

Effective protection, prices and recovery

Tariffs in Finland in the inter-war period

Jari Kauppila

Department of Social Science History

University of Helsinki, Finland

(jari.kauppila@mintc.fi)

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1. Introduction

This paper attempts to answer one of the issues concerning the causes of the economic development in Finland during the inter-war period; tariffs. The coincidence of protection and growth of output calls attention to the possible relationship between them. Still, quantitative estimates of the benefits and drawbacks of tariffs in Finland are quite rare.

Contemporary Finnish studies emphasize the impact of the protective tariffs in order to relieve tight economic situation of farmers. Jutila and Konttinen argue that tariffs on crop farming and animal husbandry attributed to the stop in the fall of prices on agricultural products significantly reducing the impact of general depression and low world prices to the domestic markets. According to Jutila and Konttinen, customs policy was overall successful in reducing the impact of the world depression. The study also argues that otherwise positive development of the profitability in agriculture was somewhat deteriorated by high prices of raw materials. This was, according to Jutila and Konttinen, a partial result of tariff protection in manufacturing but also a result of the cartel agreements in the domestic manufacturing industries.¹

This alleged successful customs policy has been debated somewhat in the later studies on the subject. Kalela argues that the protection of agricultural products through import tariffs only prevented the depression become even worse. Even though the subsidization of agriculture was the only exception from the neoclassical economic policy in the 1920s, the protective tariffs for agriculture were not sufficient enough in order to raise domestic prices of agricultural products. Kalela argues that the expansion of export industries was the key especially in recovery.²

Representatives of the manufacturing industry considered the protection of domestic production their priority during the 1920s. Despite of the active involvement in the tariff reforms, they were not considered a success. According to the chairman of the Union of Manufacturing Industries (*Teollisuusliitto*) the customs policy was formulated in the best interest of consumers, not industries. The tariff system was not affecting the dumping of foreign products in the Finnish markets.³ According to Kalela, protective tariffs were targeted also at raw materials of domestic market production. These tariffs were in his view, however, low and did not provide any further protection to domestic market industries.⁴ Ahvenainen and Vartiainen, in turn, argue that a protectionist nuance dominated the Finnish customs policy already during the 1920s. In manufacturing, new industries such as rubber-tire and radio production obtained relatively high protection. Ahvenainen and Vartiainen also argue that domestic final goods competing with foreign imports obtained high protection. For example food production was

¹ Jutila & Konttinen (1936), pp. 11-15, 19, 83-84.

² Kalela (1987), pp. 19, 72-89, 135-136.

³ Viljanen (1931), pp. 6, 21-25.

⁴ Kalela (1987), p. 88.

considered to be fully protected. Inputs used in manufacturing production were considered to be tariffed on fiscal basis.⁵

The newest study by Lamberg concludes that the Finnish manufacturing industries did partly benefit from the protection especially during the 1930s when the tariffs were raised in many occasions. The biggest losers in the Finnish trade policy were the consumers. Agricultural producers who had the biggest share of the GDP, the largest share of the population, and the most extensive representation in the Diet were, in turn, winners. Domestic market industries were generally losers if compared with agricultural producers. Lamberg has also conducted one of the only quantitative analysis on the relationship between tariffs and change in consumer prices in Finland during the inter-war period. Economic effects of the trade policy were analyzed with price comparisons. Lamberg's study supported the notion that agricultural producers had a dominating position in the trade policy, especially customs duty policies. The position of domestic market industries was the weakest from this perspective.⁶

Yet, impacts of tariffs on the development of different industries remain an open question. What was the level of protection by industry especially in terms of their economic activity? Were tariffs set in a way that made it possible for companies to raise their profits? What was the impact of the change in the world prices in relation to impact of tariffs? More knowledge is required on impacts of tariffs on industries and hence to prices indicating possible winners and losers of the customs policy.

This paper presents a quantitative approach, calculating so called effective rates of protection for different industries using an input-output table constructed for the year 1928. In addition, using an input-output price model this paper attempts to grasp the immediate impact of tariffs on companies' ability to raise their profits.⁷

International studies on tariffs and their impacts on the economic development have been concentrated on the concept of effective protection. The effective rate of protection measures the most immediate impact of tariffs, their impact both on prices of material inputs and finished outputs. Tariffs protect not only a product but rather an economic activity that produces that product from certain inputs. The importance of the effective rate of protection estimates is in the fact that it provides an estimate on how tariffs were set on value added of each industry thus encouraging or hindering the formation of profits. There have been numerous studies on the subject since the introduction of the concept.⁸

2. On methodology

When evaluating impacts of tariffs a distinction between formal tariff, nominal tariff, and effective tariff should be recognized. The formal tariff is the customs duty defined in tariff legislation and it can be a specified duty, *ad valorem* duty, or both at the same time. Nominal

⁵ Ahvenainen & Vartiainen (1982), pp. 181-182.

⁶ Lamberg (1999), pp. 48, 134-158.

⁷ On evaluation of economic impacts of trade policy, see for example Capie (1994); Milward & Brennan (1996). A comprehensive methodology to study macroeconomic impacts of any trade policy is still missing. Quite often studies look only at tariffs and their impacts as impact of non-trade barriers is difficult to include into analysis. This paper is not an exception.

⁸ See for example Basevi (1966); Witthans (1973); Ray (1974); Yeats (1976). The concept of effective rate of protection has been also diffused to textbooks on international trade, see for example Appleyard & Field (1998). Capie analyzed the effects of the tariff structure on the British economic recovery of the 1930s. Kitson et al repeated Capie's calculations on the effective rate of protection in the United Kingdom during the 1930s. They used the 1935 input-output table data in order to carry out a more refined estimate on the effective rate of protection. G. R. Hawke has studied the relationship between the United States tariffs and growth of certain important industries in the late nineteenth century. Webb has studied the economic effects of tariffs and the possible relationship between protection and growth of output and productivity in the German steel industry between 1879 and 1914.

tariff, in turn, is the *ad valorem* equivalent nominal tariffs depending on changes in import prices. The effective rate of protection, then, is defined as the percentage addition made possible by the existence of the tariff to the value added by the domestic industry, with prices at free trade levels.

The level of benefits from any tariff depends chiefly on how much the tariffs raises domestic prices above the world prices. The effective rate of protection measures the most immediate impact of tariffs, their impact both on prices of material inputs and finished outputs. Tariffs protect not only a product but rather an economic activity that produces that product from certain inputs. The advantage of effective rates compared with nominal tariff rates is that they take into account of the discouraging effect of tariffs on inputs and recognize that an industry is more sensitive to tariffs the less the share of value added in the price of its output. Effective rate of protection, thus, is more focused on measurement of the impact of tariffs.⁹

In a mathematical form, the effective rate of protection for industry j can be presented as

$$ERP_j = \frac{t_j - \sum_i a_{ij} t_i}{1 - \sum_i a_{ij}},$$

where t_j is the nominal tariff rate for final product j , t_i is the nominal tariff rate of any input i , and a_{ij} is the input coefficient of industry j .¹⁰

Calculation on the effective rate of protection relies on an assumption that country concerned is a small open economy. Country is, thus, a small participant in the world market, and any tariff has no effect on the world price of goods concerned. Tariff raises also the price of sales to domestic markets by the full amount of tariff. Critical assumption of the effective rate of protection is that companies have full market power to transfer raise in world prices into domestic prices as well.

The price model, in turn, can be used to determine an impact of a change in the prices of exogenous inputs such as wages or profits.¹¹ In a mathematical form, the basic approach to the price model can be presented as follows. The price of the output of an industry i (p_i) can be obtained from an equation

$$(1) \quad p_i = \sum_{i=1}^n a_{ij} \times p_i + v_i,$$

where v_i equals the input coefficient for primary input (value added). This price model has a general solution, the Leontief inverse. In matrix form, the solution can be written as

$$(2) \quad P = (I - A)^{-1} V,$$

⁹ Studies applying the concept of effective rate of protection in historical context, see for example Capie (1978); Webb (1980); Webb (1982); Kitson & Solomou & Weale (1991).

¹⁰ However, the change in relative prices only affects the share of production that has been sold domestically. The share of production exported does not gain from the impact of custom duties. Therefore an adjustment should be made in the ERP – calculation that takes into account only the share of domestic sales. In calculations presented in the following chapter this was done by weighting the nominal tariff with the share of domestic sales by industry.

¹¹ The general formulation of the price model requires data on physical coefficients and unit prices of inputs. In most input-output studies there are no data available on physical input-output coefficients. This problem can be overcome, however, by the fact that per-unit prices for each sector in the value-based input-output tables are all one Finnish mark, since the input coefficients are derived on a “per mark’s worth of output” basis. Therefore, the price of a unit of output is one mark.

where $(I - A)^{-1}$ is a transposed Leontief matrix and V matrix of primary input coefficients. The solution results with a column of normalized prices ($P=1$). Any change in the primary input coefficients (V) results an impact of this change on prices of each industry.¹² With the model, it is possible to calculate an impact of for example change in wages or company earnings (profits) to consumer prices in the economy. When the price model is used it is assumed that all conditions of full competition are fulfilled. Thus, firms have the market power fully reflect rising costs on primary inputs in their product prices. Higher factor prices for primary inputs will cause higher product prices in competitive markets.¹³

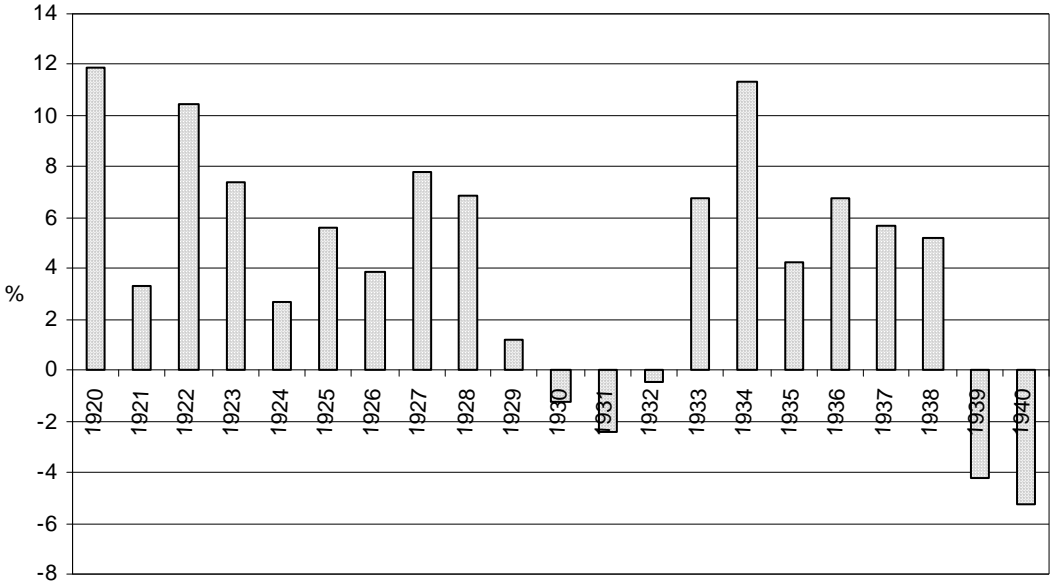
Both models above will be used in the quantitative analysis on the impact of tariffs in the following chapter. The basis for both models is an input-output table describing the Finnish economy in 1928 at the level of 30 industries.¹⁴

3. Quantitative analysis of Finnish tariffs

3.1 Main trends of the Finnish economy and trade during the inter-war period

A rapid economic growth took place in Finland during the inter-war period. The annual average gross domestic product (GDP) growth rate was nearly five percent between 1920 and 1938, exceeding six percent during the years 1920-1928 (figure 1). This growth was high even in the international comparison. The beginning of the 1920s was, thus, a time of outstanding expansion of economic activity. This situation changed, however, after the year 1928. The economy went first to stagnation and finally to depression from the 1929 onwards until the year 1933. The post-depression economy got, however, relatively fast (measured by the GDP) back to the growth track of the 1920s.

Figure 1. Annual growth of the real gross domestic product in Finland between 1920-1940 (%).



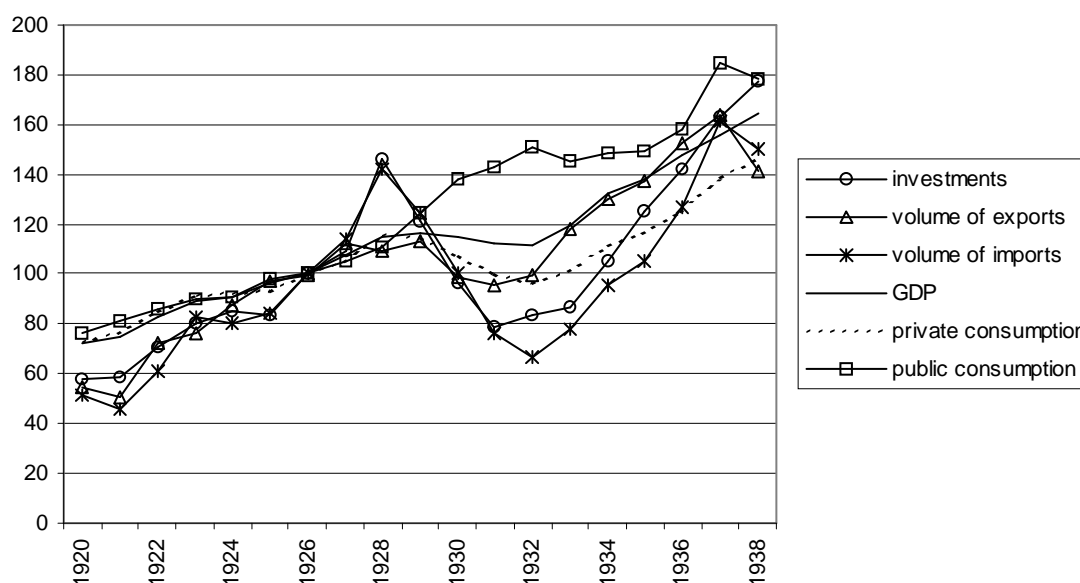
Source: Hjerpe (1996).

¹² Miller & Blair (1985), pp. 351-357.
¹³ ESA 95, pp. 347, 359.
¹⁴ Input-output tables have been constructed by the author as a part of the forthcoming doctoral thesis “On the Great Depression – Structure and Short-Term Dynamics of the Finnish economy in the 1920s and 1930s: an Input-Output Approach.”

The interwar period has been characterized as a transition period towards a high-investment-ratio regime in Finland.¹⁵ Investments expanded during the early 1920s culminating to the peak in 1928 with boom in the construction activity. Depression brought this development to a halt but the growth of investments continued again after the depression. It is worth noticing, however, that the level of 1928 was only exceeded in 1937 (figure 2). Also the private consumption reacted strongly on the depression. The volume of private consumption fell by 17 percent between 1928 and 1932 while the GDP fell only by few percents. It is interesting to note, that in other countries proportions were usually the reverse: consumption fell less than GDP.¹⁶

The start of the depression was consequently felt strongly in both investments and private consumption that, in addition, recovered relatively slowly compared to exports and GDP. Volume of exports decreased from 1929 onwards recovering however rapidly already in 1933. This is not so surprising, as the correlation between the GDP and exports has generally been found close.¹⁷ Volume of imports followed that of investments very closely and fell drastically from 1928 onwards. Recovery of imports was even slower than in case of investments. Public consumption, in turn, continued its growth during the whole period. This increase was partly due to support work by the government in order to ease the economic downswing.

Figure 2. Volume index of gross fixed capital formation, exports, imports, GDP, private consumption, and public consumption in Finland between 1920-1938 (1926=100).



Source: Hjerpe (1996).

The Finnish economy was greatly dependent on imports. Of the products consumed by households nearly 14 percent were imported. In case of food products, nearly 40 percent were of foreign origin. More importantly, Finland was highly dependent on foreign raw materials, semi-finished goods, and investment goods. Over 33 percent of manufacturing products and over 50 percent of investment goods were of foreign origin. These are high figures by any comparison. The dependency on imports in manufacturing was partly related to economic

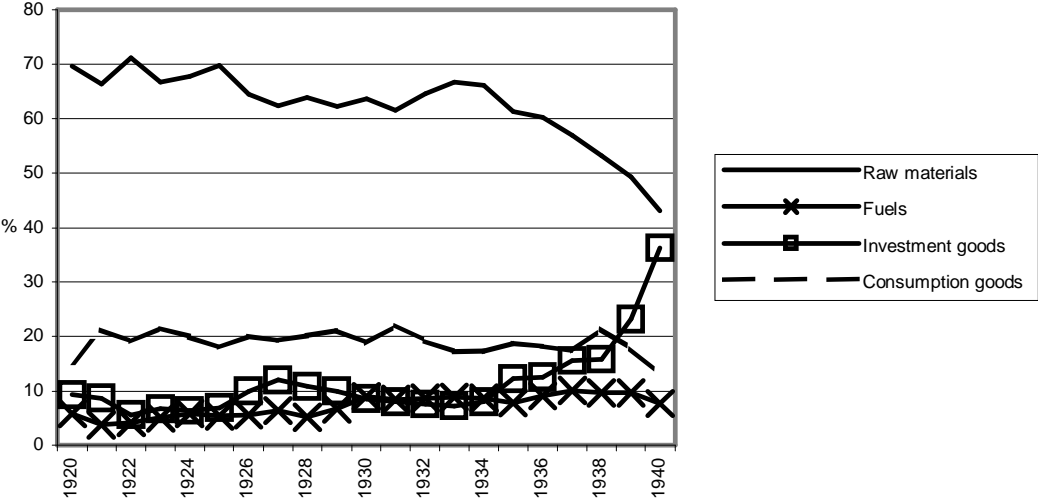
¹⁵ Heikkinen & Kuusterä (2001), p. 28.

¹⁶ Hjerpe (2001), pp. 2-3; Heikkinen & Kuusterä (2001), p. 33.

¹⁷ Halme (1955), p. 339.

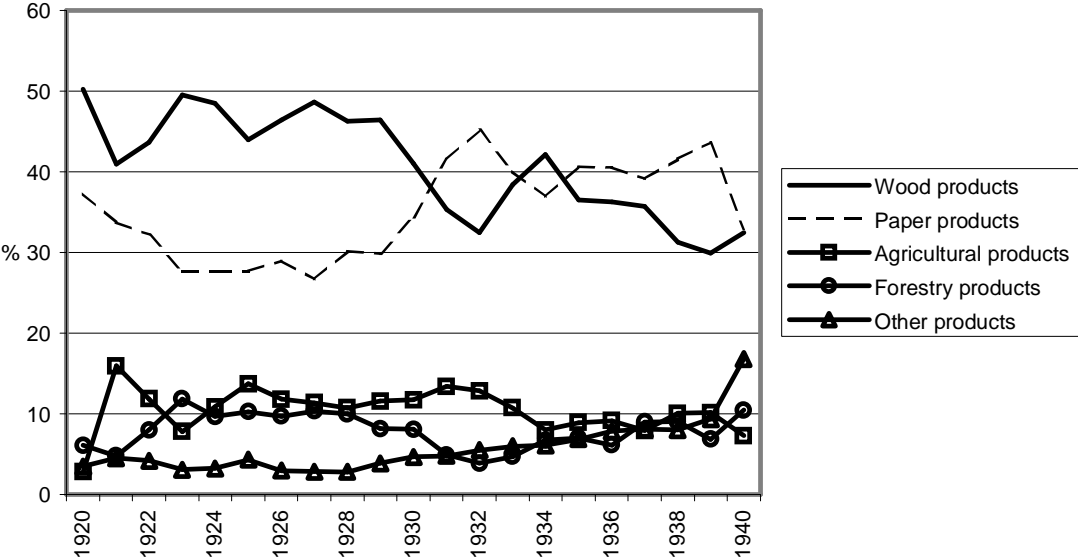
growth but more of structural in nature.¹⁸ The structure of imports was raw material orientated. Between 60 and 70 percent of imports consisted of various raw materials. Main groups were cereals, sugar, coffee, other food products, iron and steel products as well as yarn, cloths and ribbons (figure 3). The structure of exports was dominated by forest products. During the 1920s and the 1930s 85 percent of exports was composed of various forest related products. However, during the depression an important structural change took place inside exports (figure 4). Mass and paper products (mainly cellulose) became the most important export article except for the temporary increase in the value of wood exports in 1934.¹⁹

Figure 3. Structure of imports in 1920-1940 (%).



Source: Oksanen & Pihkala (1975).

Figure 4. Structure of exports in 1920-1940 (%).



Source: Oksanen & Pihkala (1975). Other products include mining, food, chemical, metal, and textile products.

¹⁸ Own estimates based on the input-output table for 1928. More detailed information is available from the author.
¹⁹ Mercator, N:o 26, 30.6.1928; Mercator, N:o 24, 15.6.1929; Mercator, N:o 50, 13.12.1929.

The balance of trade was more or less in balance before the Great Depression. The 1928 saw a great deficit, however, as a consequence of increased imports. Imports increased by more than 25 percent in current value from 1927 to 1928. The level of exports remained about the 1927 level in current terms. During the Great Depression, exports increased over imports, which is typical for Finland in international downturns. The balance of trade became quite stable again after the depression. Terms of trade (ratio of export prices to import prices), in turn, remained positive for Finland during the early years of the depression. World prices of forest industry products remained relatively high compared with the import prices of agricultural and industrial products. Even though the terms of trade took a turn for the worse from 1932 onwards, the balance of trade became surplus.²⁰

The economic problems in the main export country, the United Kingdom, raising price for standing timber and falling sales prices and increasing competition resulted with serious problems with profitability in the export industries.²¹ While significant fall in export prices began in 1929, import prices, however, fell in some cases more than exports prices. Decline in export prices was further eased by output restrictions in the export industries. Pulp manufacturers in Finland, Sweden and Norway agreed to reduce production by over 30 percent, while shipments of sawn goods were agreed to be reduced by 20 percent in 1930.²²

Falling world prices and increased competition led eventually to decline also in the paper industry by 1930. The recovery started again in 1933.²³ Improving world economy together with abandoning of the gold standard in Finland in the autumn 1931 enabled recovery of exports. Finland had joined the gold standard at the beginning of the 1926. Once the important trade partners, led by the United Kingdom, abandoned it, followed Finland the example. After the devaluation, the Finnish currency was under valued against its main trading partners, which helped to promote Finnish exports during the 1930s.²⁴

Table 1. Development of exports and import prices for some products 1928-1934 (1928=100).

| | 1928 | 1929 | 1930 | 1931 | 1932 | 1933 | 1934 |
|---------------------------------------|------|------|------|------|------|------|------|
| Export prices (fob) | | | | | | | |
| Meat | 100 | 92 | 87 | 77 | 71 | 69 | 66 |
| Butter | 100 | 94 | 76 | 67 | 65 | 53 | 43 |
| Cheese | 100 | 91 | 79 | 74 | 75 | 72 | 69 |
| Wood products | 100 | 97 | 94 | 73 | 71 | 76 | 89 |
| Pulp | 100 | 101 | 97 | 76 | 77 | 76 | 79 |
| Wood-pulp board | 100 | 101 | 101 | 87 | 94 | 96 | 98 |
| Paper | 100 | 93 | 89 | 81 | 79 | 71 | 65 |
| Import prices (cif) | | | | | | | |
| Raw materials and semi-finished goods | 100 | 93 | 78 | 66 | 72 | 69 | 66 |
| Machinery | 100 | 106 | 105 | 96 | 109 | 118 | 116 |
| Manufacturing products | 100 | 107 | 100 | 89 | 93 | 89 | 77 |
| Food products | 100 | 92 | 70 | 55 | 70 | 65 | 59 |
| Clothing | 100 | 98 | 87 | 72 | 71 | 69 | 68 |
| Agricultural inputs | 100 | 92 | 77 | 69 | 78 | 72 | 67 |
| Other products | 100 | 102 | 91 | 81 | 92 | 88 | 82 |

Source: SVT 1 A 1929-1935.

²⁰ Hjerpe (1989), pp. 154-158.

²¹ Halme (1955), pp. 216-233.

²² Suviranta (1931a), pp. 27-28; Halme (1955), pp. 216-226. See also paper by Sven-Olof Olsson in this session.

²³ Hjerpe (2001), pp. 3-4. Halme (1955), pp. 231-243.

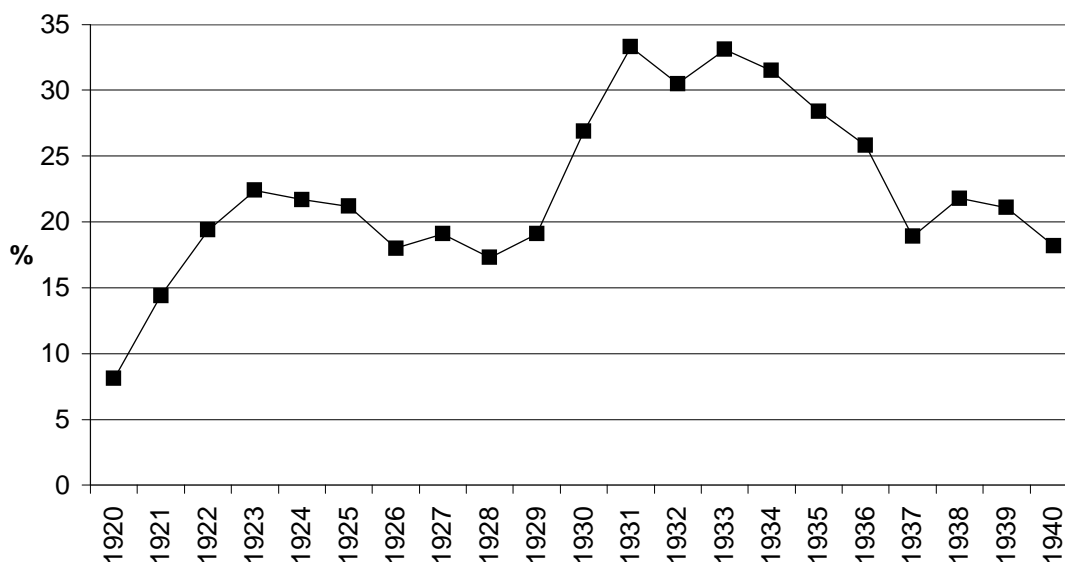
²⁴ Hjerpe (1989), pp. 155-156; Halme (1955), pp. 241-242.

3.2 Effective rates of protection of Finnish industries in 1928 and 1934

Tariffs were an important source for government revenues during the 1920s and 1930s. Tariffs accounted for around 40 percent of all government revenues at the wake of the First World War. Independency, growth of foreign trade and higher tariffs increased the share of tariffs of government revenues to 55-60 percent remaining as high during the whole inter-war period.²⁵ The Finnish customs policy during the inter-war period was important not only for government revenues but also for agricultural producers and domestic market industries. One of the main principles of the new tariff system was to limit imports of finished goods while raw materials were exempt from tariffs. Protection of agricultural production was considered a priority also because agriculture was seen as a market area for manufacturing products. A new customs tariff was therefore called after right after the independency.²⁶

The share of tariffs on the import value was around 10 percent right after the reform. Introduction of star-tariffs (*tähtitulli*) in 1921 raised the level of tariffs to over 20 percent on the total import value. The star-tariff system made it possible for the government to tenfold the customs duty for certain, mainly luxury, articles. In 1922 the number of articles was expanded but the increase of tariffs was limited to fourfold. The Great Depression brought within a protectionist nuance that partly explains the raise in the tariff level in the 1930s. However, as the volume of imports decreased, the total revenue from the customs duties decreased as well. This, according to Juha-Antti Lamberg, confirms the protectionist character of the tariffs in the 1930s.²⁷ The share of tariffs on the import value exceeded 30 percent between 1931-1934 (figure 5).

Figure 5. Share of import tariffs on the value of total imports 1920-1940 (%).



Source: SVT 1A, 1920-1940.

Food shortage in 1917-1918, military considerations as well as social unrest resulted that protective tariffs for agriculture gained support in the 1920s. Grain duties were still relatively low in 1919 but were raised significantly from 1921 onwards. During the depression, protection increased again significantly and as the price for cash crop depreciated due to harvest failure

²⁵ Heikkinen (1994), p. 392.

²⁶ Lamberg (1999), pp. 37-38. Heikkinen (1994), pp. 382-385, 388; KOM 15:1919.

²⁷ Lamberg (1999), p. 38.

and cheap grain from other countries, tariffs were raised. The most important industries producing for domestic markets included the manufacture of food, textile, leather, and metal products industries. There had been some tendency to protect domestic industries already in the 19th century but overall the tariffs have been considered as revenue tariffs.²⁸ Furthermore, tariffs were not raised in a significant amount compared with agricultural tariffs (table 2).

Table 2. Average tariff for some manufacturing products in 1912/13, 1923/24, and 1937/38 (% of cif value).

| | 1912/13 | 1923/24 | 1937/38 |
|-----------------|---------|---------|---------|
| Metal products | 6,2 | 11,6 | 6,0 |
| Glass products | 18,8 | 27,3 | 25,8 |
| Cotton products | 10,0 | 11,8 | 24,0 |
| Sugar | 86,5 | 51,6 | 195,0 |
| Tobacco | 47,6 | 167,1 | 237,0 |
| Coffee | 22,0 | 81,0 | 86,5 |

Source: Lamberg (1999), p. 45.

Because the tariff system was based on the amount of goods imported, it was characteristics for the system that as the world prices of products fell, the tariff level was raised automatically measured as a percentage of the import value. Thus, during a period of falling world market prices it was enough to maintain existing level of tariffs. Despite the growth in protection, the customs policy of Finland during the period, in comparison with other European countries has been considered relatively open. The economic policy was more an automatic stabilization. It was thought that no large-scale government intervention was needed. Instead of stimulating private consumption, government did concentrate on supporting export industries through devaluation. Domestic market industries were supported by varying tariff protection.²⁹

In the following, both nominal and effective rates of protection have been calculated for Finland for the years 1928 and 1934.³⁰

²⁸ Jutila & Kontinen (1936), pp. 25-26, 38-47; Kalela (1987), pp.84-85; Lamberg (1999), p. 42. In addition to these raises in tariffs both crop farming and animal husbandry obtained other forms of promotion in terms of for example soil amendments, cheap loans, export subsidies and subsidies for new settlements. Kalela argues that the impact of these on agriculture was relatively insignificant. Kalela (1987), pp. 91-94. Lamberg, on the other hand, concludes that the export subsidies were quite successful. Lamberg (1999), p. 44. Heikkinen (1994), pp. 263, 294.

²⁹ Lamberg (1999), p. 39; See also Lamberg's footnote 136 on discussion on the Finnish level of protection; Heikkinen & Kuusterä (2001), p. 34-35.

³⁰ Nominal tariff rates were calculated by dividing the duties collected for each industry by the total imports for the industry. Unfortunately, it has not been possible to carry out fully detailed calculations on the tariffs for all imports for the year 1934. Tariffs have been changed in the middle of calendar year and registers on imports and tariffs differ to an extent that makes any more detailed calculations a difficult task. This is also noted in the official statistics. SVT 1A, 54:1934, p. 50. Due to the lack of input-output tables from 1934, the input structure of 1928 has been assumed to represent the structure in 1934. In addition, lack of comparability between trade statistics and tariff classifications have made it problematic to get fully accurate picture on the nominal *ad valorem* level of tariff protection in 1928. Statistics therefore only include data on the most important import articles. This covers, however, around 85 percent of all imports and customs duties. Only in case of forestry, mining, wood products, paper products and other products data was not available. On the other hand, data has been available on the most interesting industries, namely agriculture and domestic market industries.

Table 3. Nominal and effective rates of protection in 1928 and 1934 by industry (%).

| Industries | 1928 | | 1934 | |
|---|--------------|----------------|--------------|----------------|
| | Nominal rate | Effective rate | Nominal rate | Effective rate |
| A1 Agriculture, hunting | 24,5 | 27,5 | 94,2 | 105,2 |
| A2 Forestry | 7,3 | 7,0 | 7,3 | 6,3 |
| B Fishing | 232,8 | 234,1 | 232,8 | 233,6 |
| C Mining | 0,0 | -0,1 | 0,0 | -0,3 |
| DA Manuf. of food products | 30,9 | 33,5 | 174,9 | 208,1 |
| DB Manuf. of textiles | 14,9 | 15,7 | 24,9 | 34,3 |
| DC Manuf. of leather products | 6,8 | 5,6 | 12,8 | 8,5 |
| DD Manuf. of wood and wood products | 35,1 | 5,1 | 35,1 | 1,4 |
| DE Manuf. of pulp, paper and paper products | 8,3 | -3,0 | 8,3 | -5,3 |
| DF Manuf. of coke and refined petroleum products | 23,7 | 23,7 | 92,3 | 92,3 |
| DG Manuf. of chemical products | 4,3 | 2,7 | 7,8 | -0,3 |
| DH Manuf. of rubber and plastic products | 37,3 | 43,2 | 32,9 | 35,8 |
| DI Manuf. of non-metallic mineral products | 11,0 | 12,4 | 37,7 | 45,3 |
| DJ Manuf. of basic metals and fabricated metal products | 10,0 | 11,0 | 19,7 | 21,9 |
| DK Manuf. of machinery and equipments | 2,9 | 1,4 | 8,3 | 6,4 |
| DL Manuf. of electrical and optical equipments | 9,3 | 9,6 | 9,3 | 8,8 |
| DM Manuf. of transport equipments | 7,9 | 7,2 | 4,9 | 2,4 |
| DN Manuf. of other products | 27,5 | 29,6 | 27,5 | 28,2 |
| E Electricity, gas and water supply | . | 0,0 | . | 0,0 |
| F Construction | . | -8,6 | . | -15,3 |
| G Trade | . | -0,7 | . | -1,1 |
| H Hotels and restaurants | . | -22,2 | . | -92,2 |
| I Transport, storage, post and telecomm. services | . | -1,6 | . | -3,3 |
| J Financial and insurance services | . | -0,6 | . | -0,7 |
| K Housing and business services | . | -2,7 | . | -2,8 |
| L Public administration | . | -3,9 | . | -13,6 |
| M Education | . | -2,5 | . | -2,5 |
| N Health and social work services | . | -7,1 | . | -28,7 |
| O Other services | . | -0,4 | . | -0,5 |
| P Household work | . | 0,0 | . | 0,0 |

Sources: Own estimates based on SVT 1A, 54:1934; SVT 1A, 48:1928. Figures for 1934 in *cursive* are based on 1928 data. Thus, no changes in the tariff structure have been assumed.

Nominal tariff on *agricultural products (A1)* was 24.5 percent in 1928 while it jumped to 94.2 percent by 1934. Increase in nominal protection was relatively significant. The effective protection, however, jumped from 33.5 to over 200 percent from 1928 to 1934. The effective protection clearly rose above nominal protection. All in all, agriculture did obtain a very high protection during the depression and was among the most protected sectors in the Finnish economy. To compare with other countries, Kitson et al (1991) estimated that the effective rate of protection was 30 percent in the United Kingdom in 1932. Thus, the Finnish rate of protection for agriculture grew from the same level than in the UK to over three times higher by 1934.³¹

In case of *domestic market industries* development of protection varied by industry. Of the consumption industries *food products (DA)* had a relatively high nominal tariff (30.9 percent) already in 1928. This was raised to nearly 175 percent by 1934 while the effective rate of protection increased from 33.5 percent to over 208 percent during the period. Manufacture of food was clearly the highest protected industry of the economy in 1934. The Finnish food production was operating behind a high customs barrier. In comparison, the effective rate of protection for food production was only 26.8 percent in the United Kingdom in 1932. Also

³¹ Kitson & Solomou & Weale (1991), p. 332.

the manufacture of textiles (DB) experienced growth in nominal tariff rates between 1928-1934. The effective rate of protection for textiles increased 15.7 to 34.3. The manufacture of leather products (DC), in turn, had a low nominal rate with slight increase until 1934 while the effective rate of protection during both years under study was less than the nominal rate. This implies that imported inputs for the industry had higher tariffs than the final leather products. This also suggests that in case of domestic market industries other than food production tariffs were not giving any particular protection to the production.

The group of industries that could be defined as *heavy industries* had different patterns of development in tariffs. Manufacture of coke and petroleum products (DF), had a relatively high nominal and effective tariff. Domestic production of coke and petroleum products was almost non-existing during the 1920s and 1930s and tariffs were only raised for fiscal purposes. Chemical products (DG), on the other hand, had to compete with foreign production without a customs barrier. Industry's effective protection had turned slightly negative by 1934 implying higher tariffs for industry's raw materials than final products. Rubber and plastic products (DH), in turn, were relatively highly protected even though the effective rate decreased somewhat in 1934. The domestic rubber-tire production had possibilities thus to develop behind a customs barrier. Domestic production of non-metallic mineral products (DI) experienced also a growth both in nominal and effective tariffs from 1928 to 1934. Bricks were one of the key raw materials in the construction sector and tariffs on them can be seen in the negative effective rate of protection of construction. Protecting the brick industry was thus negative factor from the point of view of construction where already critical shortage of raw materials was further increased.

Industries producing *investment goods* had a low protection level. Machinery (DK), electrical equipments (DL), and transport equipments (DM) all had low rate of both nominal and effective rates of protection. This seems however sensible from the point of view of economic development. There was a lack of investments goods in Finland, which was compensated through imports. The low rate of effective protection would imply also that the domestic industries had to compete with foreign producers in case of these products.

Construction (F) had a negative rate of effective protection. This is a result of the fact that final output (houses) cannot be protected by tariffs while house construction was highly dependent on foreign imports of raw materials that had relatively high tariffs on them. However, it is worth noticing that the effective rate of protection slightly increased further from 1928 to 1934. Reflecting this to the fact that domestic production of many inputs used in construction was insufficient in 1928 this suggest that protection had a further negative impact on the value added of the construction sector.

To sum up results of the analysis. Results would give strong support to Lamberg's conclusions on the winners of the Finnish customs policy during the depression. Agriculture producers obtained high protection and were able to operate under a high customs barrier. Not only did they obtain price benefits in terms of increase in nominal protection but also in terms of production. Their intermediate products had low protection thus making it possible to purchase raw materials at relatively low prices. Some contradictory exists in the results concerning the domestic market industries. Food production, closely linked with agriculture, was the most protected industry in the economy. During the depression its protection increased in a very significant way. The result for food production should be analyzed in relation to agricultural production as these two industries were closely connected as a food cluster. The increased protection had roots also in the aim of self-sufficiency in terms of food production.

Other domestic market industries, such as manufacture of textiles and leather products, also experienced some increase in protection on their final goods and thus benefited from the customs barrier. However, in case of leather production the customs duties were set in a way that they actually hindered the development of the industry. Tariffs on intermediates prevented the full exploitation of the tariff on final goods as leather industry's generation of value added was hindered by tariffs on their important foreign inputs. The different development of tariffs would imply that there was no controlled customs policy from the point of view of domestic market industries. All in all, results would suggest that the Finnish domestic market industries were not able to fully benefit from the customs policy during the depression. This conclusion is in line with the conclusion drawn in the study by Lamberg as well as the view by the Union of Manufacturing Industries (*Teollisuusliitto*). Domestic market industries were not among winners in the Finnish customs policy.

3.3 Impact of tariffs on prices and recovery

The analysis on the level of protection above does not fully provide us with information on the success of the customs policy. Even though the tariffs on both agricultural and food products were high it is not certain that they were sufficient enough in order to really have an impact on prices. The question therefore is, were tariffs high enough in order to stop the dumping of prices by foreign imports? Secondly, who suffered from the protective tariffs on agriculture and food products?³²

In the following, an attempt is being made in order to see if the two most protected industries, agriculture and manufacture of food products, were able to fully benefit from the protection provided by customs. The idea of tariff is to protect the domestic production from foreign competition. By setting a tariff on imported product, the domestic industries can sell products for consumers at a higher price than without the tariff. In the modeling it has been analyzed therefore that to what extent industries were able to transfer the price increase made possible by the tariff into their profits. The analysis done isolates the impact of tariffs and world prices on consumer prices.³³ The model results with a percentage change in consumer prices both due to the tariff increase and fall in world prices of imported products. A combined impact is the difference between reduction due to the decrease in world prices and increase due to the tariff increase.

Tariffs on agricultural and food products alone would have caused, according to the model, a total increase of nearly 20 percent in consumer prices during the period (table 4). Consumer prices for agricultural products rose by 43.6 percent while food products by 36.4 percent. As these products were used as intermediates in many other industries, modeling also shows some rise in prices of other products as well. Especially in hotel and restaurant services as well as chemical production tariffs raised consumer prices significantly. Chemical production used products such as seeds and vegetable oils in the production. Falling import prices alone, in turn, would have caused a total reduction of nearly 16 percent in consumer prices. Food product prices fell nearly as much as due to tariff increase while agricultural product prices fell less than the raise due to tariffs according to the model. All in all, modeling shows that

³² Already during the renewal of the Finnish customs duties the committee in charge raised a question whether the consumers actually suffered from new tariffs. There were strong arguments that customs policy in force during the depression benefited agricultural producers and state finances while consumers bore the heaviest bill. KOM 15:1919; Jutikkala (1982), p. 215; Especially social democrats opposed subsidies for agriculture, as they were "paid by the most low income members of the society" Kalela (1987), p. 87; See also Kalela (1987), p. 89.

³³ First, as the nominal tariff for agriculture was raised by 69.7 percent and for manufacture of food products by 144.0 percent it is assumed that industries have been fully able to transfer these increases into prices of these products and therefore into the profits. Secondly, it is assumed that the fall in world prices of same products by 47.3 and 40.6 percent respectively have been reflected as a decrease of profits of industries by the full extent.

impact of tariffs was higher than world prices and tariffs should have compensated the fall in prices and result a total increase of over four percent in consumer prices.

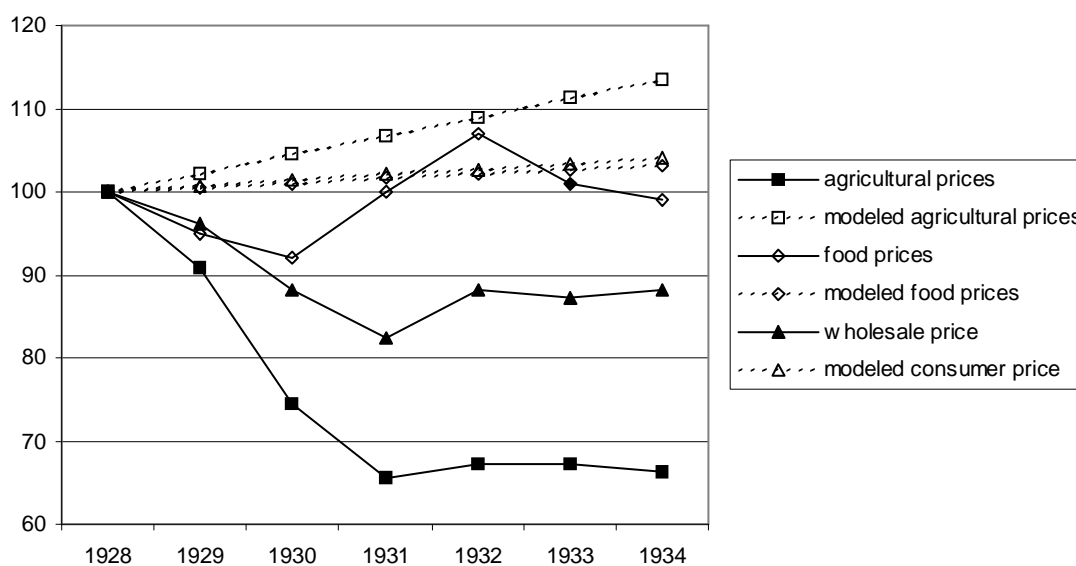
Table 4. Impact of tariffs and import prices of agricultural and food products on consumer prices in Finland between 1928-1934 (%).

| Products | Impact of customs tariffs | Impact of import prices | Combined impact |
|---|--|--|----------------------------|
| A1 Agriculture, hunting | 43,6 | -30,0 | 13,5 |
| A2 Forestry | 1,2 | -0,8 | 0,4 |
| B Fishing | 0,0 | -0,1 | 0,0 |
| C Mining | 0,1 | -0,1 | 0,0 |
| DA Manuf. of food products | 36,4 | -33,2 | 3,2 |
| DB Manuf. of textiles | 3,1 | -9,3 | -6,2 |
| DC Manuf. of leather products | 5,0 | -15,5 | -10,5 |
| DD Manuf. of wood and wood products | 2,7 | -1,9 | 0,8 |
| DE Manuf. of pulp, paper and paper products | 2,0 | -1,4 | 0,6 |
| DF Manuf. of coke and refined petroleum products | 0,0 | 0,0 | 0,0 |
| DG Manuf. of chemical products | 6,3 | -8,3 | -2,1 |
| DH Manuf. of rubber and plastic products | 0,8 | -1,0 | -0,2 |
| DI Manuf. of non-metallic mineral products | 0,8 | -0,7 | 0,2 |
| DJ Manuf. of basic metals and fabricated metal products | 0,9 | -0,6 | 0,3 |
| DK Manuf. of machinery and equipments | 0,3 | -0,2 | 0,1 |
| DL Manuf. of electrical and optical equipments | 0,1 | -0,1 | 0,0 |
| DM Manuf. of transport equipments | 0,4 | -0,3 | 0,1 |
| DN Manuf. of other products | 1,1 | -1,0 | 0,1 |
| E Electricity, gas and water supply | 0,0 | 0,0 | 0,0 |
| F Construction | 0,8 | -0,7 | 0,1 |
| G Trade | 0,7 | -0,5 | 0,2 |
| H Hotels and restaurants | 42,9 | -23,7 | 19,2 |
| I Transport, storage, post and telecomm. services | 1,9 | -1,3 | 0,6 |
| J Financial and insurance services | 0,2 | -0,1 | 0,0 |
| K Housing and business services | 0,4 | -0,3 | 0,1 |
| L Public administration | 9,9 | -6,0 | 3,9 |
| M Education | 6,9 | -3,8 | 3,1 |
| N Health and social work services | 17,4 | -9,8 | 7,6 |
| O Other services | 0,1 | -0,1 | 0,0 |
| P Household work | 0,0 | 0,0 | 0,0 |
| Total | 19,8 | -15,7 | 4,1 |

Sources: Own estimates based on SVT 1A 1929-1935.

In reality, tariffs only partly compensated the fall in import prices (figure 6). Agricultural prices fell by 34 percent during the period, even though modeling would suggest a contradictory trend. Tariffs were not a sufficient tool in order to stop the fall in agricultural prices. Despite the very high effective protection of value added of agriculture, farmers were not able to transfer this benefit to profits as only part of the production was sold to private consumption while nearly half of the production was used as intermediate inputs in farms. In case of food prices, results are more in line with observed price changes. Tariffs were able to stop the falling trend of prices. This is partly explained by the fact that food products were sold to final consumption and as necessity goods they must be purchased anyway. Agriculture products, in turn, were sold mostly to intermediate inputs where demand is more limited during the depression. From the point of view of consumers, however, this was not a positive phenomenon. As nominal wages fell, the real income declined rapidly as the cost-of-living remained higher in relative terms. On the other hand, the falling agricultural prices compensated for the increase in the cost-of-living. Total wholesale prices fell by over 10 percent during the period.

Figure 6. Modeled price changes and observed wholesale price index 1928-1934 (1928=100).



Source: STV 1933-1935; own estimates.

Finally, even if the price development was affected by tariffs in case of food production it is still somewhat an open question whether tariffs had an impact on recovery. International studies have found that tariff level has not been an explanatory factor in the long-term economic development.³⁴ A preliminary analysis on the level of effective protection would lead us to expect that the raise in the general tariff level would also have an impact on recovery from the depression in Finland. However, analysis on price development would suggest that companies were still not able to transfer benefits from tariffs into their profits. A linear regression analysis is carried out in order to investigate possible connection between nominal and effective rate of protection and economic recovery, structural change and price development between 1928-1938.³⁵ Even though analysis is quite straightforward the results seem to suggest that the connection between tariffs and economic recovery in Finland was minimal. Change in the nominal level of tariffs or in the effective rate of protection seems not to be an explanatory factor neither in the growth of the gross domestic product, structural change or price development (table 5).³⁶

Table 5. Results of the linear regression analysis (percentual change and percent unit change).

| | Growth of GDP 1928-1934 | Growth of GDP 1928-1938 | Share of GDP 1928-1938 | Price change 1928-1934 |
|---------------------------------|----------------------------|----------------------------|---------------------------|---------------------------|
| Percentual change | | | | |
| Nominal change 1928-1934 | 0,0889 | 0,1613 | 0,0018 | 0,0002 |
| Effective rate change 1928-1934 | 0,0131 | 0,0291 | 0,0002 | 0,0077 |
| Percent unit change | | | | |
| Nominal change 1928-1934 | 0,0121 | 0,4330 | 0,0847 | 0,0002 |
| Effective rate change 1928-1934 | 0,0170 | 0,4369 | 0,0694 | 0,0026 |

Source: Own estimates based on data in previous figures.

³⁴ See for example Kitson & Solomou & Weale (1991); Hawke (1975).

³⁵ Analysis is carried out both in relation to percentual change and percent unit change.

³⁶ It should be noted that the analysis is rough and aggregate. Correlation was analyzed only at the level of 14 industries. It should be regarded, however, as reliable enough to give trendsetting results. Nevertheless, it is obvious that a more thorough multivariable study including non-trade barriers and other factors would give more accurate results.

4. Conclusion

The Finnish customs policy was not as successful as emphasized by contemporary research. The customs policy was not congruent during the depression. There was a general increase in the tariff level of nearly all industries during the depression but there obviously was a lack of comprehensive customs policy as suggested by some studies. The Finnish customs policy during the depression did not help to raise profits especially in case of most of the domestic market industries. Of the new, rising industries, rubber production did have relatively high protection already in 1928 but the level of tariffs both in nominal and effective terms was lowered by 1934. Of the clothing industries, textile production was significantly protected while the manufacture of leather products was not receiving any significant protection for its output. Furthermore, industry's inputs were more protected than output resulting with increased cost of production. In case of manufacture of electrical equipments, tariffs were among the lowest during the whole depression. In addition, the inputs used in the industry were more protected than the output reflected by the lower effective rate of protection than the nominal in 1934. These results contradict some of the assumptions repeated widely also in textbooks of Finnish economic history.

Only agriculture and manufacture of food products received significant protection during the depression. Both nominal and effective rates were raised remarkably. However, their impact on profits of industries should be questioned. The price model applied addressed clearly that tariffs were only partly able to compensate for the fall in world prices. Especially agricultural producers were not able to transfer benefits of customs to their profits and therefore to their prices. It could be therefore argued that the Finnish tariff policy during the depression was basically a contra-price-fall policy, which furthermore was directed merely on agricultural and food products. Furthermore, it was demonstrated by the regression analysis that the Finnish customs policy did not have any impact on the economic recovery or change in domestic consumer prices. Concentration was on securing domestic supply of food products, which possibly also further hindered important development of other industries. Winners of the Finnish customs policy were to some extent producers belonging to the food cluster. Consumers and domestic market industries were among the losers. As a result, the economy as a whole suffered from the policy.

The concept of effective rate of protection relies heavily on assumption that tariffs on output and inputs are fully reflected in domestic prices. This is also reflected in the question on the substitution of inputs. As a result of tariff system also coefficients a_{ij} can change. In case of the price model, to assume that impacts of tariffs or world prices were fully reflected in the value added of firms is certainly debatable. It is, however, worthwhile to acknowledge that the concept of effective rate of protection describes the extent to which the value added of industries has been protected. The question whether tariffs on output and inputs have been fully reflected in the prices still does not lessen the importance of the ERP estimate. It does give an assessment on the allocation of tariffs whether or not industries have been able to fully benefit from the policy in terms of carrying the benefit into prices. For that reason results have also been compared with actual developments of certain prices giving a possibility to assess to what extent companies were able to capitalize this benefit. In addition, results of the price model do reflect the worst-case and best-case scenario resulting an upper and lower limit for impact on prices. Nevertheless, it would be important to analyze the level of tariffs on a more detailed level. The future research should also try to include non-trade barriers into the analysis. Results presented in this paper should be considered as preliminary and many hypotheses require a closer look.

References:

- Ahvenainen, Jorma & Vartiainen, Henri J. (1982)**, *Itsenäisen Suomen talouspolitiikka*. Suomen taloushistoria 2, Ahvenainen, Jorma & Pihkala, Erkki & Rasila, Viljo (ed.), Helsinki, pp. 175-191.
- Appleyard, Dennis R & Field, Alfred J. (1998)**, *International economics, Third Edition*. Boston.
- Basevi, Giorgio (1966)**, *The United States Tariff Structure: Estimates of Effective Rates of Protection of United States Industries and Industrial Labor*. The Review of Economics and Statistics, Vol. 48, No. 2 (May, 1966), pp. 147-160.
- Capie, Forrest (1978)**, *The British Tariff and Industrial Protection in the 1930's*. The Economic History Review, New Series, Vol. 31, No. 3, 399-409.
- Capie, Forrest (1994)**, *Tariffs and growth; Some insights from the world economy 1850-1940*. Manchester.
- European System of Accounts – ESA 1995**. Eurostat 1996.
- Halme, Veikko (1955)**, *Vienti Suomen suhdannetekijänä vuosina 1870-1939*. Suomen Pankin taloustieteellisen tutkimuslaitoksen julkaisuja, Sarja B:16. Helsinki.
- Hawke, G. R. (1975)**, *The United States Tariff and Industrial Protection in the Late Nineteenth Century*. The Economic History Review, New Series, Vol. 28, No. 1, 84-99.
- Heikkinen, Sakari (1994)**, *Suomeen ja maailmalle, Tullilaitoksen historia*. Helsinki.
- Heikkinen, Sakari & Kuusterä, Antti (2001)**, *1990s Economic Crisis, The Research Programme on the Economic Crises of the 1990s in Finland: Down from the heavens, Up from the ashes, The Finnish economic crisis of the 1990s in the light of economic and social research*. Kalela, Jorma & Kiander, Jaakko & Kivikuru, Ullamaija & Loikkanen, Heikki A. & Simpura, Jussi (ed.), VATT –julkaisuja 27:6, Valtion taloudellinen tutkimuskeskus, Helsinki.
- Hjerppe, Riitta (1989)**, *Finnish Economy 1860-1985, Growth and Structural Change*. Kasvututkimuksia XIII, Suomen Pankin julkaisuja, Helsinki. (täydennä)
- Hjerppe, Riitta (1996)**, *Finland's Historical National Accounts 1860-1994: Calculation Methods and Statistical Tables*. Jyväskylän yliopisto, Suomen historian julkaisuja 24, Jyväskylä.
- Hjerppe, Riitta (2001)**, *Suuri lama ja Suomi*. Unpublished paper.
- Hjerppe, Riitta (2004)**, *Monikansallisten yritysten tulo Suomeen ennen toista maailmansotaa*. Kansantaloudellinen aikakauskirja 3/2004, Helsinki.
- Jutikkala, Eino (1982)**, *Omavaraiseen tullipolitiikkaan*. Suomen taloushistoria 2, Ahvenainen, Jorma & Pihkala, Erkki & Rasila, Viljo (ed.), Helsinki, pp. 204-221.
- Juttila K. T & Konttinen, J. H. (1936)**, *Maatalouspula Suomessa vuosina 1928-35 sekä toimenpiteitä ja tuloksia sen torjumisessa*. Porvoo.
- Kalela, Jorma (1987)**, *Pulapolitiikka, Valtion talous- ja sosiaalipolitiikka Suomessa lamavuosina 1929-1933*. Työväen taloudellinen tutkimuslaitos, Tutkimuksia 13, Helsinki.
- Kitson, Michael & Solomou, Solomos & Weale, Martin (1991)**, *Effective protection and economic recovery in the United Kingdom during the 1930s*. Economic History Review, XLIV, 2(1991), pp. 328-338.

KOM 15/1919, Komitealta, joka on asetettu valmistelemaan ehdotusta uudeksi tullitariffiksi.

Lamberg, Juha-Antti (1999), *Taloudelliset eturyhmät neuvotteluprosesseissa. Suomen kauppasopimuspolitiikka 1920-1930-luvulla*. Bidrag till kännedom av Finlands nature och folk 154, Helsinki.

Mercator magazine, 1926-1936.

Miller, Ronald E. & Blair, Peter D. (1985), *Input-Output Analysis: Foundations and Extensions*. New Jersey.

Milward, Alan & Brennan, George S. (1996), *Britain's Place in the World; Ahistorical enquiry into import controls 1945-1960*. London.

Mokyr, Joel (1980), *Industrialization and Poverty in Ireland and the Netherlands*. Journal of Interdisciplinary History, Vol. 10, No. 3 (Winter, 1980), pp. 429-458.

Myllyntaus, Timo (1991), *Electrifying Finland: the transfer of a new technology into a late industrializing economy*. Elinkeinoelämän tutkimuslaitos, Sarja A; 15, Helsinki.

Oksanen, Heikki & Pihkala, Erkki (1975), *Suomen ulkomaankauppa 1917-1949*. Kasvututkimuksia VI, Suomen Pankin julkaisuja, Helsinki.

Ray, Edward John (1974), *The Optimum Commodity Tariff and Tariff rates in Developed and Less Developed Countries*. The Review of Economics and Statistics, Vol. 56, No. 3 (Aug., 1974), pp. 369-377.

Suomen tilastollinen vuosikirja (STV) vuosilta 1920-1940.

SVT 1 A, Ulkomaankauppa 1920-1940.

Suviranta, Bruno (1931a), *Suomi ja maailman talouspula*. Taloudellisen neuvottelukunnan julkaisuja 12. Helsinki.

Suviranta, Bruno (1931b), *Finland and the World Depression*. Helsinki.

Webb, Steven B. (1980), *Tariffs, Technology, and Growth in the German Steel Industry, 1979 to 1914*. The Journal of Economic History, vol. 40, No. 2, 309-330.

Webb, Steven B. (1982), *Agricultural Protection in Wilhelminian Germany: Forging an Empire with Pork and Rye*. The Journal of Economic History, vol. 42, No. 2, 309-326.

Viljanen, V. M. J. (1931), *Piirteitä itsenäisen Suomen tullipolitiikasta*. Helsinki.

Viljanen, V. M. J. (1934), *Kotimarkkinateollisuutemme ja sen merkitys maamme taloudessa*. Helsinki.

Witthans, Fred (1973), *Estimates of Effective Rates of Protection for United States Industries in 1967*. The Review of Economics and Statistics, Vol. 55, No. 3 (Aug., 1973), pp. 362-364.

Yeats, A. J. (1976), *An Analysis of the Effect of Production Process Changes on Effective Protection Estimates*. The Review of Economics and Statistics, Vol. 58, No. 1 (Feb., 1976), pp. 81-85.