

The evolution of farm policies: a long-term global perspective

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Abstract

This paper presents a nutshell interpretation of the evolution of farm policies through different periods and in different parts of the world. Starting in the pre-industrial era, when population growth still caused agricultural prices to rise, to the latter part of the nineteenth century, when the Industrial Revolution brought about a regime change in international agricultural markets as chronic scarcity gave way to recurrent oversupply. Under this new condition, farm progress became increasingly dependent on government support, especially of family farms. The policy responses to this change in different regions and the consequences this had for development have been surveyed. The paper ends with a discussion about the possibility that increased competition among food, feed and fuel might cause a return to scarcity in international agricultural markets in the future and the necessity for policies that make possible global food security and sustainable pro-poor growth.

Keywords | Farm policies; food security; pro-poor growth.

JEL Code | N50; Q18; Q58.

A EVOLUÇÃO DAS POLÍTICAS AGRÍCOLAS: UMA PERSPECTIVA GLOBAL DE LONGO PRAZO

Resumo

Este artigo apresenta uma interpretação resumida da evolução das políticas agrícolas ao longo de diferentes períodos e em diferentes partes do mundo. Começando no período pré-industrial, quando o crescimento da população ainda provocou elevação nos preços agrícolas, vai-se em direção ao final do século XIX, quando a Revolução Industrial trouxe uma mudança de regime em mercados agrícolas internacionais, dando a escassez crônica lugar a recorrentes excessos de oferta. Sob esta nova condição, o progresso agrícola tornou-se cada vez mais dependente do apoio governamental, em especial à agricultura familiar. Daí que se pesquisa as respostas de políticas a essa mudança em diferentes regiões e as suas consequências para o desenvolvimento. O artigo conclui com uma discussão sobre a possibilidade de que o aumento da concorrência entre alimentos, ração e combustível cause um retorno à escassez nos mercados agrícolas internacionais no futuro e a necessidade de políticas que tornem possível a segurança alimentar e o crescimento sustentável pró-pobre.

Palavras-chave | Crescimento pró-pobre; políticas agrícolas; segurança alimentar.

Código JEL | N50; Q18; Q58.

LA EVOLUCIÓN DE LAS POLÍTICAS AGRÍCOLAS: UNA PERSPECTIVA GLOBAL A LARGO PLAZO

Resumen

Este artículo presenta una interpretación resumida de la evolución de las políticas agrícolas a lo largo de diferentes períodos y en diferentes partes del mundo. Empezando en el período preindustrial, cuando el crecimiento de la población provocó el aumento de los precios agrícolas, se sigue al final del siglo XIX, cuando la Revolución Industrial trajo un cambio de régimen en los mercados agrícolas internacionales, dando la escasez crónica lugar a recurrentes excesos de oferta. Bajo esta condición nueva, el progreso agrícola se tornó cada vez más dependiente del apoyo gubernamental, y en especial la agricultura familiar. De ahí que se investigan las respuestas de políticas a ese cambio en diferentes regiones y sus consecuencias para el desarrollo. El artículo concluye con una discusión sobre la posibilidad de que el aumento de la competencia entre alimentos, raciones animales y combustible cause un retorno a la escasez en los mercados agrícolas internacionales en el futuro y la necesidad de políticas que tornen posible la seguridad alimentaria y el crecimiento sostenible a favor de los pobres.

Palabras-clave | Crecimiento en favor de los pobres; políticas agrícolas; seguridad alimentaria.

Código JEL | N50; Q18; Q58.

Introduction

The relationship between agriculture and the state is as fascinating as it is complex. Scientific interpretations are inevitably related to political struggles centred on land reform, free trade or protection, sustainability and so on and so forth. The picture is complicated by the enormous variability in situations. Past priorities may not apply today, nor may present priorities be appropriate tomorrow. Besides, there are strong differences between regions. The issues in Europe are not the same as those in Africa or in Latin America.

This paper presents a nutshell interpretation of the evolution of farm policies through different periods and in different parts of the world. I start in the pre-industrial era, when population growth still caused agricultural prices to rise. This effect could provide sufficient incentives for farm progress through private initiative – until the slowly expanding capabilities of a society were exhausted and continued population growth led to a Malthusian crisis. I then discuss how, in the latter part of the nineteenth century, the Industrial Revolution brought about a regime change in international agricultural markets as chronic scarcity gave way to recurrent oversupply. Under this new condition, farm progress became increasingly dependent on government support, especially of family farms. I

survey the policy responses to this change in different regions and the consequences this had for development. I then focus on the multilateral regulation of international agricultural markets. This started in the 1930s-1940s as an attempt at regulation through managed trade. However, this was thwarted because the US and the EU acted as free riders. The reforms that started with the Uruguay Round of GATT negotiations (1986-1993) have allowed both blocks to whitewash this behaviour. This excursion is followed by a broader discussion of recent farm policy reforms. Next, the attention is shifted to the future. I discuss the possibility that increased competition between food, feed and fuel might cause a return to scarcity in international agricultural markets. I conclude with a brief section on policies that would make possible global food security and sustainable pro-poor growth.

Farm progress in the pre-industrial era

Through the ages, agriculture's importance for welfare, food security and the treasury has provoked government intervention. However, the nature of this intervention has undergone profound change and may change again in the future. In pre-industrial agrarian societies, in Europe and elsewhere, rulers taxed rather than supported their farmers. Sometimes they initiated tenure reforms, and sometimes large infrastructural, reclamation or irrigation projects. But for the rest they did little to encourage farm progress. The 'agricultural revolutions'¹ that these societies underwent – from slash-and-burn systems to sophisticated rotations with zero fallow – were mainly the result of private activities by farmers and landowners.

These agricultural revolutions had various drivers and conditions – population growth, environmental change, the previous exploration of technical options – and involved changes in social structures that stimulated or hampered further development. However, an important condition that allowed agricultural revolutions in pre-industrial market economies to occur was Malthus' law that, given the dearth of fertilizer and the costliness of transport, population growth raised agricultural prices and cheapened farm labour. This stimulated farmers to adjust their techniques and intensify their production (BOSERUP, 1965). It created rural markets for non-farm activities and enhanced market exchange, all of which accelerated the diffusion of innovations (BOSERUP, 1981). Larger-than-

¹ The term "agricultural revolution" has often been used in a more specific sense – e.g. the beginnings of farming, or the farm innovations in eighteenth century Britain. In this paper, it is used as a broader concept that refers to a period of agricultural growth and adjustment of farm techniques.

family farms played an important role in this process. Economies of scale were limited and often counterbalanced by advantages of family farms in labour relations (ALLEN, 1988). However, advantages in information, risk tolerance and market transactions favoured larger farms in the introduction of innovations. Indeed, innovations were normally first adopted by larger farmers (GRIGG, 1982, p. 158) – even in those cases where they were soon taken up by small farmers (see e.g. THOEN, 1990 for medieval Flanders). As a consequence, larger farmers usually had a technical lead. Rising output prices enhanced this lead by stimulating investment while falling wages made it difficult for small farms to compensate for this by an increased self-exploitation.

In this way, agricultural revolutions were possible even when government policies were not especially ‘enabling’ (see e.g. HOFFMAN, 1996 for early modern France). To be sure, because knowledge infrastructure was little developed and high risks enhanced the weight of tradition, collective learning was a slow process. Sooner or later, an agricultural revolution exhausted the cognitive and institutional capabilities of a society. Then food prices skyrocketed, squeezing the demand for non-farm products, making unemployed artisans swell the ranks of small farmers, and inducing the latter to over-exploit their plots in an effort to minimize their dependence on food markets (cf. MEUVRET, 1946). Society was pushed into a Malthusian spiral of soil degradation, food insecurity and disruption that ended in demographic stagnation or collapse. This drove food prices down and raised wages, temporarily reversing the process of intensification – until a new demographic upswing initiated a new cycle (also cf. WOOD, 1998).

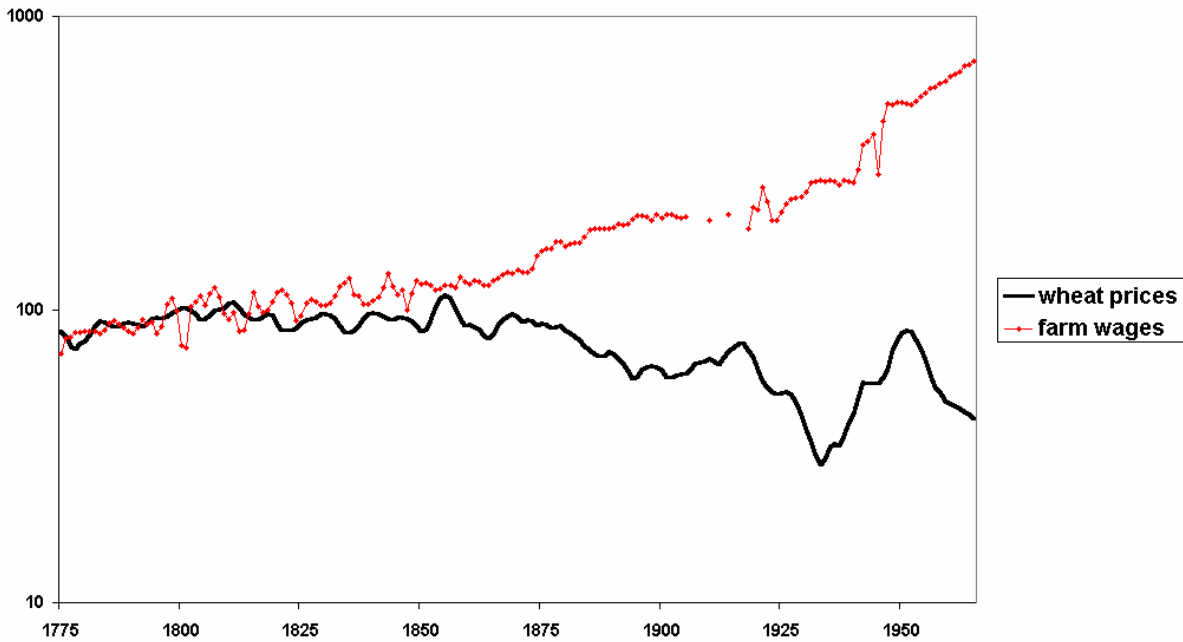
Global industrialization and the shift to supportive farm policies

The Industrial Revolution did not immediately break this Malthusian regime. As earlier commercial revolutions had done, its textile factories and horse-drawn transport stimulated the demand of farm products rather than their supply, reinforcing the effect of population growth on agricultural markets. Between 1775 and 1875, agricultural prices remained high and, outside Britain and North America, farm wages low. Larger farms kept the lead in farm progress, and innovations remained a product of practical entrepreneurship in and around farming. In this period, agriculture became the focus of the ascending economic liberal model. Common lands were divided, property rights commercialized, government bodies privatized and tollhouses abolished. The repeal of the British Corn Laws (1846) heralded a worldwide liberalization of agricultural trade. In Britain, it stabilized agricultural prices without entailing a price decline. It did not hamper the Victorian ‘high farming’ revolution – the beginning of external input agriculture but still in a framework of large farms (KONING, 1994 and referenced literature).

All this changed when a new phase of the Industrial Revolution broke the Malthusian connection between population and prices (cf. SCHULTZ, 1945). From the latter part of the nineteenth century, cheap transport and industrial fertilizer boosted global food supply. Electricity, industrial chemistry, and internal combustion caused minerals to replace farm-produced materials. And in several countries, industrial competition in agricultural labour markets increased sharply. This led to falls in agricultural prices and rises in farm wages that caused a squeeze on farm profits (see Figures 1 and 2). The new developments did not boost the economies of size in agriculture, so that there was no corrective shake-out of small farms. While low profits eroded the technical lead of the large farms, rising wages reinforced the advantage that small farms derived from cheap family labour. As a consequence, large farms declined and the share of family farms in agricultural production increased.² Objective barriers like ‘efficiency wages’ in other sectors and social-psychological adaptation to these barriers limited the mobility of family farmers (cf. AKERLOF; YELLEN, 1986; HAAGSMA; KONING, 2002). Rather than leaving a sector with low earnings, they tightened their belts and seized upon the new technical and market opportunities to defend their incomes by raising production – initiating a treadmill by which their incomes were permanently depressed (COCHRANE, 1959). In a free market, a balance between the growth in supply and that in demand was often only achieved when this treadmill squeezed its own fuel supply by reducing farm profits and thereby investment. It led to crowding and slowdown of farm progress, rather than to the efficient equilibrium of the standard economic model.

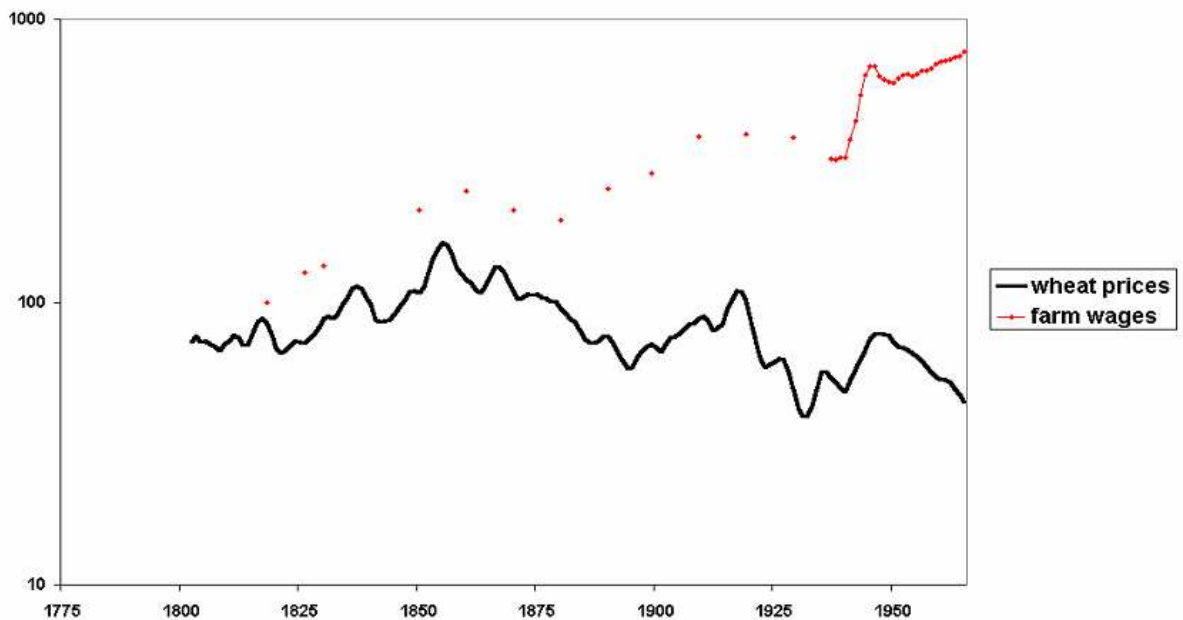
² Koning (1994) and referenced literature. See also case studies like Winstanley (1996) for Lancashire, Garrabou et al. (2001) for Catalonia, or Gastón Aguas and Lana Berasain (2007) for Navarra.

Figure 1 Real wheat prices (5-year moving average) and farm wages, England and Wales, 1818=100



Source: Own calculations based on data in Mitchell (1975, p. 191-195, 736; 1990, p. 737-41, 756-7).

Figure 2 Real wheat prices (5-year moving average) and farm wages, United States, 1818=100



Source: Own calculations based on data in Mitchell (1993, p. 129-30; 696-698) and US Bureau of the Census (1976, p. 207-209).

These developments induced profound policy changes in western countries. Liberal land reform gave way to redistributive measures that streamlined the shift from large farms to family farms. Government-sponsored experimental stations and farm schools, and extension agents took over the role of large farmers and landowners as initiators of innovation. One government after the other intervened to moderate the fall in agricultural prices. In the twentieth century, a new agricultural revolution followed that was based on high-yielding seeds, agri-chemicals and mechanization. Family farms rather than large farms were at the core of this revolution. The evolution of techniques and institutions adapted itself to family farms. Agricultural machinery was down-scaled;³ scale-sensitive activities were separated from primary agriculture or outsourced to contractors (OLMSTEAD, 1975); and agricultural co-operatives emerged as an interface that reduced transaction costs in the relations between family farmers and those who bought their produce and sold them inputs (FARR, 2007; GARRIDO, 2007). The new model of agricultural development was only possible because government intervention overcame the risk-aversion of family farmers and their disadvantages in fields like information and consolidation, and mitigated the profit squeeze so that the frugality of family farmers left some margins for investment.

The introduction of supportive farm policies followed different pathways in various countries. In the late nineteenth century, most West European countries resorted to protection to shield their farmers from the fall in international agricultural prices. Other western countries still maintained free trade in farm products in this period. Most of them had a special advantage in agriculture. Rather than resorting to protection, they introduced policies to accelerate innovations. They weathered the price fall, and when international prices recovered after 1900, dynamic agricultural development resumed. A second fall of international agricultural prices around 1930 made all western countries resort to protection. By then, all of them had also engaged in government support of farm research, education and infrastructural programs, so that in these respects there was a policy convergence. After World War II, government support of agriculture further developed, aided by the general shift to social-Keynesian policies with which western countries responded to the traumatic experience of the 1930s and the communist challenge (FAHEY, 2002; KONING, 1991). Denmark and the United States briefly tried to return to free market policies in the 1950s, but these experiments were short-lived and the outcomes disappointing (KONING, 1986 and referenced literature). After 1984, New Zealand abandoned protection. Its production costs in dairy farming are only half those in other prominent dairy countries like the US, Denmark or the Netherlands. Moreover, the country benefited from the simultaneous introduction of a milk quota system in the EU,

³ See examples in Koning (1994, p. 27-193).

which reduced the latter's share in the world dairy market from one-half to one-third.

Recent farm policy discussions have generated a new interest in the history of agricultural protection. Tracy (1989) and, more cautiously, Federico (2005a) have suggested that agricultural protection had political rather than economic causes. Conversely, O'Rourke (1997) shows that the policy choices that European countries made in the late nineteenth century were related to differential impacts of falling prices on their farm profits and real wages. Tracy was convinced that many more European countries could have adjusted their agriculture in a free market in the late nineteenth century by shifting to livestock products, which were more price-elastic than staples like grains. In reality, however, international markets for livestock products were soon oversupplied by a few well-situated countries like Denmark and the Netherlands (BAIROCH, 1976).

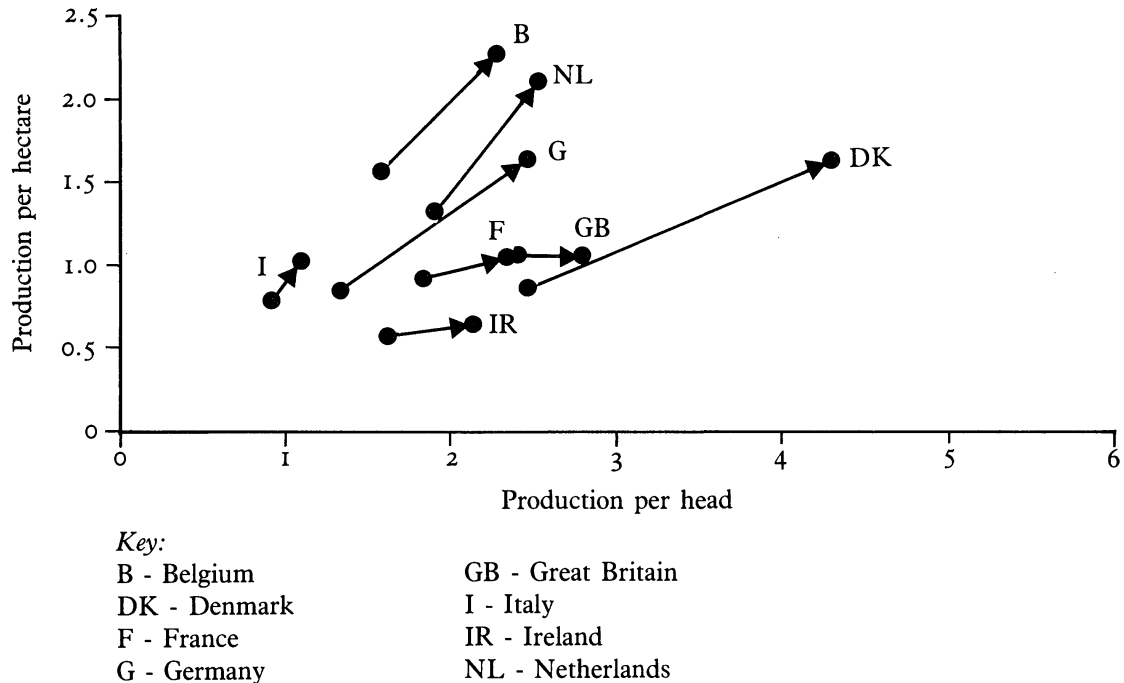
Several authors have highlighted negative effects of agricultural protection in Germany (e.g. GERSCHENKRON, 1966; PUHLE, 1986; TRACY, 1989). Indeed, in a static analysis, agricultural protection caused deadweight losses and reduced the buying power of non-farm groups. But a dynamic approach shows up matters in a different light. Productivity growth in German agriculture was among the highest in Europe (Figure 3). Agricultural protection probably accelerated overall growth, allocational distortions being offset by an increase in effective demand (BAIROCH, 1976).⁴ In addition, this policy most likely raised real wages as agriculture was relatively labour-intensive and had a large share of total employment.⁵ Overall, the *domestic* effects of agricultural protection seem to have been quite favourable (see also Webb, 1978). To be sure, protection alone did not enable farm progress. In France and Italy, where tenure relations gave little security to small farmers, and agricultural research and education lagged far behind those in Germany, productivity growth in farming was sluggish in spite of protection (Figure 3).⁶

⁴ See also evidence in O'Rourke (2000), based on a sample of 10 countries, which suggests that protection had a positive effect on economic growth. (O'Rourke finds Bairoch's explanation implausible, surmising instead that protection may have facilitated the reallocation of labour in some countries where industry was more strongly protected than agriculture, but this is not demonstrated by his analysis.)

⁵ See also the quantitative analysis in O'Rourke (1997) indicating that in France agricultural protection may have raised real wages by 3.5 percent to 4.5 percent. In any case, the negative effect on the costs of living of working-class households has been strongly overrated. Something similar is true for the supposed harm to small livestock farmers. Livestock production was not less protected than grain and grain tariffs did not drive up feed costs (KONING, 1994 and referenced literature).

⁶ Nevertheless, the protection of agriculture seems to have sustained the demand for industrial products (BAIROCH, 1976). This was important, because French and Italian industries were

Figure 3 The growth of agricultural productivity per head and per hectare in eight countries of Western Europe, 1870-1910 (in wheat units and 1870 prices)



Source: Van Zanden (1991).

The free market adjustment thesis is also contradicted by the British experience. At the onset of the price fall around 1880, Britain possessed the most technically advanced agriculture in the world. However, industrial competition for labour had raised farm wages and the country no longer had a comparative advantage in agriculture. Nevertheless, agricultural free trade was maintained until 1930. According to standard economic theory, free market adjustment might have involved a strong reduction, or even total elimination of agriculture, but if a farm sector managed to survive to some extent it would see a recovery of profits and productivity growth. In reality, farm profits remained low and productivity stagnated throughout this period. This was not due to a technological ceiling, but to widespread disinvestment. As a consequence, British agriculture fell far behind the European productivity frontier (KONING, 1994 and referenced literature; see also Figure 3).⁷

more dependent on the domestic market than their British counterparts, which, as the 'first workshop of the world', had gained an established position in the world market.

⁷ Both Tracy (1989) and Federico (2005a) are silent about this episode, which is nevertheless an anomaly in their interpretation. Federico also denies the existence of an agricultural oversupply problem during the second wave of agricultural protection around 1930 (FEDERICO, 2005b).

The last case for the free market adjustment thesis is the adjustment of agriculture in New Zealand after it abandoned protection in 1984. This has been hailed as a success because it was followed by an increase in productivity growth (e.g. SANDREY; REYNOLDS, 1990). However, this increase was limited to horticulture and may have been due to pre-liberalization investments (Philpott, 1994). In the livestock sector, productivity growth remained unaltered in spite of the massive release of marginal resources (LAWRENCE; DIEWERT, 1999; SANDREY; REYNOLDS, 1990).

The regime change in agricultural markets and the turn to government intervention was the theme of my book *The failure of agrarian capitalism* (KONING, 1994). My idea was that the evolution of western farm policies could be analysed by combining, on the one hand, a reconstruction of modern capitalism as a sequence of several politico-economic configurations and, on the other hand, a distinction between two main phases of the industrial revolution that impacted differently on the agricultural sector. I remain convinced that this provides a useful framework for understanding the complex evolution of agriculture and agricultural policy (also cf. BAUMANN; MOSER, 1999; GARRABOU, 1997; MOSER, 2000). However, the approach should be further elaborated. On the one hand, the evolution in the first phase of modern industrialization should be recognized as the last instance of the more general pre-industrial dynamics that I have dealt with in the preceding section. On the other hand, the analysis of the regime change in agricultural markets should be broadened to other regions of the world, which were confronted with it but responded in different ways. This is the subject of the next section.

Diverging responses in the developing world

Even if western farm policies had an economic rationale, economic-liberal authors are right when they state that political causes played a critical role. In fact, the latter go much deeper than the political market mechanisms (low organization costs of landed minorities) on which they focus. European societies had gone through a millennia-old history of agricultural intensification, socio-economic differentiation and state formation. Their institutions had travelled with European emigrants to new settlement areas. Where temperate conditions precluded tropical export crops inducing a self-centred development, they underwent a parallel evolution as in old Europe. The ensuing configuration engendered a class-oriented articulation of rural interests, political classes with an eye for longer-term national

However, his methodology only shows that markets still balanced supply and demand at some price. The problem, of course, is that this price was too low to prevent a serious increase in the gap between farm and non-farm earnings.

interests and middle classes whose interests could not be ignored. When the regime change in agricultural markets undermined the traditional mode of agricultural development, it was these conditions that caused political markets to generate pressures for supportive farm policies.

The importance of these conditions becomes clearer when one compares the evolution of farm policies in western countries with what happened in other parts of the world. Like Western Europe, many East- and South Asian countries had been old core areas of social development. When the situation in agricultural markets changed, a comparable mix of rural unrest, middle-class interests and *raison d'état* led to 'developmental states' (cf. ÖNIŞ, 1991), which also introduced supportive farm policies. In the Japanese Empire before World War II, agricultural protection and public investment in irrigation, research and infrastructure entailed important productivity increases in agriculture. Rural incomes contributed to industrialization as a demand factor (FRANCKS et al., 1999; OHKAWA; ROSOVSKY, 1961; OHKAWA; SHINOHARA, 1979). This pattern, which was also aided by land reform, continued in Japan, South Korea and Taiwan in the post-war decades. In Asian colonies of European countries, farmers were not protected. Here one could observe phenomena of stagnation and 'involution' that reminds one of pre-industrial Malthusian crises (MYRDAL, 1968; GEERTZ, 1963). However, while the latter had occurred because an agricultural revolution had been exhausted, here an agricultural revolution was nipped in the bud. After independence, several governments introduced supportive farm policies (see e.g. an overview in DORWARD et al., 2004, p. 88-89). Together with the high-yielding varieties from international research, these led to the Green Revolution which became an engine of industrialization.⁸

Like agricultural protection in Germany before World War I, that in East Asia has been blamed for freezing farming structures, for retarding growth and for harming poor consumers (e.g. ANDERSON et al., 1986; BEGHIN et al., 2003; DIAO et al., 2002). These contentions are backed by standard equilibrium models, but the 'welfare losses' indicated by such models say nothing about how farm productivity, poverty or GDP would have evolved over time had farmers not been protected. The fact is that, in countries like South Korea and Taiwan, the increase in agricultural protection after 1970 was followed by new increases in farm output and incomes. This may well have caused the continuation of agriculture's contribution to the domestic demand pull for industrial growth, even if the relative importance of this contribution declined (FRANCKS et al., 1999; PARK; JOHNSTON, 1995).

⁸ In China and Vietnam, accelerated agricultural growth became possible through the relaxation of policies that taxed agriculture for the sake of forced industrialization.

In Latin America after 1492, European markets for tropical crops induced the rise of plantations that used coercive labour systems to prevent workers from setting themselves up as independent peasants. It created a social divide between planter elites and rightless workers, whose low living standards hampered the development of consumer goods industries and reinforced the export dependence of the plantations. When international agricultural prices declined, this 'disarticulated' structure (DE JANVRY, 1981) made the agrarian elites stick to open trade policies to secure their exports and use their socio-political dominance to shift the burden to the rural poor. In the end, they evicted many workers to pave the way for cost-cutting mechanization. It allowed a development of a kind, but the ensuing growth was limited by low land productivity, by social tensions that raised transaction costs and by poverty-constrained domestic markets (cf. ALESINA; RODRIK, 1994; JOHNSTON; KILBY, 1975). Land reform and the conflicting trade policy interests of large and small farmers emerged as vital issues in this setting.

In Sub-Saharan Africa, iron-armed warriors and endemic diseases from which Europeans had no immunity postponed the colonial scramble until the late nineteenth century, so that it coincided with the decline in international agricultural prices. It limited the establishment of European-owned farms and plantations and caused a decline of larger indigenous farms. It made African farming even more a smallholder agriculture than it already was (BUNDY, 1972; HUIJZENDVELD, 1997; MUNRO, 1976). As in Asia, colonial governments failed to protect indigenous farmers. Relative abundance of land for some time provided an outlet for population growth, but this safety valve was gradually closed. Higher post-war prices induced new investment by smallholder farmers (MUNRO, 1976). In the 1960s, per capita incomes in Sub-Saharan Africa were higher than in Southern Asia, but continued population growth and new declines in the agricultural terms of trade led to a return of the vicious cycle of poverty and soil degradation, especially after 1980 (KONING; SMALING, 2005 and referenced literature). Unlike in Asia, national independence brought no turn to more supportive farm policies. Sub-Saharan Africa's hand cultivator societies were less differentiated, had property rights in people rather than material assets, and had more fluid and personalist socio-political relations (BAYART, 1989; GOODY, 1976). This was not conducive to Asian-type developmental states. Interests organized themselves in clientelist factions rather than in class-based structures. Politicians saw themselves obliged to remunerate large numbers of supporters with public sector jobs, while farmers were too weakly organized to prevent them from footing the bill (BATES, 1981; DJURFELDT et al., 2005). Rural malaise caused a flight out of agriculture. However, manufacturing and modern services were also sluggish. As a consequence, the rural exodus led to a proliferation of marginal activities and increased jostling for public sector jobs. The whole situation exacerbated the clientelism and internal aggression at all levels

of African societies. It fuelled redistributive conflicts between factions that eroded social capital and the quality of governance (e.g. IKELEGBE, 2001; PATTERSON, 1998) and could all too easily end in violent conflict (e.g. PETERS, 2006; WOODS, 2003).

The stagnation in Africa and the successes in Asia have rekindled the debate on the relation between farm policies and development. Almost half a century ago, Johnston and Mellor (1961) pointed to the importance of agriculture as a starter engine of modern economic growth. In their view, agricultural growth was needed to provide opportunities for upstream and downstream activities as well as the savings, labour, and wage goods that successful industrialization required. Subsequent research has highlighted the importance of agricultural growth for avoiding pronounced income inequality and for stimulating the domestic demand for the products of emerging non-farm sectors (e.g. ADELMAN et al., 1989; DELGADO et al., 1998; HAZELL; ROELL, 1983). The ascent of the liberal globalization agenda after 1980, however, made popular the idea that this home market effect was becoming less important because globalization would allow export demand to substitute for domestic demand. This was not borne out by experience. Apparently, new industries needed the domestic market as a training school before they were able to compete internationally. Besides, it has been suggested that agricultural growth has vital external effects on social capital and skills (KONING, 2002; TIMMER, 1995). In any case, there is today a renewed recognition of the importance of supportive farm policies for pro-poor growth (WORLD BANK, 2007). History suggests that such policies should also include protection in many cases.

Multilateral regulation of agricultural trade?

When many European countries turned to protection in the late nineteenth century, they did so because international prices declined. Unless combined with supply management, however, protection itself will further depress international prices by raising domestic production, exacerbating the oversupply at the global level. In the 1930s, when falling demand caused agricultural surpluses in several countries, and major exporting countries also introduced protection, supply control and managed trade became an important issue. The Monetary and Economic Conference of the League of Nations, the US Department of Agriculture in the New Deal Period, John Maynard Keynes in his blueprint for the post-World War II economic order, and various UN bodies all advocated international commodity controls in one form or another (CHIMNI, 1987; GORDON-ASHWORTH, 1984; HENNINGSON, 1981; KEYNES, 1943). It influenced the policy debate in the first post-war years, and led to a special position of agriculture in the General Agreement on Tariffs and Trade (GATT).

In spite of its free trade philosophy, the GATT allowed countries to protect their farmers provided they controlled their production and exports, as well as to engage (if needed) in international commodity agreements to stabilize and support the international prices of primary commodities.

Nevertheless, a balanced multilateral system of managed trade did not emerge. OECD countries were hesitant to cooperate with international agreements that would support the prices of tropical products that they imported. Although they formally endorsed UNCTAD's Integrated Programme for Commodities (1974) that sought to increase the number of commodity controls, they thwarted its implementation and let the few existing control agreements collapse in the 1980s. Many economists see this as proof that free rider- and rent-seeking problems make commodity controls inherently unviable (e.g. BOHMAN, et al. 1996; HERRMANN, 1986). In reality, the resistance of importing countries, and GATT rules that gave them a near-veto power may have been decisive (CHIMNI, 1987; KONING et al., 2004; MAIZELS, 1992). Meanwhile, a coupling of protection with production and export controls as envisaged by the GATT was thwarted by the aggressive kind of protection pursued by the US and the EU. In the 1980s, competitive dumping caused a trade conflict between these two powers. In 1993, a compromise between them led to the WTO Agreement on Agriculture, prescribing reductions in price support measures but exempting direct payments under certain conditions. In the years that followed, both powers shifted increasingly from price policies to direct payments. Other countries could not follow this approach because of the high government cost involved, so that the obligatory reduction in price supports entailed a reduction in the support to their farmers. The Agreement on Agriculture gave developing countries more room for maintaining price supports. However, the US, the EU, the World Bank and the IMF have pressured them (in bilateral trade negotiations and negotiations on financial support) not to use this room. This whole policy evolution was surrounded by a discourse which depicted this evolution as 'trade liberalization', harking back to the situation that prevailed in the mid-nineteenth century. Model studies that show 'welfare benefits' but that ignore the dynamics of agricultural markets and developing countries play an important role in this discourse (see FAO 2006 for a critique of these studies). Meanwhile, the income support given to OECD farmers has hardly decreased. Direct payments allow the US and the EU to continue exporting large volumes for prices below their own cost of production (RITCHIE et al., 2003) in a way that no longer violates multilateral trade rules, while other countries are obliged to reduce their tariff defences.

Changes and continuity

The reform of agricultural trade policies were part of a broader movement of farm policy liberalization. In addition to reductions in price supports, this also involved a dismantling of parastatals in developing countries, and a general shift from public to private agricultural research that was coupled to a strengthening of intellectual property rights (PARDEY et al., 2006; PINGALI, 2007). These policy changes coincided with changes in the private sector. Until the 1980s, agri-food markets were mainly marked by chain differentiation, price competition and an increasing standardization of products. However, this pattern has been altering ever since under the influence of forces such as increased concentration in agro-industries and retailing, the financial needs of highly capitalized farms, improved logistics, demand saturation and ever stricter food safety requirements. These forces stimulate product differentiation and a new vertical coordination within agro-industrial chains that involves farm management being more interfered with by buyers and sellers. Product differentiation also creates niches for new artisanal (including ‘organic’ or ‘fair trade’) products, but that has remained a side effect.

Set against these changes is a vital continuity (cf. COCLANIS, 2003): world agriculture is still marked by overproduction and a squeeze on farm profits. Claims by liberal economists that the problem of low farm earnings has ceased to exist (e.g. GARDNER, 1992; HILL, 1996; OECD, 2002) are based on data on total incomes of farm households that include income supports and do not measure the gap in factor returns between farming and non-farming. Although this gap tends to diminish as farmer communities become more strongly culturally integrated into urbanizing societies (cf. HAAGSMA; KONING, 2005), the level of per capita GDP at which this occurs has increased rather than decreased over recent decades (TIMMER, 2007).

New agro-industrial developments interact with the secular overproduction dynamics of agricultural markets. The increased market power of traders and processors causes farm-gate prices and final-consumer prices to diverge in various cases (e.g. GOUIN, 2007). Together with the loss of room for manoeuvre that quasi-integration involves for farmers, it reinforces the treadmill mechanism that generates overproduction. In its turn, overproduction weakens the market power of farmers against traders and processors, so that the two mechanisms become mutually reinforcing.

Rather than the alleged superior power of agrarian pressure groups that is blamed by liberal economists (e.g. WORLD BANK, 2007), the continued squeeze on farm profits explains why, in spite of the liberal rhetoric, developed countries continue to support farm incomes. It also explains why the new chain coordination takes the form of a quasi-integration of agricultural production units, the ownership of which is left with self-employed farmers. Real integration would

allow lower production and transaction costs, but would saddle traders and processors with the low profitability of primary agriculture.

Although the recent changes have not ended the secular overproduction dynamics of agricultural markets to which public and private actors have to respond, they are having important effects. Demands of chain integrators are creating new thresholds for farm producers. This is even true for organic or fair trade chains, where high certification costs can form a barrier to the participation of resource-poor farmers.

Liberal reforms have different effects in the developing world. Several successful Asian countries have become less dependent on farming and can moderate agricultural protection without endangering their economies (DAWE, 2007). In Latin America, liberal-economic macro-policies and repression of popular opposition paved the way for new export-led growth based on large farms. In some cases, this generated new employment. Horticulture in Chile is a case in point. (It should be noted, though, that even under the Pinochet regime Chile subsidized various farm inputs and stabilized the prices of major staple crops.) In other cases, however, liberalization created few additional job opportunities. In many places, low prices have driven many small farmers to cultivating illegal crops like coca, or turned them into new slum dwellers or illegal immigrants in the United States. Besides, the wild capitalism of the latifundio sector and the desperation of marginalized rural workers cause a scramble for fragile natural resources, leading to large-scale deforestation and depletion.

In Sub-Saharan Africa, the debt crisis allowed western donors to impose trade liberalization and reductions in government spending. The latter were first realized by cuts in public services, then by reductions in public sector wages and only in the last instance by public sector retrenchment. Farmers suffered from the competition of cheap imports and the neglect of roads and other public services. This only aggravated the agricultural crisis and the ensuing poverty trap in which the region was caught. It made access to, and control over, the public sector even more important for ambitious individuals, which aggravated the predatory tendencies in regional politics. Indeed, the 'bad governance' bogey with which international donors are blaming the failure of their liberal prescriptions is partly of their own making.

Finally, the shift from public to private agricultural research is narrowing the room for agricultural development in less-favoured areas (PINGALI, 2007). Unlike the Green Revolution, the new Gene Revolution is led by corporations whose research agenda is guided by effective demand. It leads, for instance, to massive investment in herbicide tolerance but to underinvestment in the drought resistance that is vital for millions of poor farmers in less-favoured dryland areas. Developing countries cannot easily compensate for this through national research policies. While the germplasm of Green Revolution institutes like IIRI and

CYMMIT was freely available to national researchers, the germplasm produced by private corporations is only available to those willing to pay the price.

Long-term global food availability: continued abundance or new scarcity?

The more socially exclusive nature of farm progress and the failure to arrive at a balanced multilateral regulation of agricultural policies also involve risks for global food security in the future. Between now and mid-century, the world population is expected to grow from 6.5 to 9 billion, and demand for animal products to double (STEINFELD et al., 2006), while the use of biomass for non-food purposes – including functionalized chemicals – will strongly increase. As a consequence, the global demand for farm-produced biomass can easily triple. The fact that, in the twentieth century, supply has been overabundant does not guarantee that this new increase in demand can be met effortlessly. The once plentiful space for reclaiming new fertile lands, tapping water reserves for irrigation, and boosting yields through agro-chemicals and varieties that invest more of their assimilates in seeds or tubers is gradually being depleted. At the global level, the biophysical potential for farm production is still adequate (PENNING DE VRIES et al., 1995; WOLF et al., 2003), even allowing for claims on land and water for urbanization and biodiversity conservation (KONING et al., 2008). However, rising prices of fossil fuels will increase food production costs and strengthen the demand for biofuels and biochemicals, which will compete for biomass with food production. Moreover, farmers are utility maximizers, not output maximizers. Production will run up against an economic ceiling long before the biophysical potential has been realized, especially since three-quarters of the world's biophysical reserve capacity for food production lies in Latin America, Sub-Saharan Africa and former Soviet Union countries, where weak infrastructures, less favourable price relations and deep social inequalities make it rational for farmers to stick to less productive techniques (KONING et al., 2008).

As a consequence, an adequate increase in global supply will partly depend on new technologies. Unlike current ecological techniques, which reduce emissions while minimising production losses, new farm technologies must aim at reducing emissions while increasing land productivity. In addition, new non-farm biomass production (marine systems, algae, etc.) should be developed, as well as bio-refinement technologies that allow whole plants rather than just seeds or tubers to be used in making valuable products. Investment in such technologies, and in the human capital that is needed to employ them, involves long gestation periods. To avoid unnecessary scarcity, such investments should be made in time. However, along with myopic expectations and financially constrained farmers, low current prices restrict the size of these investments (cf. EZEKIEL, 1938). If, after some time, it were to become more difficult for the global supply of food to keep up

with demand, this could lead to soaring food prices, wreaking havoc in net food-importing poor countries (KONING et al., 2008). Such cobweb ('pig cycle') effects might be exacerbated if government support for agriculture were to be strongly reduced in a final phase of international overabundance. In this sense, the present dismantling of price supports, the continuance of disguised dumping by developed countries, the phasing out of fertilizer subsidies in developing countries, and the worldwide reductions in support for farm research might pose serious threats. Besides longer-term cobweb effects, dismantling of price policies will also entail increases in short-term price volatility, which will likewise affect investment (BOUSSARD et al., 2006). No allowances have been made for such effects in the studies of long-term global food security that some established institutions have made. However, the recent spike in international food prices should be taken as a warning.

Which agricultural policies will enable global food security and sustainable pro-poor growth?

Three main lessons can be drawn from our survey. Firstly, under the evolutionary regime that has prevailed since the late nineteenth century, national and multilateral government intervention (including price and income supports) has become indispensable for a balanced development of the global agri-food economy. Secondly, different parts of the developing world are subject to different dynamic patterns, so that food security and sustainable pro-poor growth in these parts may require different types of intervention. Thirdly, it is not certain that the regime of abundant food supply at the global level will continue in the coming decades, so that responsible policies will have to reckon with the possibility of increased scarcity. These considerations lead to a number of conclusions for agricultural policies whose aim is to enable global food security and sustainable pro-poor growth.

Achieving these aims requires first of all the encouragement of smallholder-based agricultural growth in developing countries. This calls for public investment in infrastructures and research for small farmers, public coordination in establishing agro-industrial chains and supportive price policies. Besides, the weak and the poor should be supported, with priorities depending on regional configurations (land reform in Latin America, local justice for young farmers and women in Africa and social safety nets for farm labourers in Asia).

Other measures may help to prevent or mitigate any return to scarcity in international food markets. These include public investment in research for sustainable increases in yields, bio-refinement of food, effective meat substitutes and new non-farm production systems for biomass and renewable energy. Besides, it would be wise to stop subsidizing bio-energy and to discourage feedlot

beef and using land that is suitable for cropping as pasture. Moreover, social safety nets should be introduced globally to prevent a retardation of the decline in demographic fertility in poor countries from enhancing the growth in world population.

Stimulating smallholder-based agricultural growth in developing countries and timely investment in increasing the carrying capacity for food production in the world at large requires the stabilization of international agricultural prices. Rather than the pseudo-liberalization of agricultural trade that is currently going on within the WTO and through bilateral agreements between rich and poor countries, this requires a multilateral system of managed trade. As regards tropical export crops, this means the establishment of international production controls based on export and production controls. With other crops, it means imposing disciplines like tradable export quotas and minimum import quotas on high- and upper-middle-income countries so as to keep world market prices above a desirable minimum level. Low-income countries should be exempted to create room for them to increase their production and exports. To prevent the demand of the affluent for animal products and non-foods to outcompete the demand for food for the poor, an international tax on the use of biomass for new non-foods could be introduced that is levied when international prices of food staples exceed a pre-agreed ceiling.

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