Agricultural Crises and Government Responses
Between the World Wars in the Atlantic Trading Network

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Abstract

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The paper summarizes research on the heterogeneous experiences of actors in agriculture in Europe and the Americas between the First and Second World Wars. Following a period of increasing globalization of agricultural markets, the First World War sharply limited farming in the main combatant nations, which led to sharp increases in agricultural prices and farm incomes in countries outside the combat zones. During the 1920s the combatants experienced a return to normalcy, while farmers that experienced booms during the war went through hard times. During the Great Depression that followed, farm prices for most goods fell sharply and farm regions were flooded with unemployed workers. During both decades, most countries responded by raising tariffs and setting quotas on farm imports in an attempt to protect farmers, most often large farmers, against the drops in prices. After experimenting with aiding farmers through price guarantees in the 1920s, nearly every government in the 1930s regulated agriculture in some new way: by providing subsidies, setting minimum prices, purchasing surpluses, or limiting output. Often the regulations led to problems that led to new regulatory fixes while setting the precedents for the domestic farm programs that continue to protect farmers in the modern era.

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Prior to the first World War the markets for farm products had become increasingly global with declines in transport and trade costs (Jacks 2010; Pinilla 2022). The War greatly hindered agriculture in the areas where it was fought and prices of farm goods rose enormously. Farmers in the U.S., Canada, Argentina, Australia, and Sweden therefore benefited from the high prices being paid for farm goods during the War and in the immediate aftermath when the combatants were working to return to normal times. When normal production levels in the combatant economies were reached and farm prices fell to reflect the renewed supply, farm prices fell. Farmers in the countries that benefitted from the war boom fared poorly, particularly if they had overestimated the length of the boom when they were borrowing to expand. The farmers in the combatant countries fared better in the sense that they were returning to a more normal setting.

Problems developed again when the world-wide Depression caused incomes and demand to fall between 1929 and 1934-5. Figure 1 in the chapter by Ernst Langthaler (2022) shows that an index of world agricultural trade volume (basically export output) fell from 100 to around 88 in 1934 before recovering to around 96 in 1937. The situation for prices was much worse with the index of value per unit in Langthaler's (2022) Figure 1 falling from 100 in 1929 to around 38 in 1935 and recovering only to around 45 in 1937. Langthaler's (2022) Table 1 shows that between 1929 and 1930-1937, trade volume fell most for sugar, silk, wheat and tobacco from 100 in 1929 to 77-83 in the later years, while the volume of coffee, rice, butter and corn (maize) traded rose. Indexes of values per unit in 1930-1937 were substantially lower for all crops, falling from 100 in 1929 to below 50 for cotton, wheat, wool, coffee, silk, rubber, rice, and butter. Sugar and tobacco values fared better, falling to only 53 and 64 respectively (Langthaler 2022, Table 1). Farmers in nearly every country faced significant problems. Farm workers, in particular, also faced severe problems because they now had to compete for work with an influx of unemployed industrial workers who returned to rural areas. The farmers in many of the countries successfully lobbied for government policies designed to protect their incomes and established the precursors of many government agricultural programs in the modern era.

When the markets for agriculture goods had been local, fluctuations in harvests led to countervailing price responses that served to limit fluctuations in income from the crop. Bad harvests reduced supply and raised farm prices, and good harvests reduced supply and led to lower farm prices. Thus, farm income fluctuated less than the fluctuation in output. When transport and transactions costs fell and the farms became connected to the world market, the farmers' income opportunities expanded. They could sell locally but had the option to export at even higher prices when world prices were rising but they face greater risk of fluctuations in farm prices that were unconnected to their own harvests. The good news was that a significant number of bad harvests in other countries could push world prices higher during good local harvests and local farm incomes rose more than before. The bad news came when boom harvests in the rest of the world led world prices to fall and farmers facing a bad local harvest saw their incomes fall more than the decline in output. During the boom even farmers with good harvests might see prices fall more than they would have when the farmer was disconnected from the world economy.

Farmers responded to the problems in the 1920s and 1930s by lobbying their governments to limit the impact of the drops in prices. One way was through international trade policies. Some countries added tariffs that taxed imported goods and increase the gap between the local price and the world price. Some adopted import quotas that insured that most of the goods consumed were produced locally. A similar result came through import licensing. Some countries limited trading by controlling the amount of currency that could be exchanged. The policies had substantial impact. Paul Brassley (2022) reports that protectionism reduced continental European imports by half for wheat and a third for beef and butter, while German, French, and Italian domestic agricultural prices were more than twice the domestic price in the United Kingdom by 1933.

Another came through internal regulations. A number of governments instituted debt relief programs. Several adopted programs that had a mercantilist beggar-thy-neighbor flavor. The programs were designed to buy output from farmers at prices higher than the world price. Such purchase programs often led to surpluses in production and governments set up organizations that would then sell the surplus into the world market. Other countries achieved a similar goal with nonrecourse loans that set a target price. When the market price exceed the target price the farmer just sold the crop, but when the market price was lower the farmer gave the crop to the lender.

The farmers' demands for protection faced opposition within the countries. After all, low farm prices meant lower prices for consumer goods. The political economic process often led to disputes over policy that in some countries led to policy reversals when different parties gained control of the government. Some countries pressed for deeper long term changes with land reform meant to increase the share of land holders among farmers. In many cases large landholders maintained significant political clout and as a result were the primary beneficiaries of the protection programs.

This chapter is a summary chapter that compares and contrasts the experiences in the United States with what happened in the countries discussed in the rest of the papers in the volume. It discusses the heterogeneity of the experiences, the problems faced when unemployed labor flooded the countries during the Great Depression, the various international trade policies followed in the 1920s and 1930s, provision of debt relief, efforts at land reform in countries that political turmoil, and the sea of internal regulations established. Between the end of the Second World War and the early 2010s world trade has expanded and barriers to trade for most goods have been reduced. However, the interwar internal regulations set the precedents for modern policies protecting farm incomes in high-income countries today. Arguably, these policies have propped up domestic farmers at the expense of world markets and impeded the growth of less developed agricultural countries around the world.

HETEROGENEITY ACROSS COUNTRIES AND WITHIN COUNTRIES

Even as the world market fell apart during the Great Depression, remember that there were both demanders and sellers in these markets and they had different attitudes towards price changes. There was also a great deal of heterogeneity based on whether the battles in the First World War were fought in the country, the types of crops exported and imported, the share of the working population in agriculture, and the depth of the Great Depression. Table 1 shows the extent of the Great Depression in the 1930s and the agricultural share of the workforce around 1920 for countries prominently mentioned in the volume. The United Kingdom had the lowest agricultural share at about 7 percent. Because the share was so low, farmers were unable to get the government to impose much in the way of tariffs because the government worried that their manufacturing exports would be harmed (Brassley 2022). Other countries with relatively low agricultural labor force shares between 19 and 30 percent were Argentina, the United States, Switzerland, and Germany. On the high side above 60 percent were Bulgaria, Mexico, Poland, Turkey, and the USSR.

The extent of the Great Depression shown in Table 1 varied greatly across the economies. How the economies reacted to the problems in the farm sector was strongly influenced by what was happening in the rest of the economy. If the industrial sector fell apart as well, the countryside ended up being flooded with migrants from urban areas seeking work or moving back to farm areas with relatives to seek subsistence. The U.S. and Canada Mexico faced the deepest troughs during the Great Contraction from 1929 to 1933 with real GDP per capita falling to 67 percent of their 1929 levels in 1933 and not reaching the 1929 level again until 1940. Spain fared reasonably well through 1935 as real GDP per capita fell only 12 percent between 1929 and 1933 but a Civil War beginning in 1936 caused a fall to 63 percent of the 1929 level in 1938. The countries that fared well in the early 1930s were Bulgaria, Denmark, Sweden, Switzerland, Turkey, the United Kingdom and the USSR. Their GDP per capita troughs were at most 7 percent below the 1929 level and all recovered to well above the 1929 level by the end of the decade. Germany's GDP fell to 83 percent of the 1929 level in 1932 and then recovered to 33 percent above the 1929 level by the end of the decade, but its GDP figures were inflated by the large military buildup leading into the Second World War.

The extent to which countries relied on different types of exports strongly influenced their stances. The U.S., for example, was a large net exporter of wheat and several other crops; therefore, farmers producing those crops gained relatively little from tariff protections (Irwin

2017). Denmark's dairy and animal producers remained free traders on grains and other imports that they used to feed their animals (Morell 2022).

The political situation situations varied. The major combatants of the first World War had to make the costly transitions from war-time economies to normal peace-time activities. Germany was saddled with high reparations payments and went through periods of hyperinflation. Hungary lost its place in the Austro-Hungarian Empire. Immediately after the war, it went through transitions from a monarchy to a Bolshevik state before the counter-revolutionaries took over and established a limited parliamentary state with strong elements of authoritarianism (Varga 2022). Poland regained its independence, fought a series of border wars from 1919 to 1921, faced hyperinflation, and had to establish new trade relationships once its borders were set (Janicki 2022). Greece, Turkey, and Bulgaria had engaged with each other in a series of bloody wars between 1911 and 1922 with forced shifts of refugee populations (GTB). Rules set by the League of Nations left all three with financial problems (Petmezas 2022). Mexico experienced a Revolution during the 1910s with several changes in the factions in control (Tortolero 2022). The Bolshevik revolution led to the formation of Soviet Russia and a dramatic change in the organization of the overall economy (Langthaler 2022).

There was also a great deal of diversity in the experiences within countries. In Italy the districts that were not harmed much or performed well during the Depression included the Piedmont rice growers, the Asti wine makers, and the districts supported by the Fascist governments, including Low Lombardy, Ferrara, and the Po Delta. The areas that performed poorly included Liguria and Upper Tuscany, which specialized in olives and specialty crops; the subsistence economies of the Southern Appenines and Northern Clusters; the export-oriented Naples, central and southern Apulia, Calabria, and north-eastern Sicily; and the large arable estates of the South (Rome) and Sardiana (Chiapparino and Morettini 2022).   In Spain the North and Mediterranean areas accounted for 20 percent of the land and 40 percent of the output because they were blessed with plentiful summer ran or had healthy irrigation of fruit and vegetable production. Elsewhere, farmers relied on dry farming methods to produce cereals, wine, or olive oil (Pan-Montojo and Simpson 2022).   Different regions of the U.S. specialized in different crops, cotton in the South, tobacco in the upper South, sugar in Louisiana and Colorado, corn in the Midwest, wheat in the Great Plains, and citrus fruits in Florida and California. During Mexico's revolution the northeast established commercial crops like chickpeas and cotton, while the south central areas began commercial marketing of grassland crops, corn, and beans (Tortolero 2022).

PROBLEMS WITH UNEMPLOYED LABOR

The problems in the agricultural sector were worsened by unemployment problems.   In the U.S. the unemployment rate was over 20 percent for four years and over 10 percent for an entire decade. The problems in American cities touched off a return to rural areas and unemployment in a number of rural areas was worsened by the decline in labor demand caused by the AAA reductions in land cultivated (Fishback 2017). The situation appears to have been worse in Poland, where Tadeusz Janicki (2022) reports that there were about 4.5 million "superfluous" people in 1935, which led consumption in villages to be cut in half, while consumption in cities fell only 8-13 percent.

World War I and American immigration restrictions greatly limited Italian outmigration to the U.S. creating more problems with unemployment. Francesco Chiapparino and Gabriele Morettini (2022) show that in most of Italy, agriculture was a sort of sponge-sector, capable of absorbing unemployment by compressing incomes and the standard of living, even to the very limits of subsistence. However, unemployment problems worsened in the Ferrara and Po Delta regions had large number of landless laborers depending entirely on their wages for subsistence. To resolve some of these problems the Fascist regime actively sought to relocate at least some of the workers on newly reclaimed lands in other areas. They found that once the emigration opportunities were cut, the agricultural areas in Italy that were most successful were the ones where agricultural workers had the highest mobility in domestic migrations.

Meanwhile, in Argentina Julio Djenderedjian and Juan Luis Moretini (2022) find that labor productivity in agriculture bounced around along a trend from around 3 to 3.4 in 1902 to 3.8-4 in 1936. But this growth was much slower than in industry during the same time period. They find that a key sector that played an intermediary role was the construction sector, which was able to absorb large amounts of labor during boom times and release them again during busts.

Spain's unemployment problems were worsened by the fact that demand for agricultural labor fell just as the supply of agricultural day workers rose. Juan Pan-Montojo and James Simpson (2022) show that in many parts of Spain small family farms dominated and the family farmers would not become unemployed but typically had to feed more people and per capita consumption fell. In southern Spain the unemployment problems were more severe. Dry-farming methods limited opportunities to use new labor-intensive technologies to absorb underemployed farm labor. In fact, labor-saving mechanization was the direction of technological changed in the large cereal sector in southern Spain where farms with over 100 hectares accounted for 52.4 percent of land and were worked by wage labor and roughly 60 percent were wage workers. By 1933 about one-third of agricultural laborers were unemployed and the unemployed agricultural laborers account for about 60 percent of the total unemployed in the country.

TRADE POLICY

To reduce the competition for their farmers when world prices fell, the nations established a variety of trade policies, including tariffs, import quotas, import licensing, bilateral or multi-lateral agreements with other nations, and currency exchange controls.

Aside from tariffs on wool and sugar, the U.S. probably had the least success in using tariffs to protect their farmers. U.S. exports of all kinds boomed during and immediately after World War I, as the war hampered production among the combatants and a couple of post-war years were needed to return to normal production. Faced with dropping prices and declining export opportunities in 1921 and 1922, the U.S. increased tariffs on a broad range of goods, including agriculture goods in 1921 and 1922. Abraham Berglund (1923, p. 29) considered the tariffs in 1922 to be among the highest in history to that time. The arguments made for the U.S. increase in the agricultural tariffs was to help farm prices keep up with the changes in nonfarm prices. Doug Irwin (2017) describes this as a futile goal for most farm good, however, because the U.S. was a net exporter of most agricultural goods. U.S. farmers exported roughly half of their cotton, one-third of their tobacco, and one-fifth of wheat and flour in the 1920s. In fact, the overall tariff legislation harmed most farmers by increasing the ratio of nonfarm to farm prices (Irwin 2017).

The situation in wheat provides an example of the path of followed by tariffs of quite a few agricultural goods during the period. Table 4 from the chapter by Langthaler (2022) provides a comparison of wheat tariffs across countries that shows the progression of rates over time. The U.S. tariff on wheat was set at 5.71 gold francs per quintal in the early 1920s. By

1927 it had been surpassed, as France raised its rate in several steps from 2.68 in 1926 to 7.11 in 1927 to 16.24 in 1929, Germany raised its rates from 4.32 in 1926 to 6.17 in 1927 to 8.03 in 1928 with a drop to 3.89 in 1929. Switzerland also adopted cereal tariffs and Spain increased them in the early 1920s (Head-Koenig 2022 and Pan-Montojo and Simpson 2022). Meanwhile, the UK, the Netherlands, Belgium, and Denmark had no wheat tariffs (Langthaler 2022).

In 1930 the U.S. increased most of its tariffs again with the infamous Smoot-Hawley Tariff Act. Doug Irwin (2017) finds that the average absolute increase in the tariff was small relative to a number of earlier tariff acts, but a strong deflation in the U.S. from 1929 to 1933 sharply increased the tariff as a percentage of U.S. domestic prices. Irwin (2017) argues that the Smoot-Hawley Act likely had only a small direct impact on farmers and overall GDP in the U.S., but it contributed to an international trade climate that encouraged protectionism throughout the world. Table 4 in the Langthaler (2022) chapter shows that the U.S. wheat tariff rose to 8 in 1929 through 1931 and then was lowered to 5 and below afterward. France retained its 16.24 rate through 1934, Germany raised its rate above 13.8 from 1930 to 1932 before allowing it to drop to 4.32 in 1933. Italy raised its rates above 19.6 from 1930 to 1933 and then let it drop slightly to 18.4 in 1934. The UK at 0.8 in 1931, the Netherlands at 3.12 in 1932, Belgium at 1.45 in 1933, and Denmark at 0.31 in 1934 established token rates.

A wide range of countries followed protectionist policies for other products during the 1920s and expanded them in the 1930s. Here are just a few of many examples. France relied on tariffs, import quotas, and subsidies, particularly for wine (Chariot 2022). Italy increased is protections against wheat, rice, and sugar (Chiapparino and Morettini 2022). The Swiss imposed tariffs for cereal, dairy, livestock breeding, and wine, while providing subsidies to defray transport costs for exported cattle to the border (Morell 2022). Switzerland 1932 imposed tariffs on cheese and butter and the import of concentrates, while also adopting milk import quotas (Head-Koenig 2022).

Other countries eschewed protectionism when it made economic sense. Denmark adopted only a very small wheat tariff as late as 1934 because cereals provided fodder for their large dairy and animal sectors, and sought to avoid having to raise the price when selling those goods internationally (Morell 2022). The United Kingdom adopted only a token tariff because it imported large amounts of food and feared that imposing agricultural tariffs to protect farmers, who accounted for less than 8 percent of the population, would harm their markets for manufacturing exports, which accounted for 77 percent of exports (Brassley 2022). In efforts to promote its industry, the Polish government launched a "cheap bread" policy in which it gathered grain reserves, imposed export duties on cereals and dropped its tariffs on wheat and rye in 1929 (Janicki 2022). During the Mexican Revolution, the governments in power eliminated import duties in years with bad harvests to ensure enough food for the population (Tortolero 2022).

A number of countries lowered their barriers to imports with favored trading partners using bilateral and multi-lateral trade agreements in the 1920s and 1930s. The U.S. had negotiated a variety of Most Favored Nations clauses during the 1920s. Doug Irwin (2017) suggests that these clauses helped limit retaliatory tariffs against the U.S. in a number of countries after the Smoot-Hawley Act passed in 1930. One exception was Canada, which immediately raised tariffs on 16 key imports from the U.S. that cut the value of U.S. exports to Canada by 78 percent and reduced the Canadian share of U.S. exports from 18 percent in 1929 to 12.6 percent in 1933.

Instead of relying on tariffs, Britain diverted many of its imports to the British Commonwealth countries by eliminating tariffs on their goods and negotiated bilateral agreements with Argentina and the Scandinavian countries, which were important both as agricultural suppliers and recipients of UK manufactures (Brassley 2022). France signed a bilateral trade agreement with Greece in July 1933. Germany signed bilateral agreements with Greece in August 1932, Bulgaria in June 1932, and Turkey in 1934. Between 1933 and 1939 Germany absorbed 52 percent of Bulgarian, 48 percent of Greek and 38 percent of Turkish tobacco. The three countries exported to Germany more than they imported, while German demand stabilized prices and rural incomes in all three (Petmezas 2022). Meanwhile, a supplement to a 1931 trade agreement with Germany opened its market to Hungarian wheat, rye, barley, and corn. Subsequently, Germany accounted for about 50 to 60 percent of Hungarian exports. In 1934 Hungary joined a tripartite agreement with Austria and Italy, and Italy imported about 12 to 20 percent of Hungary's exports (Varga 2022).

In the wheat market there was some relief from a "gentlemen's agreement" between 22 countries, including most of the ones in this volume, that was negotiated at the Conference of Wheat Exporting and Importing Countries in August 1933. It was helped by the U.S. adoption earlier in the year of the Agricultural Adjustment Act with its focus on limiting output (Langthaler 2022). Unfortunately for the U.S., the agreement did little to increase wheat exports, which were still as high as 168 million 60-pound bushels in 1928 but fell to an average of 36.3 million from 1934 to 1940 (Beaur 2022 and series Ee574 in Carter et.al. 2004).

After the U.S. passed the Reciprocal Trade Agreement Act of 1934, the U.S. negotiated bilateral trade agreements in 1934 with Cuba, in 1935 with Brazil, Belgium, Haiti, and Sweden, in 1936 with Colombia, Canada, Honduras, Netherlands, Switzerland, Nicaragua, Guatemala, and France, in 1937 with Finland and Costa Rica, in 1938 with Czechoslavakia and Ecuador, and in 1939 with the UK, a second agreement with Canada, Turkey, and Venezuela (Irwin, 2017, pp. 366-433).

GOVERNMENT EFFORTS TO PROVIDE DEBT RELIEF

When international prices fell, a large number of farmers faced problems in repaying their loans, including mortgages on land and equipment, intermediate term loans for tools and seeds, and short-term consumption loans until the harvest was finished. The situation often worsened when there was general deflation in the country, as the farmers were forced to repay amounts in their currency in real terms that were higher than the amounts they borrowed. A substantial number of countries reacted by adopting policies to improve access to credit or provide debt relief for troubled farmers.

Credit Policies in the United States

In the U.S. federal loan support for farmers began in 1917 after the Federal Farm Loan Board was created to provide seed money for 12 Federal Land Banks (FLB). Each of the 12 banks was originally endowed with $750,000, which it then loaned to groups of farmers seeking mortgages who formed national farm loan associations on a cooperative basis to provide mortgages to the members of the association. By 1929 the original endowments had almost been fully been repaid and approximately 4600 national farm loan associations owned nearly all of the capital stock in the FLBs. The government also provided for the creation of federal joint-stock banks that were privately financed. The FLB loans to associations and joint-stock land bank loans had interest rates capped at one percentage point higher than the interest rate on their most recent bond issues up to a maximum of 6 percent. As a result, farm mortgage interest rates on the FLB and joint-stock mortgages were substantially lower than rates charged by other lenders outside the Northeast in 1928. In addition, the loans were amortized for equal annual payments over a time horizon of over 30 years at a time when most farm mortgages were 3-5 year loans with repayments of interest until the full principal was due at the end of the loan (Snowden 2013 p. 47, p. 67; Glock 2016). By 1927 the Federal Farm Loan Board (1929, pp. 32,35) claimed that the Federal Land Banks and joint-stock banks held approximately one-fifth of all U.S. farm mortgage debt. In 1923 Federal Intermediate Credit Banks (FICBs) were organized to provide loans to cooperative marketing associations and provide discounts of agricultural paper endorsed by a variety of lenders. By 1929 these activities had aided about a million farmers (Federal Farm Loan Board (1929, pp. 78-79). At various times, on an ad hoc basis, Congress also authorized emergency crop and feed loans in the 1920s to offset disastrous crop years (Federal Farm Loan Board, various years; Halcrow 1953; Glock 2016).

As farm prices continued to fall, a sharp rise in farm foreclosure rates contributed to the demise of the joint-stock mortgage banks (Glock 2016). Meanwhile, more than half of the states passed mortgage moratoria laws designed to make it more difficult to foreclose on delinquent borrowers. This came at a future cost, however, as private lenders anticipated the risk of future moratoria and increased mortgage interest rates and made fewer loans in the years that followed (Alston 1984; Rucker and Alston 1987). Under Roosevelt's New Deal, the Farm Credit Administration was created to take over the role played by the FLBs, set up twelve regional banks to provide both short- and intermediate-term credit to thousands of local production credit associations and other lenders serving agriculture, and to set up 12 regional banks to provide credit for farm cooperatives (https://www.fca.gov/about/history-of-fca downloaded on 1/25/2022). The expansion in New Deal mortgage lending helped reduce the foreclosure rate with an elasticity of -0.49 (Rucker and Alston 1987). It also created new programs for production loans and emergency crop and feed loans and ultimately accounted for about 30 percent of all New Deal era loans (Table 2). In an attempt to guarantee higher farm prices, the Commodity Credit Corporation distributed 12 percent of the loans in a price support program in which the farmer took out a nonrecourse loan with a base output price. If the market price fell below the base price, the farmer repaid the loan by giving the crop to the lender; otherwise, he sold the crop and repaid the loan in cash. The Farm Security Administration targeted a relatively small share of the New Deal loans at low income farmers to help them become farm owners (Fishback 2017).

The Rural Electrification Administration handed out about one percent of the New Deal loans to rural electricity cooperatives to provide access to electricity for rural farms and households that previously had not had access to the grid. These electrification loans were associated with increases in farm output per acre, increases in the use of machinery, reductions in the amount of time the farmer worked off of his farm, and decreases in infant mortality rates (Kitchens and Fishback 2015).

Examples of Debt Relief in Other Countries

In Hungary debt relief was offered to farmers in 1933 and 1935. Estates with debt above threshold were able to obtain protection from the government from being sold by auctions. The state spent nearly 110 million pengos on debt relief between 1933 and 1937 to protect about 1.1 million hectares of land, of which about 61 percent aided land holders in farms with more than 60 hectaries (Varga 2022). In Germany estate owners in 1929 began receiving state subsidies for debt relief but little relief was offered to small farmers (Langthaler 2022). Turkey also established a state Agricultural Bank but offered few funds to small owner-farmers (Petmezas

2022). The Swiss government established a 1928 special relief fund for over-indebted farmers, and then in 1933 provided systematic debt relief for “deserving” farmers with 5 percent of the relief going to wine, fruit and vegetable producers, 26.7 percent to dairy producers, and 33 percent for cattle farms (Head-Koenig 2022).

Bulgaria operated one of the largest debt relief efforts. Under the 1930 National Debt Relief Act the state covered a debt of 6.6 million out of 10 million nonperforming agricultural credits (a quarter of GDP) for 1.2 million rural households (Petmezas 2022). In Greece the government suspended all taxation on all agricultural production except for taxes and tariffs on tobacco and currants. Then in May 1937 Greece wrote off a large portion of the 1936 total agricultural debt owed to private and public creditors in equal shares. That debt was valued at about half of the value of the average annual output (Petmezas 2022).

INTERNAL ATTEMPTS TO CONTROL PRICES AND OUTPUT

In response to the problems faced by farmers, a large number of countries sought to “stabilize” their agricultural markets by setting fixed prices for domestic farmers above the world price. This often led to increased production that government entities often purchased from farmers. Some countries tried to limit these surpluses with production controls. Most of the countries discovered that the policies did not work well and tried various fixes. Yet, these policies became the precedents for many policies followed by high-income countries today.

Domestic Farm Policies in the United States

Between 1924 and 1928 the U.S. Congress considered the adoption of various forms of the McNary-Haugen bill, which would have had major international trade implications for the crops involved. The bill was designed to prop up domestic farm prices. It would create an export corporation that would buy up surplus output above domestic consumption at a target price based on the pre-War ratio of farm prices to nonfarm prices and in some cases the current tariffs on the commodity. The surplus was then to be sold in the world market, probably at a lower price. The losses on the resale of the commodities were to be recouped by required an equalization fee to be covered by the domestic price of the good. Versions of the bill passed both houses of Congress in 1927 and 1928 but were vetoed by President Calvin Coolidge (Kelley, 1940, Black 1928, and Halcrow 1953, pp. 242-248). The Hoover administration actually followed an alternative route in 1929 by setting up the Federal Farm Board, which created national corporations that would provide loans to cooperatives to make marketing advances on a fixed-price basis. The Federal Farm Board worked through government corporations that used loans and purchases to obtain surplus wheat and cotton and prop up their prices. The actions appeared to have propped up prices in 1930, but the Farm Board ended up obtaining and having to store large stocks of both crops. It stopped lending before the 1931 harvest and was closed down in 1933 (Halcrow 1953, pp. 258-262).

The central program of the New Deal efforts that began in 1933 was the Agricultural Adjustment Administration (AAA) grants designed to control production. The supporters of the McNary-Haugen and Federal Farm Board programs all agreed that control of production was needed to make those programs work. The AAA offered rental and benefit payments to farmers to take land out of production for specific crops and accounted for roughly 10 percent of all New Deal grants awarded. The 1933 program was financed mostly through a tax on the processing of the agricultural product supported. After the processing tax was declared unconstitutional in 1936, the agricultural lobby succeeded in obtaining a new Soil and Domestic Allotment Act that continued the AAA payments out of the general fund while the rhetoric emphasized soil conservation and improvements to the land (Alexander and Libecap 2000).

A series of studies show that the AAA tended to benefit large farmers at the expense of farm workers, croppers, and tenants. The two factors that most strongly influenced the distribution of AAA grants and farm loans were the average size of farms and representation on the House Agricultural Committee (Fishback, Kantor, and Wallis 2003). Econometric estimates of the impact of AAA payments on per capita personal income and consumption mostly found slightly negative effects (Fishback and Kachanovskaya 2015; Fishback, Horrace, and Kantor 2005). The AAA was also associated with declines in the overall farm population, the number of white and black share croppers, and the number of black tenants in the cotton-producing counties (Fishback, Haines, and Rhode 2012; Depew, Fishback, and Rhode 2013; Whatley 1983). Both the AAA grants and loan programs (described below) contributed to an increase in the use of farm machinery, particularly tractors in some parts of the country.[1]

In an unpublished analysis of the impact of the AAA grants and farm loans on cotton agriculture in the 1930s, the AAA grants and farm loans tended to worked cross purposes. The AAA contributed to sharp reductions in the cotton acreage harvested, as it was designed to do, but the farm loans provided resources to farmers that offset about one-third of that drop. While the AAA contributed to a rise in cotton output per cotton acre harvested, the farm loans served to reduce that measure largely because it contributed to a rise in cotton acreage harvested. The AAA also had positive effects and the farm loans negative effects on the real value of farm machinery. The AAA contributed to declines in the use of mules and horses, while the farm loans partially offset the decline. Neither program appears to have had much effect on farm

1 See Sorensen, Fishback, Kantor, and Rhode (2011), Clarke (1994), and Whatley (1983, 1985).

incomes. This combination of results suggest that the farm loans brought less productive land and animal-based technologies into production in ways that partially offset the changes wrought by the AAA program (Depew, Fishback, Kantor, Rhode, and Sorensen 2018).

When the AAA shifted its emphasis toward soil conservation after 1935, it contributed to an increase in farm size and the use of anti-erosion methods in the Plains states that helped eliminate another Dust Bowl problem in the 1970s. The 1970s and 1930s shared the same weather patterns that had created the Dust Bowl in the 1930s but the use of the anti-erosion methods prevented large dust storms from forming (Hansen and Libecap 2004).

Internal Controls in Sweden

Before the Great Depression in 1928, Sweden appointed an agricultural committee to regulate supply and market relations, sought to unify cooperatives under the leadership of the general agricultural society, SAL and encouraged a Farmers Union to organize all farmers. The union and the SAL reinforced each other. Sweden in 1930 set an import quota for grain and stipulated minimum prices that large mills were to pay to farmers. Soon thereafter, they established a Swedish grain association that guaranteed it would buy all bread grain good enough to grind at fixed prices and then sell the grain to the mills. The association could also charge fees when grain products imported (Morell 2022).

Similarly, the national association of Swedish dairies (SMR) was given the right to collect a price equalisation fee on all milk used for butter, cheese, or cream in Sweden, even from producers not engaged in SMR dairies. The fees financed a price subsidy for butter exporters. Butter was subsidized further by a consumption tax on margarine. By 1938 91 percent of Swedish dairy milk came through SMR dairies. Similar regulations with fees on domestic sales on exports set up for beef, pork, and eggs (Morell 2022).

Mats Morell (2022) shows that the start of regulation led to outcomes that encouraged further regulation. When land in wheat rose at the expense of land for fodder grain, wheat prices were regulated but fodder grain prices were not. Guaranteed sales of wheat at fixed prices led to increased wheat surpluses, causing the government to impose a wheat fee. Part of the surplus was stored but much was sold at a discount as fodder. Meanwhile, fees on domestically consumed milk were supposed to subsidize butter exports, but the guaranteed butter price and falling fodder prices led to increased butter production that needed to be exported. This led the government to introduce new taxes on fodder. After pork prices were stabilized, the government sought to limit pork production by restricting the import of corn (maize). In general, productivity in farming rose while employment in farming did not fall very fast. The growth in food consumption did not match the large amounts produced in response to the fixed prices, which raised the cost to the government of dumping the surplus in export markets (Morell 2022).

In 1939 Sweden began determining agricultural prices while viewing the entire farm sector was viewed as one single company. The model used to compute the farmgate prices was based on wage rates (and shadow wages, for farm family members), input prices and income goals. Representatives of the state, the RLF and the cooperative movement, later joined by a consumer delegation) were involved in the discussions. The prices chosen were guaranteed by the state with a goal to equalize the incomes of medium-sized family farmers and industrial workers (Morell 2022).

Internal Controls in the Rest of Europe.

Spain tried to intervene in commodity markets at home and to control exports and imports at various times. During the First World War the government set maximum prices for wheat, flour, and bread. In the 1920s it set minimum prices for farmers. But these efforts were criticized by both farmers and consumers. Spain also offered state-backed mortgages. A more popular policy was the expansion of irrigation works, funded by payments by landowners based on the change in land value associated with the introduction of irrigation and special deals for small farmers (Pan-Montojo and Simpson 2022).

In Italy the Fascists in 1925 sought strategic self sufficiency in wheat with the *Battaglia del Grano, which* administered the internal wheat trade through a system of mandatory storage. To upgrade yields, the government introduced new selected varieties, relaunched a reclamation campaign and heavily promoted food cultivation and yield improvements. They redoubled their efforts again in 1935 when faced with the sanctions introduced by the League of Nations following the invasion of Ethiopia (Chiapparrino and Morettini 2022).

Switzerland operated a variety of internal policies. During the 1920s they began guaranteeing prices for cereal and cheese. All milk was delivered to processing centers at a guaranteed price for a fixed amount of milk, and market prices were paid for the surplus. The guarantees were one reason why Swiss exports of condensed milk fell heavily in the early 1930s. The Swiss also tried price guarantees for butter but the Swiss still imported butter extensively until the 1930s when overproduction of milk and tariffs on butter and the price guarantees led to a shift to butter. In 1932 they created a central organization named Butyra to take charge of butter not sold to consumers and regulated butter imports. This led to a large domestic butter surplus in part because consumers were slow to switch from the Danish butter that they had long been consuming. Swiss subsidies to milk producers also quadrupled between 1927-28 and 1935-36. Anne-Lise Head-Koenig (2022) reports that these fixed price and market guarantees generally failed. After the Second World War they eventually led to “growing butter mountains, cheese mountains and milk lakes" and were abandoned. A switch to individual farm quotas also was later abandoned.

Between 1929 and 1939 Alain Chatriot (2022) reports that the French government tried a variety of policies to address problems with dropping prices, but found many to be unsatisfactory. A 1929 law gave *de facto* power to the Minister of Agriculture to regulate the origin and nature of grain used in mills. In 1930 a law was proposed to create a permanent stock of grain and flour to protect against price speculation, and the policy was fully established by 1932. In January 1933 financial intervention was allowed to control prices through holding of stock surpluses. To make use of the surplus stocks, an April 1933 law allowed the Minister of Agriculture to provide subsidies for non-food and non-alcohol uses of the grain. In July 1933 a minimum price of grain was established and multiple laws in 1933 and 1934 were enacted to deal with the difficulties that arose. In 1935 France tried a return to free trade but the experiment ended when prices dropped sharply. The government then tried several policies to offset the fall in prices. In 1936 France established a Grain Bureau program designed to fix prices, purchase and store surplus production, and create a monopoly on the imports and exports of grain. The proponents of the Grain Bureau were able to set up the policy due to an absence of grain surpluses in 1936 and 1937. The large harvest of 1938, however, created difficulties with the program that led to additional reforms in 1939 (Chatriot 2022).

Hungary's Boletta System of 1930 granted a price supplement over sales price of wheat and rye for 4 fiscal years largely to the benefit of large estates. The government also set up a bonus system in which farmers were paid a price in Hungarian pengos for exports that exceeded the value that would have been paid at the official exchange rate. In 1934, to handle wheat exchanges under Hungary's agreements with German, Italy, and Austria, Hungary set up the

Futura, a monopoly agricultural corporation that established minimum wheat prices based on the high wheat purchase price ensured in the agreement. Large landowners were the primary benificaries of the Futura's activities because they were the primary exporters and received higher prices on several commodities sold to the Futura (Varga 2022).

Britain's internal controls included policies following from the Agricultural Marketing Act of 1933, which allowed the regulation of both imports and home production and eventually led to Marketing Boards for milk, potatoes, hops, and pigs. At a time when U.K. agricultural output was value at £215 million, Brassley (2022) reports estimates that the higher prices associated with the marketing acts increased farm incomes by £40 million and subsidies and tax relief to farmers were worth £33 million. Meanwhile, the Agricultural Wages Board increased farm workers' wages by about £16 million.

In Germany in 1933 the Nazi regime established the New Order of German agriculture. Producers, processors, and traders were required to join the Reich Food Estate (RFE), which channeled basic farm products from producer to consumer at fixed prices. Agricultural prices improved from 1934-1936 but then stagnated, which meant that farm prices declined relative to industrial prices. The RFE promoted production competition in a manner similar to Italy's Battalia del Grano with mixed results. Nazi ideology idealized medium-sized farms that were community-oriented and tried to protect them with a new law for inheriting farms in 1933. The 1936 Four-Year Plan helped prepare for war by establishing well-equipped peasant farms throughout and resettling small landholders to East Europe to provide them with land taken from the indigenous population (Langthaler 2022) In 1930 in Poland, nine years before it was invaded by Germany, the government sought to raise farm prices in 1930 by introducing state purchases of cereals and sought to aid farmers by reducing industry prices with new policies against cartels in 1933 (Janicki 2022).

LAND REFORM

Several countries experienced revolutions and/or Civil Wars between 1910 and 1940, and land reform became a central goal. In Mexico the revolution lasted from 1910 to 1920 with reverberations felt through 1940. During the revolution the various sides sought to ensure that the populace was fed. For most of the period domestic production was adequate, but during bad harvests, those in charge encouraged food imports from the U.S. when harvests were bad. Legislation in 1915 and the Constitution of 1917 provided mechanisms that threatened the owners of large estates with demands for restitution of lands to peasants and legislation. The goal was to create *ejidos*, in which community members had usufruct rights that allowed them to use and derive income from use of the land but not sell the land. Except in the states of Morelos and Veracruz, large farms remained primarily in control in years after the armed struggle. In the 1930 census 83 percent of the arable land consisted of holdings larger than one thousand hectares and held by 1.5 percent of total landholders. An additional 12 percent of the land was concentrated in farms ranging from 101 to 1000 hectares (Tortolero 2022).

Even though some leaders were calling for the end of ejido creation in the late 1920s and early 1930s, the problems in export markets and the sudden repatriation of 300 thousand Mexicans from the U.S. diminished their power. In 1931 landowners were stripped of their ability to go to court to block state demands for restitution or endowment of their lands. When President Cardenas came to power, the reform process sped up. Until 1935 agrarian reform involved distributing 10.8 million hectares among 545 thousand families. Under Cárdenas from

1934 to 1940 more than 17 million hectares were distributed to over 814 thousand ejido farms. The agrarian reform varied by region and had little effect on about one-third of the Mexican states (Tortolero 2022).

Hungary passed a Land Reform Act in 1920 in the midst of the turmoil followed the demise of the Austro-Hungarian Empire. The reform involved about 8.5 percent of its agricultural land, as 400,000 applicants received roughly one hectare (2.47105 acres) of land. In 1935 when Hungary embarked on some additional land reforms, 29 percent of the land was in large estates with more than 570 hectares and 48 percent of the land was in farms with land more than 57 hectares. At the other end of the distribution, 10 percent of the land was in plots of less than 2.8 hectares and 32 percent in lands with less than 11.4hectares. The land reform efforts included an act on settlement in 1935 that would subdivide about 240,000 hectares of land for settlement within 25 years. In addition, a 1935 Decree was designed to make it easier for land owners with separate plots around the village to consolidate the land into one tract. Between 1935 and 1941 a total of 98 villages from 1935-1941 consolidated about 180,000 hectares. The process was estimated to raise productivity by 20 percent with a consequent rise in the value of land (Varga 2022)

In the USSR its 1921 New Economic Policy tried to liberalize domestic markets, while the state controlled foreign trade by fostering grain, timber and oil exports. The government ran into losses in hard currency due to falling export prices combined with bad harvests that raised domestic prices for grain. The 1928 Five-Year plan called for increased grain exports to finance technology imports for industry. To eliminate backwardness of peasant farms and holdouts by larger land owners, the government established technology-intense state farms, forced conversions of peasant villages into collective farms, and displaced large land owners. Peasant rebellions led them to call off the campaign in 1930, but it was restarted in 1931. Crop failures due to drought in 1931 and wet weather in 1932 caused Great Famine. Then reorganized again through technology transfer, fixed delivery quotas and plots for family use (Langthaler 2022).

Spanish agriculture was not hit as hard by the Depression. Figure 4 in the Pan-Montojo and Simpson (2022) chapter shows that farm prices in Spain did not fall nearly as far as the price declines in the Figures in the Langthaler (2022) chapter. Real GDP per capita fell only 12 percent between 1929 and 1933 and began recovering in 1934. The Spanish government focused more on long term land reform. A Labor and Socialist government gained government control in from 1931 until November 1933. This leftist government sought to weaken the power of estate owners with land market decrees in April and July 1931 by protecting tenants from eviction unless they had not paid rent or not cultivated the land. They established tribunals that lowered many rents and gave preference to workers' syndicates for renting the land. Farmers were required to cultivate land with same intensity and number of workers as before. When a center-right to right government returned to power late in 1933 the estate owners returned to working with the tenants and workers they trusted and ignored the syndicate members (Pan-Montojo and Simpson 2022).

The Labor/Socialist government in Spain also embarked on land reform with the 1932 Agrarian Reform Law. It set limits to individual land ownership in each place and for each crop; allowed for the expropriation of land if it was badly cultivated, had been leased continuously for more than 12 years, or the owner failed to use available irrigation; and land where seignerurial rights had been converted to full ownership in the 19th century was to be confiscated without compensation. Fewer than 14,000 farmers received land under the Act by September 1934 and the revisions to the law in July 1935 slowed the process further. The new government did allow for a social utility clause to settle villagers on uncultivated land when in urgent social need, which inspired massive land invasions in 1936. The land invasions were soon followed by the destructive Spanish Civil War, which drove Spain's GDP per capita to 63 percent of the 1929 level by 1938 (Pan-Montojo and Simpson 2022).

CONCLUSIONS

The chapters in the volume document the experiences in the agricultural sector in several countries in Europe and three countries in the Americas that were involved in the Atlantic trading network during the interwar period. The nature of trade automatically led to heterogeneity as buyers praise lower prices and producers dislike them. There was also heterogeneity in the experiences of farmers across countries and within countries with respect to the crops they produced, the political settings, their experience with price changes in the 1920s, and the extent to which the entire economy experienced a downturn during the Great Depression. Thus, the chapters document a rich range of experiences within the larger backdrop of the Atlantic agricultural network.

Following a period of increasing globalization of agricultural markets, the First World War sharply limited the agricultural activities of the main combatants, which led to sharp increases in agricultural prices and farm incomes in countries where the fighting was not located. In consequence, during the 1920s the combatants experienced more of a return to normalcy while farmers in the countries that expanded production during the war went through hard times. In the 1920s some countries began to limit trading by increasing tariffs and establishing quotas, while some experimented with aiding farmers by offering them price guarantees when purchasing the products. When the Great Depression hit, the farm regions in many of countries faced a flood of unemployed workers that put more downward pressure on farm incomes and opportunities. In the early 1930s nearly every country sought to protect at least some of their farmers, usually large farmers, against price declines in the international markets. Many countries raised their tariffs and some set quotas for imports of goods produced by their farmers. By 1932 a number of countries began reestablishing trade with key trading partners through bilateral and multilateral agreements. Many governments offered subsidized loans or debt relief to their farmers. Nearly every country regulated agriculture in some form, through subsidies, by setting minimum prices, by purchasing surpluses, or by limiting output. Often the regulations led to problems that led to new regulatory fixes while setting the precedents for the domestic farm programs that continue to protect farmers in the modern era.

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Table 1
Real GDP Per Capita in the Interwar Era and Farm Shares of Working Population

	Information on Real GDP Per Capita (1929=100)					Agriculture, Forestry, and Fishing	
Country	1920 Level	1930s Minimum	Year of Minimum	Reached 1929 level before 1941	Value in 1940	Share of Working Population	in Year
Argentina	80	81	1932	no	95	20	1914
Bulgaria	81	96	1934	1935	137	73	1920
Canada	76	67	1933	1940	106	35	1921
Denmark	79	100	1929	1929	101	42	1921
France	69	84	1932	1939	86	43	1921
Germany	69	83	1932	1935	133	24	1925
Greece	61	91	1931	1933	95	50	1920
Hungary	69	89	1932	1935	106	58	1920
Italy	78	91	1934	1937	104	55	1921
Mexico	105	78	1932	1936	106	63	1921
Poland	89	75	1933-35	1938	invaded	77	1921
Spain	78	63	1938	no	76	56	1920
Sweden	74	98	1932	1934	120	41	1920
Switzerland	74	94	1936	1937	99	26	1920
Turkey	64*	67	1932	1933	138	82	1935
United Kingdom	80	93	1931	1934	125	7	1921
United States	85	67	1933	1940	100	28	1920
USSR	42	100	1929	1930	155	88	1926

*Value in 1923

Sources: Real GDP per Capita is from the Maddison Project Database (2020). Agriculture, Forestry, Fishing Share of Working Population is from Palgrave MacMillan Ltd (2013).