	3.3	2.9
China	2.7	1.0	0.6	4.4	13.5	20.6
Indonesia	0.6	0.1	0.0	1.2	3.0	4.0
Malaysia	0.2	0.1	0.1	1.0	2.0	2.6
Thailand	1.8	1.2	0.7	0.7	1.2	1.6
Rest of East Asia	1.5	0.9	0.7	1.3	2.0	2.2
India	1.6	0.6	0.5	0.7	4.7	12.3
Rest of South Asia	0.7	0.4	0.3	1.3	4.3	6.5
Argentina	2.4	2.4	2.2	0.1	0.1	0.1
Brazil	6.0	8.3	9.5	0.5	0.5	0.4
Rest of Latin America	7.3	4.3	3.2	5.1	6.0	5.1
Middle East/Nth Africa	2.3	2.4	2.6	7.2	8.5	7.8
South Africa	1.0	1.2	1.4	0.5	0.4	0.3
Rest Sub-Saharan Africa	4.0	3.5	3.3	2.8	3.6	3.5
High-income countries	67.5	72.9	74.0	68.0	44.3	27.4
Developing countries	32.5	27.1	26.0	32.0	55.7	72.6
World	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' simulations

Table 8: Sectoral shares of national GDP, 2004, 2030 and 2050

Regions	(percent)											
	Agriculture			Other primary			Manufacturing			Services		
	2004	2030	2050	2004	2030	2050	2004	2030	2050	2004	2030	2050
USA	2	1	1	1	1	2	16	14	13	82	83	84
Canada	2	2	2	5	7	8	18	16	13	75	76	77
EU27 and EFTA	3	2	2	1	2	3	19	17	15	78	79	80
Russia	8	5	4	16	21	26	15	13	10	62	61	60
Rest E. Europe/C. Asia	10	8	6	12	13	14	17	17	16	62	63	64
Australia	4	4	4	5	7	9	14	12	10	78	77	77
New Zealand	8	8	8	2	3	4	16	15	14	74	74	74
Japan	2	1	1	0	0	0	19	16	13	79	82	86
Korea	3	2	1	0	1	1	28	29	29	68	69	69
HongKong/Sing/Taiwan	1	1	1	1	1	1	25	26	26	73	72	72
China	12	11	10	7	13	15	33	35	35	48	42	40
Indonesia	12	11	10	13	14	14	25	23	22	50	51	53
Malaysia	2	2	2	15	14	13	49	51	51	33	34	34
Thailand	10	9	8	3	3	3	32	32	31	55	56	57
Rest of East Asia	12	10	9	7	9	9	29	29	30	51	52	52
India	24	24	23	4	5	5	18	17	16	54	54	56
Rest of South Asia	20	20	18	3	4	5	14	14	14	63	62	63
Argentina	9	8	7	6	7	8	15	14	14	71	71	71
Brazil	8	7	7	2	4	5	18	17	15	71	72	73
Rest of Latin America	9	7	6	6	7	8	28	28	28	56	57	59
Middle East/Nth Africa	6	5	4	26	25	25	12	13	14	56	56	57
South Africa	3	2	2	3	5	7	21	18	16	73	74	75
Rest Sub-Saharan Africa	22	19	18	23	23	23	11	13	13	44	45	46
High-income countries	2	2	2	2	2	3	17	16	14	79	80	81
Developing countries	10	9	9	8	10	11	24	25	25	57	55	55
World	4	4	4	3	5	6	19	18	18	75	73	72

Table 9: Sectoral shares of national exports 2004, 2030 and 2050

Regions	(percent)											
	Agriculture			Other primary			Manufacturing			Services		
	2004	2030	2050	2004	2030	2050	2004	2030	2050	2004	2030	2050
USA	4.5	7.6	12.6	1.0	3.5	8.9	70.2	65.3	55.1	24.3	23.6	23.4
Canada	4.1	5.6	7.6	9.5	15.8	26.4	73.4	68.3	57.2	13.0	10.3	8.8
EU27 and EFTA	3.1	3.9	6.0	2.2	4.4	8.4	73.4	68.5	60.1	21.3	23.2	25.5
Russia	0.9	0.9	1.0	41.3	55.3	72.2	48.3	36.4	20.9	9.5	7.4	5.9
Rest E. Europe/C. Asia	5.0	4.2	6.4	24.1	22.1	26.3	54.2	58.8	54.5	16.6	14.9	12.8
Australia	14.9	17.9	20.9	21.4	32.1	42.5	40.7	33.7	24.7	23.0	16.3	11.8
New Zealand	30.4	35.1	42.8	2.6	4.4	6.2	42.6	36.2	28.0	24.5	24.3	23.1
Japan	0.1	0.4	2.1	0.1	0.5	3.7	90.6	86.8	76.8	9.3	12.2	17.4
Korea	0.2	0.2	0.2	0.0	0.0	0.1	92.2	94.6	95.7	7.6	5.2	4.1
HongKong/Sing/Taiwan	0.2	0.3	0.3	0.1	0.1	0.3	72.3	73.8	73.5	27.4	25.8	25.9
China	1.3	0.2	0.1	1.1	0.1	0.1	90.9	90.4	88.6	6.7	9.3	11.3
Indonesia	2.5	0.2	0.1	17.3	11.1	8.0	73.5	78.0	75.6	6.7	10.7	16.2
Malaysia	0.5	0.1	0.1	6.2	2.6	1.2	85.9	89.8	92.0	7.4	7.5	6.7
Thailand	5.0	2.3	1.3	0.5	0.4	0.3	81.5	84.8	86.0	13.0	12.6	12.5
Rest of East Asia	4.4	1.8	1.3	11.1	10.1	9.0	70.2	74.6	78.0	14.3	13.5	11.7
India	5.5	0.7	0.4	4.8	3.0	2.3	71.5	73.4	72.3	18.3	22.9	25.0
Rest of South Asia	6.1	1.7	1.0	1.4	0.3	0.1	75.1	78.5	79.4	17.4	19.5	19.5
Argentina	21.3	19.5	20.1	9.8	13.7	17.1	56.7	54.1	51.4	12.2	12.7	11.4
Brazil	18.3	21.7	26.6	8.9	10.5	12.7	63.1	59.2	54.2	9.7	8.7	6.4
Rest of Latin America	6.3	3.2	2.6	17.3	14.2	13.0	64.0	71.0	74.9	12.3	11.6	9.4
Middle East/Nth Africa	1.7	1.4	1.5	48.6	35.9	30.8	35.1	44.8	48.0	14.5	18.0	19.7
South Africa	5.4	6.5	8.2	13.5	18.7	23.3	68.0	64.0	59.4	13.0	10.8	9.1
Rest Sub-Saharan Africa	10.8	7.0	6.4	53.1	42.3	36.9	23.0	35.3	40.8	13.1	15.4	15.9
High-income countries	3.4	4.8	7.7	4.5	8.7	16.0	72.4	65.9	55.1	19.8	20.5	21.1
Developing countries	3.4	1.7	1.4	13.2	8.0	6.2	70.2	76.8	78.1	13.2	13.5	14.2
World	3.4	3.2	3.6	7.3	8.3	9.7	71.7	71.5	70.1	17.7	16.9	16.6

Table 10: Sectoral shares of national imports, 2004 and 2050 (percent)

Regions	Agriculture			Other primary			Manufacturing			Services		
	2004	2030	2050	2004	2030	2050	2004	2030	2050	2004	2030	2050
USA	1.9	1.2	0.9	9.2	5.8	3.1	75.3	79.4	82.3	13.7	13.6	13.7
Canada	2.8	2.2	1.9	3.3	2.6	1.7	79.3	77.7	75.7	14.7	17.5	20.6
EU27 and EFTA	4.1	3.1	2.5	5.6	4.3	3.3	70.3	71.5	72.2	20.0	21.1	22.0
Russia	7.8	5.7	4.2	3.5	2.6	1.8	69.9	68.8	65.2	18.8	22.9	28.8
Rest E. Europe/C. Asia	4.0	3.6	3.3	12.4	15.7	16.3	72.8	69.7	68.0	10.7	11.0	12.4
Australia	1.2	1.0	0.9	3.6	2.8	2.0	78.4	78.2	77.8	16.9	18.1	19.4
New Zealand	1.9	1.6	1.5	4.2	3.9	3.3	74.1	74.9	75.6	19.8	19.5	19.6
Japan	6.4	3.8	2.7	15.3	9.4	5.1	59.9	69.0	73.9	18.4	17.8	18.4
Korea	3.6	2.8	2.5	16.1	20.2	22.6	65.8	63.0	60.9	14.4	14.0	14.0
HongKong/Sing/Taiwan	2.8	2.1	1.8	7.1	8.2	8.6	74.2	75.3	75.6	15.9	14.4	13.9
China	3.0	5.1	6.7	8.1	19.0	24.5	79.5	68.7	62.2	9.4	7.2	6.6
Indonesia	6.1	10.3	12.4	5.5	9.5	12.0	69.2	66.1	63.8	19.1	14.1	11.7
Malaysia	3.6	4.1	4.6	2.0	3.4	4.3	83.4	83.5	82.7	10.9	9.0	8.4
Thailand	2.6	3.0	3.7	12.0	14.6	15.9	74.3	72.2	70.3	11.0	10.2	10.1
Rest of East Asia	4.3	5.0	5.2	3.9	5.8	7.0	81.5	79.9	78.6	10.3	9.2	9.2
India	2.1	7.2	14.1	28.3	45.7	50.5	56.3	38.2	28.8	13.3	8.9	6.6
Rest of South Asia	9.0	17.4	22.4	6.5	11.0	15.3	70.8	61.6	54.2	13.7	10.0	8.1
Argentina	1.7	1.5	1.4	1.8	1.5	1.3	77.2	78.1	77.5	19.4	18.8	19.7
Brazil	2.5	2.0	1.9	9.2	9.8	8.9	68.7	67.2	65.2	19.5	21.0	24.0
Rest of Latin America	5.3	5.6	5.4	3.7	4.4	5.0	79.3	77.7	75.6	11.6	12.3	14.0
Middle East/Nth Africa	7.4	7.1	6.8	3.0	3.2	4.4	72.1	73.8	73.6	17.5	15.9	15.1
South Africa	3.3	2.6	2.2	12.0	11.6	11.2	73.4	73.0	72.8	11.2	12.8	13.9
Rest Sub-Saharan Africa	8.3	8.5	8.4	1.3	2.5	3.9	73.3	72.5	71.2	17.1	16.5	16.4
High-income countries	3.8	2.7	2.1	7.2	5.5	3.9	71.2	73.6	75.1	17.8	18.3	18.9
Developing countries	4.3	5.2	6.3	7.7	13.1	16.7	74.4	70.0	66.0	13.6	11.7	11.0
World	3.9	3.7	4.1	7.3	8.5	9.9	72.1	72.2	70.8	16.6	15.7	15.2

Table 11: National share of global agricultural, other primary and manufacturing GDP, 2004, 2030 and 2050

(percent)

Regions	Agricultural			Other Primary			Manufacturing		
	2004	2030	2050	2004	2030	2050	2004	2030	2050
USA	12.7	10.3	8.8	10.6	8.2	7.5	25.2	22.7	19.8
Canada	1.3	1.1	0.9	4.4	3.4	3.0	2.3	2.0	1.6
EU27 and EFTA	21.2	12.7	8.5	12.8	9.4	8.8	31.7	23.8	17.9
Russia	2.9	2.1	1.5	8.0	7.1	6.6	1.2	1.1	0.9
Rest E. Europe/C. Asia	4.4	4.0	3.4	6.8	5.9	5.3	1.5	2.0	2.0
Australia	1.6	1.7	1.7	2.7	3.0	3.3	1.2	1.2	1.2
New Zealand	0.5	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2
Japan	5.0	2.3	1.3	0.8	0.4	0.3	12.2	7.9	5.1
Korea	1.2	1.1	1.0	0.3	0.3	0.4	2.4	3.8	5.1
HongKong/Sing/Taiwan	0.5	0.5	0.4	0.5	0.5	0.5	2.0	3.0	3.9
China	12.2	18.5	22.9	8.7	19.9	24.3	6.9	13.5	18.9
Indonesia	2.2	3.0	3.3	3.0	3.3	3.3	0.9	1.4	1.8
Malaysia	0.2	0.3	0.3	1.6	1.6	1.6	0.8	1.5	2.1
Thailand	0.9	1.1	1.3	0.3	0.4	0.4	0.6	0.9	1.2
Rest of East Asia	1.5	1.6	1.7	1.1	1.3	1.3	0.7	1.1	1.4
India	10.0	16.6	19.7	2.4	3.1	3.2	1.5	2.6	3.4
Rest of South Asia	2.5	3.7	4.1	0.4	0.7	0.8	0.3	0.6	0.7
Argentina	0.8	0.7	0.7	0.7	0.6	0.6	0.3	0.3	0.3
Brazil	3.2	3.1	3.1	1.2	1.5	1.7	1.4	1.6	1.7
Rest of Latin America	6.4	5.7	5.1	5.7	5.1	4.8	4.0	5.0	5.8
Middle East/Nth Africa	3.7	3.9	3.8	20.8	18.1	16.5	1.5	2.4	3.1
South Africa	0.4	0.3	0.3	0.6	0.6	0.7	0.6	0.6	0.6
Rest Sub-Saharan Africa	4.5	5.2	5.7	6.3	5.4	5.1	0.5	0.8	1.0
High-income countries	49.7	34.6	26.6	46.4	37.5	35.0	75.4	61.0	48.9
Developing countries	50.3	65.4	73.4	53.6	62.5	65.0	24.6	39.0	51.1
World	100	100	100	100	100	100	100	100	100

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Source: Authors' compilation

Table 12: Agricultural self sufficiency, 2004, 2030 and 2050

(percent)

Regions	2004	2030	2050
USA	103	112	122
Canada	108	119	130
EU27 and EFTA	94	101	111
Russia	89	90	91
Rest of EE/C Asia	100	100	107
Australia	138	152	167
New Zealand	161	172	186
Japan	83	83	85
Korea	81	80	78
HK/Sing/Taiwan	66	65	66
China	97	90	86
Indonesia	95	84	79
Malaysia	60	45	39
Thailand	112	98	89
Rest of East Asia	100	90	86
India	101	95	88
Rest of Sth. Asia	96	86	79
Argentina	142	146	155
Brazil	123	132	144
Rest of L America	102	95	94
M. East/N. Africa	84	83	83
South Africa	107	115	129
Rest of SS Africa	102	97	97
High-income countries	103	112	127
Developing countries	98	93	89
WORLD	100	100	100

Source: Authors' compilation.

Table 13: Primary factor shares of national GDP, 2004 and 2050

(percent)

Regions	2004					2050				
	Unskilled labor	Skilled labor	Capital	Land	Nat res	Unskilled labor	Skilled labor	Capital	Land	Nat res
USA	41	31	27	0	0	38	27	33	0	1
Canada	38	23	36	0	2	34	19	40	0	6
EU27 and EFTA	34	24	41	0	0	30	21	47	0	2
Russia	29	13	51	2	6	21	11	49	1	19
Rest E. Europe/C. Asia	30	12	53	1	4	23	11	53	2	11
Australia	35	25	38	1	1	29	20	43	1	7
New Zealand	34	18	47	1	1	29	14	53	1	3
Japan	37	22	40	0	0	33	19	48	0	0
Korea	35	16	47	1	0	26	14	59	1	1
HongKong/Sing/Taiwan	31	22	46	0	0	23	17	59	0	1
China	40	11	43	3	2	27	10	46	5	13
Indonesia	32	8	51	6	4	23	7	51	7	11
Malaysia	37	12	46	1	5	29	12	48	1	11
Thailand	22	9	64	4	1	16	8	68	5	3
Rest of East Asia	30	12	50	5	3	24	11	53	5	8
India	35	11	44	9	1	23	10	47	16	4
Rest of South Asia	36	12	44	8	1	27	11	46	11	5
Argentina	38	17	41	2	2	32	18	41	3	6
Brazil	36	20	42	1	1	30	19	44	2	4
Rest of Latin America	31	15	50	2	2	26	15	51	2	6
Middle East/Nth Africa	22	11	57	1	9	18	10	50	1	21
South Africa	31	18	49	0	1	27	16	51	0	5
Rest SubSaharan Africa	32	9	49	3	7	24	9	41	8	18
High-income countries	37	26	36	0	1	34	23	41	0	2
Developing countries	33	14	48	3	3	25	12	50	5	9
World	36	24	38	1	1	30	19	44	2	5

Source: Authors' compilation

Table 14: Primary factor shares of national agricultural GDP, 2004 and 2050

(percent)

Regions	2004				2050			
	Unskilled labor	Skilled labor	Capital	Land	Unskilled labor	Skilled labor	Capital	Land
USA	45.0	5.7	31.6	17.6	41.1	5.8	18.1	35.0
Canada	42.3	6.2	41.8	9.7	44.2	7.0	25.1	23.7
EU27 and EFTA	55.0	7.1	27.8	10.0	60.9	8.4	21.6	9.1
Russia	51.4	1.5	23.1	24.0	68.0	2.3	14.2	15.5
Rest E. Europe/C. Asia	52.5	1.4	31.4	14.7	54.4	1.4	19.0	25.2
Australia	48.0	6.2	30.5	15.3	47.5	7.0	18.0	27.5
New Zealand	56.2	6.0	29.2	8.6	58.0	7.0	22.0	13.0
Japan	44.7	3.5	38.1	13.7	60.1	5.1	28.5	6.2
Korea	39.9	1.3	12.7	46.0	51.7	1.6	7.6	39.1
HongKong/Sing/Taiwan	49.4	4.4	15.6	30.5	56.6	5.6	9.6	28.3
China	57.1	0.7	14.6	27.5	50.0	0.3	4.0	45.7
Indonesia	42.5	0.7	10.9	45.9	30.3	0.5	4.2	65.1
Malaysia	40.7	0.9	10.4	48.1	29.3	0.5	3.5	66.6
Thailand	39.3	0.9	17.6	42.2	36.0	0.7	8.1	55.1
Rest of East Asia	44.9	1.5	15.2	38.4	36.7	1.2	9.0	53.1
India	40.3	1.5	20.9	37.3	24.0	0.9	7.1	68.0
Rest of South Asia	35.3	0.8	26.6	37.3	24.7	0.6	13.1	61.6
Argentina	46.9	2.0	25.7	25.3	43.7	1.4	13.8	41.0
Brazil	25.3	1.6	59.6	13.5	26.0	1.5	36.1	36.3
Rest of Latin America	45.7	1.9	29.2	23.2	40.7	1.7	19.5	38.1
Middle East/Nth Africa	55.1	1.6	33.5	9.8	47.7	1.5	17.9	32.9
South Africa	35.2	1.9	51.3	11.5	37.6	1.8	38.9	21.6
Rest SubSaharan Africa	68.0	0.9	19.0	12.1	42.9	0.9	9.8	46.5
High-income countries	50.4	5.5	30.3	13.7	52.4	6.0	19.9	21.7
Developing countries	47.8	1.3	23.3	27.6	37.7	0.8	9.5	52.0
World	49.1	3.4	26.8	20.7	41.6	2.2	12.2	43.9

Source: Authors' compilation

Table 15: Sectoral exports as a share of sectoral GDP, 2004, 2030 and 2050
(percent)

Regions	Agriculture			Other primary			Manufacturing			Total		
	2004	2030	2050	2004	2030	2050	2004	2030	2050	2004	2030	2050
USA	27	46	70	9	24	41	44	40	33	10	9	8
Canada	72	94	118	66	78	89	154	143	126	37	33	28
EU27 and EFTA	45	64	97	70	86	95	147	132	113	37	33	29
Russia	5	7	12	111	114	130	138	124	95	42	43	46
Rest E. Europe/C. Asia	19	21	37	79	68	72	123	135	133	38	39	38
Australia	71	91	109	82	82	84	55	52	45	19	18	18
New Zealand	121	139	161	41	47	54	81	72	61	31	31	31
Japan	1	4	14	4	28	77	68	53	32	14	10	5
Korea	3	5	9	4	4	4	160	179	193	49	54	58
HongKong/Sing/Taiwan	16	28	45	5	11	23	261	272	278	91	96	98
China	5	1	1	8	1	0	133	173	188	49	66	74
Indonesia	7	1	0	48	31	23	107	129	139	36	39	41
Malaysia	34	7	4	57	28	14	242	255	265	139	144	148
Thailand	46	24	15	15	11	8	226	244	258	90	92	94
Rest of East Asia	24	13	11	109	81	70	163	180	192	68	71	73
India	4	1	1	19	17	16	70	127	171	17	29	38
Rest of South Asia	7	2	2	12	2	1	121	164	196	22	28	33
Argentina	74	76	84	54	58	63	124	118	117	32	31	31
Brazil	47	62	82	77	55	51	74	74	74	21	21	21
Rest of Latin America	28	18	17	114	77	62	94	99	102	42	39	38
Middle East/Nth Africa	15	14	18	101	73	63	156	172	178	54	51	51
South Africa	55	87	132	130	117	103	107	108	109	32	31	30
Rest Sub-Saharan Africa	22	16	16	101	82	71	89	119	135	44	43	44
High-income countries	34	49	75	64	73	84	98	86	71	23	20	18
Developing countries	16	10	9	76	43	33	138	165	181	48	54	58
World	25	23	27	70	54	51	108	117	127	28	30	32

