The Hawaiian Economy in the 1930s: The Successful Adjustment of an American Territory to the Great Depression
(1930年代のハワイ経済—ある『アメリカ領』による大恐慌への対応の成功例—)

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SUMMARY IN JAPANESE: 1930年代, アメリカ合衆国の大陸部分は史上最悪の経済恐慌を経験した。しかしながら, 本稿では合衆国の大陸外の領土のひとつであるハワイが, 大恐慌の最も深刻な影響を回避することに成功した事実を論じている。これは, この時期のハワイの失業率が合衆国本土のそれと比較して極めて低い水準に保たれていたことに象徴される。このハワイの成功はハワイ経済が二大農産物（砂糖とパイナップル）に過度に依存している事実を鑑みれば奇異な現象であるともいえる。

ハワイ経済は, 合衆国本土のそれとは対照的に寡占企業による支配構造が特徴である。ハロルド・イッキーズ（ローズヴェルト政権内務長官）の言葉によれば, ハワイの経済は「『砂糖寡頭制』によって支配されていた」のである。この寡占体制は兼任重役制による企業の経営権確保を手段としてハワイを牛耳っていった。そしてこの支配権によって, ハワイ経済が大恐慌による悪影響から隔離される結果となったのである。失業率は, フィリピン移民労働者の非強制本国送還があり, その空白を「市民労働者」が埋め合わせたために高くなることがなかった。さらにこの時代, 新製品の缶入りパイナップルジュースの輸出が飛躍的に伸びたために経済全体が潤うこととなった。

ニュー・ディール政策に関しても, ハワイはアメリカの他地域と比較して影響を受けなかったといえる。雇用機会創出計

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画は確かにハワイの労働者に利をもたらしたが,それはアメリカ本土における影響の大きさに較べれば死活的なものではなかった。しかしながら,二つの政策は確かに重要な意味を持った。ジョーンズ=コスティガン法によってハワイのサトウキビの年次生産量が設定され,それによってハワイは本土の砂糖製造業社に較べて著しく低い生産上限が割り当てられた。この事実は,ハワイ全体の収入源がニュー・ディール政策によって制限されることのなかったパイナップル産業へと転換されたことの一因でもある。ハワイに大きな影響を与えたいまひとつの政策は,「全国産業復興法(項目7A)」,「全国労働者関係法」によるものであり,それによって労働条件,最低賃金の改善が行われたのである。

...be it understood that Hawaii is patriarchal rather than democratic. Economically it is owned and operated in a fashion that is a combination of twentieth-century, machine-civilization methods and medieval feudal methods...[1]

Jack London

During the 1930s the United States experienced the most severe and prolonged economic depression in its history. In the depths of the Great Depression, 1933, unemployment in the mainland United States is estimated to have reached 24.9 per cent of the labor force.[2] Even President Roosevelt's New Deal proved to be insufficient to solve this economic crisis. It was rearmament from late 1938 and purchases of military equipment by foreign countries, especially Britain, rather than the New Deal which brought about a sustained recovery from the Great Depression. However, there was one part of the United States which had a much more positive experience during the Great Depression. Over 2,000 miles away from the mainland United States in the middle of the Pacific Ocean, the Hawaiian Islands actually experienced an economic recovery and a return to prosperity by the mid-1930s. This achievement took place in spite of the fact that the Hawaiian Islands were dependent on the production of two primary export staples, raw cane sugar and canned pineapples. This article seeks to explain how the Hawaiian Islands succeeded in adjusting to the Great Depression.

In the 1930s there were few places in the United States where so much power was concentrated in the hands of such a small group of people. As a direct result, the economy of Hawaii was organized on a different basis than most of the mainland United States. The mainland was organized on the basis of a more or less competitive market economy, while in Hawaii the economy was organized on the basis of what was more or less an oligopoly. Hawaii was effectively controlled by what Harold Ickes, Roosevelt's Secretary of the Interior, regarded as the "sugar oligarchy".[3] The sugar oligarchy comprised five large sugar groups, popularly known as the "Big Five", and the Dillingham family business interests. Unlike many of the mainland American "trusts", Hawaii's sugar groups were vertically integrated rather than horizontally integrated.

Like the leaders of most command economies the sugar oligarchy pursued a defensive economic policy designed to preserve their leading role in the economy and prevent economic and social change which threatened that role. The sugar oligarchy which controlled Hawaii derived its power from the production of raw cane sugar. It sought to ensure that sugar cane monoculture was preserved in the Islands. Sugar was regarded as the strategic sector of the economy. The oligarchy ensured that large sums of money were spent on research and development in every area of their industry, including backward and forward linkages, to ensure that it remained economically viable. The Hawaiian sugar industry was one of the most technologically advanced in the world at this time. In order to preserve sugar cane monoculture in the Islands, the sugar oligarchy erected institutional barriers to prevent the production of other products which would undermine their hegemony over the Hawaiian Islands. They used their effective control over the land and water resources of the Islands, their monopoly over Inter-Island shipping and their domination over shipping between Hawaii and the U. S. mainland to prevent entrepreneurs from creating new industries in the Islands which challenged their hegemony.[4]

The Hawaiian canned pineapple industry succeeded in partially breaching these institutional barriers. The businessman most responsible for the rise of this industry, James D. Dole, was viewed by some of the sugar planters as an interloper, because his competition for land and labor resources put upward pressure on the prices of these factors. The sugar planters were probably unhappy about the fact that the comparatively attractive working conditions and higher wages of the pineapple industry attracted immigrant workers away from the sugar plantations.[5] These immigrant workers were brought over to Hawaii at considerable cost from the Philippines by the sugar planters in the period 1907-32, after the Gentlemen's Agreement between the United States and Japan put an end to Japanese immigration in 1907.[6]

Unlike on the mainland, the 1920s were not Hawaii's "Prosperity Decade": indeed economic growth might actually have been negative without the contribution of the pineapple industry. The value of raw sugar cane exports fell in the 1920s. The terms of trade turned against non-luxury foodstuffs such as cereals in the period 1913 to 1937. Since sugar was also a non-luxury foodstuff, the overall performance of the Hawaiian economy is perhaps not surprising. The trend in world raw sugar prices was almost consistently downwards from the early 1920s until the end of the 1930s. It was not until 1939 that a sustained recovery in prices took place. This downward trend in prices after the boom in the first couple of post-war years was at least in part caused by over-production. Albert and Graves suggest that by the late 1920s only one quarter of world sugar production was sold in non-preferential or non-protected markets.[7] They argue, "This disarticulation of the international market was in turn largely responsible for the failure of the price mechanism to operate so as to reduce supply."[8]

The Great Depression in the mainland United States, and indeed the Pacific, took quite a long time to reach Hawaii. Although references to unemployment and falling economic indices began to appear in the Hawaiian press in the spring of 1930, the Great Depression did not begin to fully affect Hawaii until the end of 1931. However, it was inevitable that Hawaii, with such a high degree of dependence on the American mainland market, would eventually be affected. Ironically it was the collapse of the canned pineapple industry and the construction industry in late 1931, rather than that of the sugar industry, which heralded the arrival of the depression in Hawaii. Before the late part of 1931 construction work in Hawaii had been at a peak, as had been the pineapple industry. The construction industry had been competing with the pineapple industry for additional labor. The magnitude of the collapse of pineapple industry employment in late 1931 can be seen by the fact that a comparison with the first six months of 1931 and 1932 showed a decrease of over 55 per cent in total man days.[9] In 1931 total merchandise exports stood at $102 million; in 1932 they fell to $83 million.[10]

However, unlike on the mainland, the depression in Hawaii proved to be relatively short-lived. Perhaps this was a reflection of the institutional structure of Hawaii. Noel Kent argues that the sugar oligarchy sought to protect the territory's existing socio-economic structure during the 1930s. However, Kent does not believe that this structure provided the Hawaiian economy with the capacity to insulate itself from the depression.[11] It will be argued below that the Hawaiian economy, contrary to the belief of Kent, appears to have derived the necessary strength from its institutional structure to insulate itself from the worst effects of the Depression, and indeed was to achieve respectable rates of economic growth throughout most of the 1930s. The sugar oligarchy could not permit mass unemployment on the scale of the mainland United States to occur in the Islands, because that would put in jeopardy their political control over the Territory. The non-white majority in Hawaii had already shown that they were not prepared to tolerate economic and social hardship in a series of strikes in the 1920s.[12] Hence the white business community took measures to prevent unemployment rising above the level of 2.0 per cent reported in the US Census in 1930.[13]

The sugar oligarchy exercised a high degree of control over the labor market in Hawaii. As observed above, they had imported large numbers of Filipino migrant workers at great expense between 1907 and 1932. Altogether a gross number of about 115,000 Filipino male and female workers (excluding children) were brought over to Hawaii in this period. Between 1932 and 1934 the sugar planters repatriated just under 12,000 Filipinos involuntarily, about 8 per cent of the total Hawaiian labor force or over one quarter of the sugar industry labor force.[14] Thus Hawaii succeeded in exporting unemployment to the Philippines.

Unemployment in Hawaii appears, as a result of the involuntary repatriation of the Filipinos, to have peaked at around 6.9 per cent of the civilian labor force in 1933 according to an estimate by R. C. Schmitt.[15] A year later the U. S. National Recovery Administration reported that unemployment barely existed in Hawaii, and their data suggested that it was still only about 3 per cent,[16] a remarkably low figure compared with the mainland United States, where 21.7 per cent of the labor force were unemployed.[17] In 1937, the National Unemployment Census found that 4.5 per cent of the civilian labor force were unemployed (including those on relief programs) in the Territory of Hawaii. However, the returns were incomplete and not directly comparable with the

U.S. Censuses of 1930 and 1940.[18] Three years later the U.S. Census suggested that 4.4 per cent of the labor force of Hawaii was unemployed (2.7 per cent excluding those on relief programs) compared with 2 per cent in 1930.[19] However, on the U. S. mainland, 14.6 per cent of the labor force were still unemployed in 1940.[20]

In early 1932, the Hawaiian sugar oligarchy had also ceased all recruitment of foreign migrant workers, and instead recruited new workers from within Hawaii, the so-called "citizen laborers".[21] Statistics collected by the Hawaii Commission on Unemployment Relief show that of the 6,191 men registered for work relief, none had actually been previously employed by the sugar industry, as can be seen in the table below;

Table 1. PREVIOUS OCCUPATIONS OF MEN REGISTERED FOR WORK RELIEF IN FEBRUARY 1933 IN HAWAII

Previous Occupation	No.	%
Construction	2910	47
Pineapple Industry	1114	18
Retail Stores	805	13
Civilian Employees of the Army and Navy	434	7
Office, service stations, taxi drivers and misc.	495	8
Steamship Companies	433	7
Total	6191	100

Source: H. A. Mountain, "Unemployment Relief in Hawaii," *The Friend*, 103 (1933) : pp.81, 90-2.

Schmitt has suggested that during the 1930s unemployment rates in Honolulu were considerably higher than those for rural Oahu or the outlying Islands.[22] This would suggest that the citizen labor program of the sugar planters did have a real impact on rural unemployment in Hawaii during the 1930s.

In 1933 Hawaii's total merchandise exports began to recover some of the losses of 1932 by rising to $93 million. Further gains were made in 1934, when exports rose to $96 million, and in 1935 exports at $100 million had almost regained their 1931 level. The *Honolulu Star-Bulletin* believed that the year 1935 marked Hawaii's recovery from the Great Depression.[23] Indeed in

1936 and 1937 Hawaii experienced its first major real economic growth since the pre-First World War period as total merchandise exports rose successively to $127 million and $132 million. However, there was a sharp setback in 1938 when merchandise exports fell back to $98 million, thus losing all of their growth since 1935. This setback was largely because the value of the 1938 sugar crop was $15 million below 1937 owing to poor yield and low prices.[24]

In 1939 exports recovered to $115 million, but in 1940 fell once again to $103 million. Although external trade in 1940 was weaker than in 1939, the domestic trade was stronger in 1940 than in 1939.[25] The *Honolulu Star-Bulletin* reported that "1940 in Hawaii was featured by substantial increases in many lines of business and industrial enterprise."[26] For example, retail trade grew by nearly 12 per cent in 1940. The strength of the domestic economy was clearly related to the domestic and military construction boom caused by rearmament.[27] The *Honolulu Star-Bulletin* reported that

> New high records were established by construction of all kinds [in 1940], and single family construction, in Honolulu, and territorial real estate transactions were at a six year peak.
>
> As part of the national defense program, army and navy construction established a record, with millions of dollars spent during the 12 months, and additional millions were allotted for projects to start in 1941.... [28]

In 1941, merchandise exports rose to $134 million, exceeding their record level of 1937.[29] Thus overall, using merchandise exports as a rough approximation for Territorial income[30], it is probably fair to suggest that Hawaii experienced on average a relatively high rate of economic growth after 1935. Indeed it might be argued that with the exception of the years 1932-34, the 1930s were more of a "Prosperity Decade" in Hawaii than the 1920s.

Roosevelt's New Deal appears to have made a much smaller contribution to Hawaii's recovery from the depression in the 1930s than on the mainland, and indeed some contemporaries argued that it actually seriously hindered economic recovery in Hawaii. The New Deal programs designed to relieve unemployment were of much less importance to the people of Hawaii than those of the mainland United States. Indeed many of those employed on these programs, for example the Civilian Work Administration (CWA), appear to have been directly transferred from the payrolls of the County Governments in the Islands. The only difference was that the Federal Government now paid their wages instead of the County Governments. For example, the $2,500,000 made available by the Public Works Administration (PWA) in 1934 appears to have been used in this way.[31]

The Territorial Government had already set up an unemployment relief program well before Roosevelt's victory in the 1932 Presidential Election. In the latter part of 1931, the Governor appointed a Commission on Unemployment Relief to ascertain the exact magnitude of the unemployment problem in Hawaii. In March 1932, the Commission set up an office with a grant of $5,000 from the Honolulu Chamber of Commerce for operating expenses to register the Territory's unemployed. The Territorial Legislature appropriated $100,000 for unemployment relief and in November 1932 $307,000 was received from the Federal Reconstruction Finance Corporation.[32] As Table 1 shows, by February 1933, 6,191 men were registered for work relief in Hawaii.

On June 1, 1933, the Territorial Legislature passed a bill for the relief of unemployment in Hawaii, providing for a tax of 0.5 per cent on salaries, wages and dividend. A new Unemployment Work Relief Commission was also established which replaced the previous commission. Under the Federal Emergency Relief Act, the Territory received quarterly one-third of its total expenditure on unemployment relief from the Federal Government.[33]

On November 21, 1933 the chief of the CWA, Harry Hopkins, informed Richard A. Cooke, the chairman of the Unemployment Work Relief Commission, that his organization had been officially designated as the CWA unit in Hawaii. Cooke was authorized to establish his own organization to undertake the establishment and supervision of the CWA program in the territory. In December 1933, $850,000 was forwarded by Hopkins to remove up to 7,500 persons from the relief rolls in Hawaii. They were to be provided with jobs 30 hours a week. These consisted of clerical, skilled and unskilled jobs covering a cross-section of the unemployed registered on the roll. However, although Hawaiian Governor Judd made a conservative estimate that unemployment stood at around 10,000 in November, only just over 3,000 persons were registered throughout the entire territory for unemployment relief at this time.[34] This was half the number registered in February 1933. Harry Hopkins set the CWA wages at $1.00 an hour for skilled labor and $0.45 an hour for unskilled labor for a 30 hour week. However, Cooke, who was also a local businessman, attempted to reduce the CWA wages in Hawaii to $0.65 and $0.25 respectively. The British Consul in Honolulu believed that Cooke's objective was to keep the wages of the unemployed near the level of wages paid in the sugar industry. This proposal was rejected by the Roosevelt Administration and the unemployed were taken on at the same rates of pay and hours of work as on the mainland.[35]

On April 1, 1934, the relief administration was ordered by the national administration to discontinue the CWA program as such and to immediately carry out an investigation of all cases on the relief rolls, but to maintain the same administrative organization as under the CWA. The CWA was absorbed into the Federal Emergency Relief Administration (FERA). It was necessary to establish a case work and social service department to have personnel qualified to carry out investigations. The Territory also received $1.1 million from the FERA in 1934.[36] From 1935 Hawaii received substantial sums of money from the Works Progress Administration (WPA), which superseded the PWA after the National Industrial Recovery Act (NIRA), was found to be unconstitutional. For example, in the fiscal year ending June 30, 1937 the Territory received $4.7 million from the WPA for civilian and military projects, exclusive of sponsors' contributions.[37] As late as the fiscal year ending June 30, 1940 the Territory received over $1 million from the WPA, exclusive of sponsors' contributions.[38]

Like the other programs, the National Recovery Administration (NRA) made only a marginal contribution to Hawaii's economic recovery. In this case there were several reasons. The first and foremost was that the NIRA only applied to a small proportion of Hawaii's workers, as all those employed in agricultural work and in public services were excluded from its provisions. The second reason was that the NRA administrators felt that compared with the mainland United States there was no depression in Hawaii and that unemployment was not a serious problem; hence there was very little that they could accomplish. The third reason was that the NRA had been brought to Hawaii at the specific request of the sugar oligarchy who wished to use Section 7A to set wage rates at a high enough level to put their small Asian competitors out of business.[39] A NRA administrator observed that "the Territory's 'haole' businessmen [were] a very selfish and unscrupulous lot."[40] However, ironically this proved to be a costly mistake on the part of the sugar oligarchy. They unwittingly set in motion a consistent upward movement in the level of wages between 1934 and 1941. By 1941 wage levels in Hawaii were significantly higher than they had been in 1929, and compared much more favourably with those on the mainland than they had done in the past. A U. S. Bureau of Labor Statistics Report suggested that taking 1924 as a base year of 100, average incomes of Hawaiian sugar plantation workers had risen to 120 points by 1939, with most of the growth having taken place since the beginning of 1935, while using the same base year, mainland United States farm wage earners' incomes had fallen to 70 points by late 1938.[41] As a consequence, the sugar oligarchy appear to have sacrificed profits at the expense of wages.

Indeed it became impractical to put a halt to the rise in wages after Section 7A was revived in the Wagner Act of late 1935, following the U.S. Supreme Court's decision earlier that year that the NIRA was unconstitutional. The sugar oligarchy was forced to respond to the creation of the NLRB under the new act by improving working conditions and wage rates in order to prevent labor unions gaining a foothold in Hawaii. The Ewa Plantation, for example, completed a $750,000 building and improvement program for the village and labor camps, including a $100,000 recreation center and gymnasium in 1937. The development work also incorporated a new hospital building. The protection given to labor unions by the New Deal in the second half of the 1930s meant that it was more difficult for the sugar oligarchy to prevent the organization of labor in the Hawaiian Islands.[42] Nonetheless, even with the assistance of the NLRB, labor unions had little success in organizing the Territory's workers before World War II.

Broadly speaking the sugar oligarchy welcomed the early New Deal programs, with the notable exception of the Sugar Control Program, and gave them their full cooperation. As has been shown in the case of the NRA, the programs tended to strengthen their hegemony, not weaken it. Another good example is the case of the Emergency Conservation Work (ECW), later known as the Civilian Conservation Corps (CCC). The ECW program officially began in Hawaii on December 11, 1933. By 1938, enrollment had reached 900 men with 675 enrollees employed in the Territorial Forestry Commission and 225 in the Hawaiian National Park.[43] This program clearly benefited the sugar industry as the Forestry Commission helped protect the watersheds and forests which were of vital importance to the cultivation of water-greedy sugar. In 1938 the director of the CCC reported on another benefit to the sugar industry:

> I was told... that our method of feeding enrollees, our provision for organizing recreation and our effort to help enrollees to carry on their education had been of distinct interest to plantation managers and had

resulted in these features of plantation life being substantially improved.[44]

The director believed that because of these interrelationships, plantation conditions improved, and more local people were willing to return to work in the industry.[45] However, the director of the CCC probably overestimated his agency's role in this process. A secret report prepared by Industrial Relations Counselors for the sugar industry's trade association, the Hawaiian Sugar Planters' Association (HSPA), in 1925 on ways to prevent labor unrest, had already highlighted the need to improve the plantation workers' environment.[46] The sugar oligarchy had a much less favourable disposition to the later New Deal programs, since they tended to undermine their hegemony. The Wagner Act, in particular, was to sow the seeds that led to the end of their hegemony in the second half of the 1940s.[47]

However, in the 1930s it was an early New Deal program which had the most adverse impact on the Hawaiian economy, and in particular the sugar industry. In 1934 the Jones-Costigan Act placed annual quotas on the production of sugar cane in Hawaii. There can be no doubt that the Territory of Hawaii, which had no voting representatives in the U. S. Congress, got disproportionately low quotas compared with the mainland sugar producers. Table 2 shows that sugar cane production in Hawaii was effectively frozen at the level of 1928-9, a reduction of about 10 per cent on the level of 1932-33. The HSPA challenged the legality of the Jones-Costigan Act in a case before the District of Columbia Supreme Court on October 22, 1934. The suit was dismissed with the general conclusion that the Territory of Hawaii was not an integral part of the United States and that the U. S. Congress might constitutionally discriminate against the Islands.[48] This decision went against all legal precedent, but was in conformity with the Organic Act of 1900 by which Hawaii had been incorporated as a U. S. Territory.

The quota system imposed upon the Hawaiian sugar industry was bitterly resented by the sugar oligarchy, and led them to reverse their previous policy of opposition to Hawaiian statehood, in the hope of sending Representatives and Senators to defend their interests in the U. S. Congress. However, their campaign for statehood was unsuccessful.[49] The resentment felt by the oligarchy was not entirely justified because the quota system helped to stabilize their market on the United States mainland, and the sugar planters received considerable sums of money in compensation for their adherence to

Table 2. SUGAR CANE PRODUCTION IN THE TERRITORY OF HAWAII, 1928-41.

Year	Raw Sugar Cane (short tons)
1928-29	913,670
1929-30	924,463
1930-31	993,787
1931-32	1,025,354
1932-33	1,035,548
1933*	123,959
1934	936,318
1935	963,316
1936	1,016,371
1937	920,630
1938	917,983
1939	968,392
1940	951,411
1941	947,190

* = October-December 1933

Source: Hawaiian Sugar Planters'Association.

the quotas.[50] Indeed, it would have made little sense to increase the production of sugar cane, at least until the end of the 1930s, given the fact that the consumption of sugar in the United States remained virtually unchanged for 10 years. Total consumption of raw sugar in the United States was approximately 6.6 million short tons in 1929, and remained more or less at that level until 1938. It was only in 1939 that the consumption of sugar began to rise again, reaching a pre-war peak of 7.6 million short tons in 1940. In per capita terms American consumption of sugar actually declined from a peak of 115 pounds in 1928 to 98 pounds in 1938, and did not exceed the level of 1928 before the beginning of the Pacific War.[51] In the light of these adverse market conditions the accusation of discrimination made by the sugar oligarchy looks slightly less conclusive.

Nonetheless the quota system meant that sugar was not a growth sector in the Hawaiian economy in the 1930s. Table 3 shows that sugar cane exports

Table 3. HAWAIIAN RAW SUGAR CANE EXPORTS TO THE U. S. MAINLAND BY VALUE, 1929-41

Year	$ million	Year	$ million
1929	61.9	1936	68.0
1930	55.2	1937	63.6
1931	60.8	1938	50.7
1932	57.6	1939	55.2
1933	64.1	1940	47.3
1934	54.9	1941	50.9
1935	58.7		

Source: U. S. Bureau of Foreign and Domestic Commerce, Monthly Summary of Foreign Commerce (Washington, D. C.: Government Printing Office, 1930-42).

only exceeded their 1929 value in three out of the next 12 years. Indeed, in 1941 the value of sugar exports was 18 per cent less than in 1929. The sugar oligarchy was forced to find a way of adjusting to the constraints placed on them by the U. S. Congress: with stagnating revenues from raw sugar exports and a rising level of wages, there was no way that this adjustment could be avoided.

The sugar oligarchy sought to adjust to the Great Depression by adopting two measures. The first was a reduction in their costs of production. The principal means of achieving this was to substitute machinery for increasingly expensive labor. In the early 1930s high-powered diesel crawler tractors were introduced for the preparation of sugar cane land. The 'direct-connected planter' was also introduced in the early 1930s. In 1936 motor trucks were introduced. Until that time trucks had been considered impractical for the haulage of cane because of insufficient traction in the field where they got frequently stuck. However, with the multiple axle drive powering four rear wheels (each with double tires), in addition to front wheels, this obstacle was removed. These trucks provided quick haulage directly to the mill at a low cost. In 1939, James H. Shoemaker of the U. S. Bureau of Labor Statistics observed that the increased use of these trucks in the late 1930s had resulted in a reduction in the amount of labor required for transporting cane.[52] The sugar plantations also made great efforts to economize in the use of labor in another area of sugar production. In the second half of the 1930s extensive experiments were undertaken with various types of mechanical cane cutters.[53] The plantations found the bulldozer rake to be the most effective cane cutter. The Kilauea Sugar Plantation Co. pioneered the substitution of these machines for labor. Other plantations were quick to follow suit. For example, in 1940 47 per cent of the Kohala Sugar Co.'s sugar crop was rake harvested.[54]

During the decade 1930-40, the value of machinery and implements per worker in 1910-14 dollars increased from $61 to $66, or an increase of 8.2 per cent. In the previous decade, 1920-30, there had been a fall of 16.4 per cent from $73 to $61. Overall physical capital (including land) per worker rose from $2,008 to $2,223 in the decade 1930-40, an increase of 10.7 per cent. In the previous decade physical capital per worker had fallen by 7.4 per cent.[55]

The second measure taken was economic diversification. The sugar oligarchy had not been very enthusiastic about economic diversification in the past because they felt that it would ultimately destroy their hegemony over the Islands. However, in the 1930s, especially during the period 1932-34 when the very economic survival of the Territory was at stake, the sugar planters softened their resistance to economic diversification. Ironically this was partly the result of the fact that in 1932 they had been able to take advantage of the economic crisis to remove James D. Dole[56] from control of his practically bankrupt Hawaiian Pineapple Co. Castle & Cooke, a leading member of the Big Five, gained effective control of Dole's company in 1932,[57] and together with the existing pineapple companies under the control of Alexander & Baldwin and American Factors, the Big Five now controlled about one-half of Hawaii's pineapple industry. The other half of the industry was controlled by two mainland corporations, Libby, McNeill & Libby and the California Packing Corporation.

In 1932 the Hawaiian pineapple canning industry was in a far worse state than the sugar industry, production and value of output having fallen by over one-half. However, the situation was very quickly turned around as a result of three factors. The first factor was the adoption of a voluntary agreement on the curtailment of the production of canned pineapples. This had a decisive stabilizing influence on the mainland American market where Hawaii supplied over 90 per cent of the demand for canned pineapples. The second factor was the expenditure of millions of dollars on advertising canned pineapples in the mainland United States, which quickly revived the demand for canned pineapples amongst the most affluent section of American consumers, who had been relatively unaffected by the Depression.[58] By the mid-1930s the demand for canned pineapples had recovered to above the level of 1929, as can be seen in Table 4. The third factor was the development and successful marketing of a new product in the early 1930s, canned pineapple juice. Ironically the breakthrough was made in 1931 by James D. Dole's Hawaiian Pineapple Co. Through the use of advertising and skillful marketing the pineapple canners captured a large share of the new and rapidly growing market for canned natural fruit juices.[59] Between 1933 and 1941 the output of canned pineapple juice grew from 0.7 million to 14 million cases, as can be seen in Table 4.

In 1941, for the first time since the 1870s, sugar exports were second place in terms of value: they had been overtaken by pineapple exports. Table 5 below shows that from 1936, pineapple exports were only once below their value in 1929, and even then by two per cent. Indeed in 1941, total pineapple exports

Table 4. HAWAIIAN CANNED PINEAPPLE AND PINEAPPLE JUICE OUTPUT, 1929-41

Year	Canned Pineapples (million cases)	Pineapple Juice (million cases)
1929	9.2	—
1930	12.6	—
1931	12.8	—
1932	5.1	—
1933	8.0	0.7
1934	9.7	3.0
1935	10.4	4.1
1936	10.9	6.8
1937	12.2	7.2
1938	10.5	8.9
1939	11.0	8.6
1940	11.1	11.3
1941	11.0	14.0

Sources: *Western Canner and Packer Yearbook* 32 (1942), p.159;
Western Canner and Packer Yearbook 33 (1943), p.133.

Table 5. HAWAIIAN CANNED PINEAPPLE EXPORTS TO THE MAINLAND UNITED STATES BY VALUE, 1929-41

Year	Canned Pineapple ($ million)	Pineapple Juice ($ million)	Total ($ million)
1929	38.4	—	38.4
1930	37.7	—	37.7
1931	35.3	—	35.4
1932	20.6	—	20.6
1933	23.9	*	23.9
1934	34.2	0.1	34.3
1935	28.2	5.6	33.8
1936	38.8	12.6	51.4
1937	42.7	16.7	59.4
1938	24.6	13.2	37.8
1939	34.1	16.7	50.8
1940	27.8	17.8	45.6
1941	42.1	21.3	63.4

* = $1,182

Source: U. S. Bureau of Foreign and Domestic Commerce, Monthly Summary of Foreign Commerce (Washington, D. C.: Government Printing Office, 1930-42).

were 65 per cent above their value in 1929. Hawaii's remarkable return to economic prosperity in the 1930s appears primarily to be attributable to the pineapple industry. The very industry which the sugar oligarchy had seen as a threat to their hegemony before the depression, provided their economic salvation in the 1930s.

The Territory of Hawaii successfully adjusted to the Great Depression of the 1930s. This would appear to go against everything that is known about the economic history of the 1930s. However, there was a high degree of voluntary collusion between the primary producers of Hawaii. The sugar producers were organized under the auspices of the HSPA, while the pineapple canners had formed a cartel in 1933, the PPCA. This meant that the Territory's primary producers adopted a much more coordinated response to the Great Depression

Table 6. ESTIMATED MILITARY AND TOURIST EXPENDITURE IN HAWAII, 1929 TO 1941 ($ MILLION)

Year	Military Expenditure	Tourist Expenditure
1929	n. a.	10
1930	n. a.	9
1931	35	7
1932	n. a.	4
1933	n. a.	4
1934	n. a.	6
1935	n. a.	8
1936	35	9
1937	30	10
1938	30	10
1939	35	11
1940	45	12
1941	85	16

Source: Robert C. Schmitt, *Historical Statistics of Hawaii* (Honolulu: University of Hawaii Press, 1977), p.165.

than most contemporary mainland primary producers. This was indeed fortunate for the Territory's workers because the HSPA and PPCA controlled the greater part of the arable land in Hawaii in the 1930s. Hence a reversion to subsistence farming was not a realistic possibility for most of these workers, and was probably actively discouraged by most plantation owners who feared subsistence farms would become havens for sugar cane and pineapple pests. Indeed, on some plantations workers were even forbidden to grow their own vegetables in their gardens.[60] Furthermore, the Territory's public land policy in the 1930s was based on the premise that sub-marginal small homestead farms should be liquidated and, where feasible, consolidated with one of the existing plantations.[61]

Most of the relatively small number of Hawaiian workers directly affected by the depression had been employed in the secondary and tertiary sectors of the Territory's economy. These sectors served the needs of the sugar and pineapple industries, the tourist industry and the military bases in Hawaii.

Table 6 suggests that the tourist industry was still very small in the 1930s. It catered for the small luxury-sector of the American market, which collapsed between 1931 and 1936. The only major secondary industry in Hawaii was pineapple canning, as has been shown above. The remainder of the secondary sector mainly serve the sugar and pineapple industries in Hawaii, a good example being the Honolulu Iron Works which made agricultural and processing machinery. Table 6 suggests military expenditure in Hawaii only began a sustained recovery in 1939, five years after the recovery in tourist expenditure. As has been shown above, the national defence program provided a major boost to another part of the secondary sector, construction.

The New Deal does not appear to have made a significant contribution to Hawaii's early recovery from the Depression. The coordinated response of the sugar oligarchy and the pineapple industry to the Depression meant that by the beginning of the New Deal, large-scale intervention in the Hawaiian economy was not necessary. However, the New Deal made an indirect contribution to the improvement of the working and living conditions of the Territory's plantation workers. For the first time since the 1890s, Hawaii's economy was subjected to in-depth scrutiny by agents of the U. S. Federal Government. Many of these agents, particularly those who were with the NRA and the NLRB, were extremely critical of the Territory's economic and social structure. They sought to use the New Deal legislation to bring about economic and social change. Hawaii's business leaders reacted by improving labor conditions to prevent change and preserve their hegemony over the Islands. Before the outbreak of the Pacific War in December 1941 the business leaders appeared to have achieved their objective.

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