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A History of Current Account Balances in Japan from the Perspectives of Savings and Investment

Mariko Hatase* and Yoichi Matsubayashi**

Abstract

Theories on the determinants of current account balances are not immutable. While Japan's current account surplus was a major issue for international policy debates between the late 1960s and the 1980s, existing theories coexisted with a novel theory known as the savings and investment approach. The review on historical materials from the archives of policymakers, such as the Bank of Japan, and from international organisations, such as the International Monetary Fund, reveals that the early appearance of this theory in research documents could be traced back to the late 1970s, but the penetration of the notion took many years. The choices of the theory are linked to the choices of suggestions or requests of particular types of macroeconomic policies.

We examine the development of Japan's current account balances between the mid-1950s and the mid-1980s using the savings and investment approach, which enables us to distinguish between structural and actual fluctuations. The estimated results indicate that the role of structural factors in the current account balance was strengthened during the second half of the 1960s and the first half of the 1970s. Then, in the 1980s, it began to increase rapidly again.

Keywords: Current accounts adjustment; Balance of payments; Savings and investment approach; Structural current accounts

JEL classification: E20, E60, F32, N10

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1. Introduction

The current account is the net result of savings and investment, private and public. It is determined by the investment decisions and the savings decisions of the private and public sectors. This view is accepted as “obvious” but once was not when Japan first experienced chronic surpluses from the late 1960s. It was the era when the adjustments between surplus and deficit countries, namely Japan and West Germany as the former and the US as the latter, became an important policy issue.¹ The policy debates focusing on the remedies for imbalances between surpluses and deficits were based on theories at the time and the savings and investment approach was not applied at the beginning of the debate.

In this paper, we investigate the process of emergence of the view focusing on savings and investment in academia and when and how it spread among policy makers. As policy makers, we mainly focus on government departments and the central bank in Japan as well as international organisations, such as the Organisation for Economic Cooperation and Development (OECD) and the International Monetary Fund (IMF). It turns out that the savings and investment approach appeared in historical documents in the late 1970s, while it took a considerable period for this approach to penetrate among policymakers. Then, we examine how current account imbalances at the time look like when using a savings-investment analytical framework through the analysis of long-term development of Japan's current account balances. The estimated results show that the role of structural factors causing the current account surpluses in the current account balance was strengthened during the second half of the 1960s and the first half of the 1970s. It was then weakened until the mid-1980s. Our quantitative analysis suggests that the trend of Japan's current account surplus became more pronounced in the late 1960s. From the late 1970s through the mid-1980s, the structural current accounts surplus by the private sector due to the decline in investment played a crucial role to support the actual current account surplus.

2. A history of theories of current accounts

Theoretical approaches towards current account balances have developed in both the neo-classical and Keynesian schools. In the 1960s, theories with Keynesian origins, such as the Mundell and Fleming model emerged and spread quickly, while those with traces of classical factions,² such as the elasticity approach, were widely applied at the same time. Behind these theories, the pioneering research with the savings and investment analytical framework by Metzler was published in 1960 but this stream did not appear on the surface as far as the policy

¹ Corden (1991).

² Examples of classical works leading to theories on current accounts in the 1960s are Marshall (1890) and Hicks (1939).

making process is concerned in that decade.

Elasticity Approach

The elasticity approach to the balance of payments, one of the theories widely applied by policy makers, is an approach for examining the relationship between the exchange rate and the current account balance, and it is based on the idea that changes in the exchange rate alter the trade balance.

For example, when exchange rates for a home country depreciate against that of a foreign country, the volume of exports for the home country increases and the volume of imports decreases, while the price of imported goods increases. In this case, for trade balances to be improved, the effect of the sum of export volume increase and the import volume decrease must exceed the effect of the increases in import prices. This condition is known as the Marshall-Lerner condition.

The elasticity approach is an application of the analysis of the impact of exchange rates on imports and exports in international trade theory, and has been elaborated by Machlup (1939), Meade and Stone (1941), and Harberler (1949).

Absorption Approach

The absorption approach is an approach that defines the current account balance as the difference between gross domestic product and gross domestic expenditure in macroeconomic conditions, and that tries to understand the changes in current account balances in relation to the changes in the domestic macroeconomic conditions. For example, when domestic demand is relatively weak compared to domestic production during a recession, the current account will be in surplus. On the other hand, when domestic demand (i.e., absorption) increases in an economic boom, the current account balance will deteriorate. This way of thinking is based on the macroeconomic analytical framework pioneered by Keynes (1936) and developed mainly at the IMF in the early 1960s (e.g., Alexander (1952)).³

The model presented by Alexander (1952) focuses only on goods markets in macroeconomic conditions. Then, Mundell (1960) and Fleming (1961), who worked for the IMF at the time, explicitly considered the interdependence of income, interest rates, exchange rates, and current account balance in the overall macroeconomic system by introducing financial markets and foreign exchange markets in the model. This model is called the Mundell-Fleming

³ Polak, who served on the staff of the IMF Research Department from 1947 to 1980 and then became a member of the Executive Board, recalls, "The development in the IMF of the absorption theory of balance of payments adjustment, for example, was a direct consequence of the soul-searching that went on in the Research Department in response to the Mexican exchange crisis of 1948" (Polak 1995).

model and is still widely used today as a macroeconomic analytical framework for an open economy.

Monetary Approach

The elasticity approach and the absorption approach focus on trade balance or current account imbalances, while Mundell (1960) and Johnson (1976) developed a framework that focuses on imbalances in the balance of payments, including the capital account (or changes in foreign exchange reserves). This approach is known as the monetary approach. It emphasises that imbalances in the balance of payments are caused by imbalances in the money market (excess supply or demand of money) and that monetary policy is an appropriate method for adjustments.

I-S Balance Approach

The current account balance is equal to the difference between a country's total savings and total investment in the national accounts; the concept of analysing balance of payments fluctuations based on this relationship is called the savings-investment balance approach.⁴

In a sense, this approach is similar to the absorption approach as both focus on the goods market, but the savings and investment approach is characterised by its ability to capture changes in current account balances from the perspective of the excess or shortage of funds in a country and by sector (e.g., private and public). The savings and investment balance approach was developed by Metzler (1960), which is applicable when an entire economy is under full employment. In the case of an economy with underemployment, the Keynesian framework can be interpreted as an open macro model, and it exactly is what was presented by the Mundell-Fleming model.⁵

3. When and how did the savings and investment balance approach penetrate policy makers?

3.1 An overview

Corden (1991) calls the savings and investment approach on current accounts the “new view”, distinguishing it from earlier theories, or the “old view”. The pioneering works appeared in the late 1970s in the IMF, while the “old view” survived at the time of his writing in 1991. According to Corden (1991), “in its most general form, the new view may be put as follows. The current account is the net result of savings and investment, private and public. An increase in

⁴ It does not simply mean that ex-post changes in savings or investment cause changes in current accounts (Obstfeld and Rogoff (1996)) and, thus, the determining process of the current account is dynamic rather than static in this theory. For the details, see the models in the Appendixes.

⁵ For further developments of theory and empirical studies, see Obstfeld (2001).

current account deficit can be caused by an increase in investment or a fall in savings” and “during his (authors’ note: Jacque Polak’s) long and fruitful reign, an important paper came out of the Research Department of the IMF—namely, Salop and Spittaller (1980)—, in fact, one of the earliest statements of the new view. I recall Jacques citing this paper to me with approval several years later”. The earlier version of “Salop and Spittaller (1980)” was circulated in the IMF in August 1979.⁶ In their paper, they claim, “fundamentally, the current account is the difference between the economy’s savings and investment. Hence, any criterion for determining the appropriateness of adjustment action, such as a deviation from sustainability or optimality, depends on a corresponding assessment of the levels of savings and investment that underlie the current account”.

However, the “old view” survived among the policy makers and co-existed with the “new view”. Corden (1991) describes such situation as follows.

This issue can be compared with the free trade-protection debate. The usual way in which economists approach the free trade-protection issue is to begin with the principle of comparative advantage, a principle not widely understood outside of our profession, and endlessly expounded and defended by economists worldwide. This principle is, in my view, comparable with the new view”.

“the old view has been implicit in a mass of writing in this field coming from the Fund, the OECD, the bank for International Settlements, many governments, and independent commentators. ...

it is new in the sense that only lately has it crept into the Fund’s World Economic Outlook, its Staff Studies, and the OECD Economic Outlook, as well becoming widely accepted in the academic worlds as “obvious.” Yet, the old view still lives, at least implicitly, with continuing concerns about “imbalances” or expressions of delight that these imbalances have been declining and may decline further.

In short, the savings and investment balance approach, which was generated by Metzler in 1960, started spreading in the policy debate arena in the late 1970s and the co-existence of earlier theories and the savings and investment balance approach lasted at least through the early 1990s.⁷

⁶ Joanne Salop and Erich Spitaeller, “Why does the current account matter?” Research Department, August 2, 1979, Ref: 212592, IMF Archives.

⁷ In the case of Japan, one of the debates over whether the savings and investment balance approach should be applied for policy making, i.e., the debate between Komiyama and Koo, was active in the mid-1990s. For this debate, see Komiyama (1994) and Koo (1996).

3.2 Snapshot evidence as to which theory was applied in policy debates

In this section, we pick up archival materials from international organisations and the Bank of Japan examining which theory was applied among policy makers when the prospect of a fixed exchange rate system under the Bretton Woods System deteriorated.

In 1969, an eminent economist from the IMF, Marcus Fleming, wrote a staff paper entitled “A Wider Margins of Exchange Rate Variation”, where he estimates the impacts of expanding exchange rate bands from 1% around the parity to 5%, on short-term capital accounts, long-term capital accounts and current accounts, respectively.⁸ The focus of current account balance forecasts is mainly on the prospect of trade balances and he applies an elasticity coefficient of exports and imports to a one per cent change in exchange rates as –2.1 per cent and 1.0 per cent, respectively. Clearly, the elasticity approach is used for practical purposes.

Another example is the case of Japan in 1970. When revaluation of the yen was one of the major policy concerns for monetary authorities in the early 1970s, the elasticity approach was a theory that appeared in historical documents.

One example remains in the Bank of Japan Archives. “A Paper for the Discussion on the Issue of Yen’s Revaluation”, in February 1970 was prepared by the staff members from the Research Department, Foreign Department and Policy Department for a meeting attended by the governor, the deputy governor, and limited numbers of executive directors, department heads and the authors of this analytical paper.⁹ The authors apply the elasticity coefficients of exports and imports estimated by Fleming (1969) and by Assistance Professor Kinoshita from Nagoya University (for exports, between –0.99 and –2.15; for imports, between 0.67 and 1.71) when estimating the impact of the yen’s revaluation by five percent on trade balances and overall balances. They conclude that a five per cent revaluation would bring a reduction in trade surplus by 0.1 billion dollars and would offset the surplus in overall balances expected by the government in 1970.¹⁰

⁸ This paper is not available in the catalogue of the IMF online archives at the time of writing. The IMF bibliography in 1972 (Loftus 1972) refers to the paper with the same title in Fleming (1971). Fleming (1971) notes that the original paper was written in 1969 and unpublished. The internal documents of the Bank of Japan in 1971 (The Bank of Japan Archives, “A paper for the discussion on the issue of Yen’s revaluation” [in Japanese, *En Kiriage Mondai ni Kansuru Togi Shiryo*], Ref: 30326) refers to this paper with the same title. We assume that the missing staff paper version in 1969 is the same as the one in Fleming (1971).

⁹ The Bank of Japan Archives, “A paper for the discussion on the issue of Yen’s revaluation” [in Japanese, *En Kiriage Mondai ni Kansuru Togi Shiryo*], Ref: 30326.

¹⁰ Previously, the Bank of Japan had a cautious view on its prospects of balance of payments reflecting its experiences for weak external positions. This internal paper was of the early documents which admitted the probability of surplus tendencies of Japan’s balance of payments. On this point, see Kamio and Morita (2022).

3.3 Evidence in series of official documents showing which theory was applied to in policy debates

To examine when the “new view” was spread among international organisations and policy makers, we examine the descriptions in official documents regularly created to review and to forecast economic conditions.¹¹ We take four series of documents; *OECD Economic Outlook*, *IMF World Economic Outlook*, *Economic White Paper* by the Japanese government and the *Annual Review of World Economy* of the Bank of Japan.¹²

OECD Economic Outlook is compiled and published on a bi-annual basis. When tracing the descriptions in *Economic Outlook* from the 1970s to the early 1980s, we find that the earlier issues explain developments of current account balances by decomposing trade balances into exports and imports and describe main factors affecting these two items, hinting that early theories, such as the elasticity approach, were applied by policy makers. The title of the section describing developments and forecasts of current accounts was “Foreign Trade and Current Balances”, indicating the assumption of a strong linkage between these two accounts. Another example hinting at the adoption of earlier theories, like the elasticity approach, is in *Economic Outlook 12* dated in December 1972, where a report forecasts Japan’s amounts of current account surplus in 1973 considering the impact of foreign exchange realignment on exports. It says, “in the forecast presented here it has been assumed that significant effects can still be expected, and another exceptionally low export performance is forecast for 1973”.

In the mid-1980s, the analytical framework with savings and investment reached *Economic Outlook* series. *Economic Outlook 35* in July 1984 has a sub-section entitled “Global net saving positions” where it claims, “in principle, current balance expressed in this way should give indications of the evolution of net savings positions of the respective regions”. *Economic Outlook 36* published in December 1984 describes, “the large Japanese current account surplus has helped reconcile the strong Japanese savings propensity with the growth objectives of the authorities”.

IMF World Economic Outlook (hereafter WEO) is compiled and published twice a year now. It should be noted that this series of reports has changed in character over time. Currently, it is “a survey by the IMF staff” and “it presents IMF staff economists’ analyses of global economic

¹¹ For the discussions at the closed meetings of Working Party 3 of the OECD, see Yago (2023).

¹² Another regular publication by an international organisation on this matter is the annual report of the Bank for International Settlements. Eichengreen (2020) examines the descriptions in the report issued in the post Bretton Woods period and points out that BIS staff and management were generally reluctant to move beyond the consensus among members. When financial distress became apparent in 1986, the report suggests that a plausible trigger was “large current-account imbalances”, but the BIS did not figure out policies to avoid it.

developments during the near and medium term”.¹³ It started being compiled from the early 1970s and was originally circulated internally. It has been published since 1980.¹⁴ The early published issues came out as occasional papers and then became an independent publication series.

Throughout the 1970s, the preparation and discussion regarding the WEO had been “primarily an internal exercise at the Fund”.¹⁵ Then it gradually developed as a principal means of conducting oversight over the international financial system and as an important media for public communications. At the beginning, the outlook was just a paper prepared for the discussion by the executive board, and the staff members merely referred to the OECD secretariat’s forecast in *OECD Economic Outlook*. Then staff members started providing their own projections. The preparation of the WEO was the responsibility of the Research Department. The first director of the project was Charles F. Schwartz, who initiated the preparation of work, and then Andrew Crockett took over the position.

In the early 1970s, the frequency and contents of the reports vividly reflected changes in the policy goals of the Fund and international economic environments. When significant shocks on the global economy occurred, special research was conducted and sometimes special missions were organised promptly, and WEO were issued at an irregular frequency. For example, immediately after the outbreak of the first oil shock in 1973, the report issued in December reflected the outcomes of the special staff visits to nine countries.¹⁶ In this issue, IMF staff members did not provide “business as usual” projections of economic indicators, because of the uncertainties raised by the sudden increases in oil prices in October. In January 1974, it issued a WEO report only with projected figures for basic economic indicators under the request of the Executive Board.

The publication of the WEO pushed up its role to an important product of the Research Department. However, not all reports drafted by the staff members were published. Sometimes because of political reasons, some members of the Executive Board made objections on the publication of a particular part of the report or even a whole report. In particular, when the outlook criticised policies conducted by one particular country, an executive director from that country requested to stop the publication.¹⁷ For example, the staff members’ medium-term forecasts by

¹³ <https://www.imf.org/en/Publications/WEO>

¹⁴ IMF (1981).

¹⁵ The description in this paragraph is based on Boughton (2001) otherwise noted.

¹⁶ World Economic Outlook - General Survey, 21 December 1973, IMF Archives, Ref: 195792.

¹⁷ In the published versions, it is explicitly mentioned that the publication process contains comments received from members of the Executive Board. The issue April 1985 claims, “An earlier version of the material in this report was the basis for a discussion of the world economic outlook by the Fund’s Executive Board on April 1 and April 3, 1985. The present version has benefited from comments made

country beginning in 1986 could not be published and only aggregated data were published.¹⁸

The descriptions in WEO clearly show shifts in the staff members' and Executive Board members' attention to sources and remedies of external imbalances among member countries. For example, in December 1977, the report treated the projected current account surplus of Japan as "pressure" on "the trade and current account deficits of other countries in 1978". The idea behind the descriptions is the elasticity approach and absorption approach. It judges that Japan's surplus was excess and explicitly requested to take actions to reduce it as, "In Japan, the current account surplus has clearly become excessive. The Japanese authorities have indicated a willingness and desire to see this surplus brought down, but it remains unclear how the needed adjustment will be achieved. The recent appreciation of the yen is to be welcomed from an international standpoint, but it is not likely to lead to early adjustment unless it is accompanied by stronger measures of domestic expansion and a relaxation of restraints on imports".¹⁹

Then, the savings and investment balance approach appeared in August 1986. In this issue, the staff first point out that trade restrictions were not suitable tools to control current account imbalances, and then the policies affecting current account balances were medium-term ones referring to domestic investment and savings. The exact descriptions are as follows.

It should be emphasized that trade restrictions do not have a legitimate role to play in dealing with current account imbalances. An intensification of protectionism would not only poison the political climate, reduce the efficiency of resource allocation and complicate the handling of the debt situation, it would be very unlikely to achieve its immediate purpose, which is to strengthen the trade account of the country adopting restrictions. This is partly because such measures almost invariably provoke retaliation from trading partners, and partly because a country's current account is governed by fundamental savings and investment relationships....

For a single country, a sustained reduction in its fiscal deficit will normally be associated over the medium term with a rise in private domestic investment, perhaps a small decline in private saving, and a strengthening of the external

during those discussions by Executive Directors", International Monetary Fund (1985).

¹⁸ Boughton (2001).

¹⁹ World Economic Outlook - General Survey, 27 December 1977, IMF Archives, Ref: 222820.

current account position.^{20, 21}

In Japan, the same analytical approach appeared in official documents in the mid-1980s. The Economic White Paper published by the Economic Planning Agency in August 1984 says, “it is likely that Japan’s savings supply will continue to exceed the level of domestic investment, and the domestic sector is expected to keep excess savings. As a result, Japan’s foreign sector will see an over-investment tendency, and the current account balance is likely to continue to generate a considerable surplus”.²² After a short interval, the approach focusing on savings and investment balances returned in the issue of 1988, which pointed out the relative high household savings rates in Japan and West Germany in contrast to the low savings rate of U.S. households.^{23, 24}

In December 1990, the savings and investment approach appeared in the Annual Review of World Economy of the Bank of Japan.²⁵ It reviews the developments of current account balances in the 1980s for Japan and the U.S. from the viewpoints of private and public sectors’ savings. It pointed out the importance of improving budget balances of deficit countries, such as the U.S.

3.4 The process of shifts in theories applied to analysis on current accounts and their policy implications

The examination in the previous section reveals that it took a few years or more than a decade for the “new view” to appear in a policy debate since the first paper in the IMF was written in 1979. Even inside the IMF, it took a few years for the savings and investment approach to appear in the WEO. This gap may be related to the time horizon for analyses and policy goals among policy makers, including the Fund. Another possible reason is that the choices of a

²⁰ World Economic Outlook - Developments, Prospects, and Policy Issues, 20 August 1986, IMF Archives, Ref: 340644.

²¹ WEO were initially published annually and from 1984 semi-annually. In the IMF Archives, documents with the name of WEO are dated March, April, August, and September. As usual publication dates are April and October, this issue was likely for an internal paper.

²² Economic Planning Agency (1984), Economic White Paper (in Japanese, *Keizai Hakusyo*), Economic Planning Agency.

²³ Economic Planning Agency (1988), Economic White Paper (in Japanese, *Keizai Hakusyo*), Economic Planning Agency.

²⁴ Like the staff members of the research department of the IMF, the staff members of the Institute of Fiscal and Monetary Policy of the Ministry of Finance conducted research on the current account imbalances, and the savings-investment approach was treated as one of the representative theories in the mid-1980s (see Ueda and Kamesui (1986)).

²⁵ Bank of Japan (1990), “Annual Review of World Economy (in Japanese, *Sekai Keizai no Kaiko to Tenbo*),” Chosa Geppo, Bank of Japan.

particular type of theory for the analysis of external balances in the WEO could be tied to the choices of recommended or requested particular tools or directions of macro-economic policies.²⁶

In this section, we follow the descriptions of WEO left in the IMF Archives, and thus internal versions, between 1979 and 1986 to examine the process of the penetration of “new view” into the IMF and member countries and how the shift is linked to policy recommendations. The term coincided with the period when staff members’ projections, including current accounts, extended to the medium-term. In the process of the development of forecasts, “scenarios—conditional medium-term projections—”, were emphasised. The origin was the forecasts with two years’ projections from 1978 and the staff presented a “recommended” or “desirable” scenario of patterns of current account balances among member countries.²⁷ The “medium-term” projections developed to the mid-1980s. The staff members were aware that forecasting for periods more than the 12 or 18 months required the development of a new methodology, and they developed a method through mobilizing both internal and external resources. They used the occasions of submitting the WEO reports to the Board, writing papers for exchange rate seminars, discussions at two conferences in 1976 and 1978, and bilateral meetings with official experts of each industrial country.²⁸ The developments continued and the separate paper for the description of scenario was published in spring 1985.²⁹

From a theoretical point of view, the earlier approaches for current accounts were said to be useful for short-term policy goals, and the savings and investment balance approach became linked to structural adjustments.³⁰ The IMF internal paper introducing the savings and investment approach in the Research Department by Salop and Spittaller in 1979 was aware of it. It mentioned, “in principle, there exists a current account which is consistent with optimality and efficiency. While this may be taken as a long-run norm, the dual questions of what is the desired current account and should it be pursued as a policy target are surely meant to apply over the shorter-run

²⁶ Polak (1995) suggests that the roles of economists in the IMF were considerable, as “From the earliest days—including its prenatal period at Bretton Woods—until the present, the IMF has been dominated by economists at all levels of its hierarchy” (Polak 1995).

²⁷ Paying attention to the “pattern of current account balances among countries” was not a creation by the IMF, and the practice was shared at other international policy forums. For example, the issue of July 1977 Economic Outlook of OECD mentioned, “the pattern of payments imbalances on current account”. For the policy debates on the balance of payments adjustments at the OECD, especially at the Working Party 3, see Yago (2017).

²⁸ World Economic Outlook - International Payments Situation, 1 December 1978, IMF Archives, Ref: 217132.

²⁹ Boughton (2001).

³⁰ For the details, see the next section.

policy horizon”.³¹

At the same time, the Research Department formed the logic to give policy recommendations in order to sort out the current account imbalances among member countries. In the issue of February 1979, WEO argues why current account imbalances mattered. It explicitly raised the effects of the current account surplus of one country on other countries' employment as well as the effects on the domestic economy of the surplus county and collective international effects. It states, "unduly strong and persistent positions on current account are a matter of international concern for several reasons: (a) they can contribute, as experience shows, to exchange market instability; (b) they can be a sign of excessive underutilization of domestic capacity; (c) they lead to inhibiting effects on the growth of international trade, and are not helpful to countries with current account deficits too large to be sustained in light of the available financing or the burden of external indebtedness; and (d) they directly cause difficulties abroad through their effects on employment and thus intensity pressures for protection”.³²

With such a backdrop, there are several cases in which a particular way of understanding on determinants of current account balances linked to policy recommendations or requests in WEO. For example, in a paper entitled “World Economic Outlook - International Payments Situation” dated 1 December 1978, the authors, who were staff members,³³ forecast the narrowing of current account surplus in 1979 because of the decline in real exports due to the yen's appreciation. They also expected a mild increase of imports helped by the stronger currency. However, based on an analysis of the low import elasticity to prices, they called for policies to expand domestic demands in Japan for the purpose of a reduction in its current account surplus based on the absorption approach as follows.

From an international point of view, the increases in Japan's real GNP and domestic demand projected here for 1979 cannot be considered satisfactory. The large and persistent current account surplus of Japan causes difficulties abroad through its effects on both employment and particular industries, and it also has an inhibiting effect on the growth of world trade. Substantial progress needs to be made in reducing the surplus in 1979, mainly by expansion of domestic demand to support the exchange rate adjustment that already has occurred; import promotion is also of vital importance.³⁴

³¹ IMF Archive, Ref: 212592.

³² World Economic Outlook - General Survey, 9 February 1979, IMF Archives, Ref: 215940.

³³ They belonged to the Research Department, the Area Departments and the Exchange and Trade Relations Department.

³⁴ World Economic Outlook - International Payments Situation, 1 December 1978, IMF Archive, Ref:

In the policy recommendations, they claim that the government's concern on the deficits leading to reluctance towards further fiscal expansion did not have sufficient reason, as follows.

Government revenues, which are now depressed because of the low level of activity, would expand substantially as the economy moved closer to full utilization of resources; and these revenues would also tend to expand because of the highly progressive nature of the tax structure.³⁵

If they had adopted the savings and investment approach, they would not have pointed out the probability of increases in tax revenue as it would result in improvement of fiscal balances causing increases in current account surplus.

The discussion on the issue of the WEO report gives an example that the extension of the policy horizon was not only the staff's idea but also was supported by some member countries. A member of the Executive Board from Japan, Masanao Matsunaga, addressed a statement at the informal session on the WEO on 13 December, 1978.³⁶ In his statement, he stressed that Japan's domestic demand growth maintained a high pace of a 7.8 per cent annual increase rate for the first half of Fiscal Year 1978, though the overall growth rate was lower than expected and the directions of composition was on a desirable course from the viewpoint of the international adjustment process. At the same time, he declared strong support for staff members view on the importance of a medium- to long-term policy horizon as follows.

I would like to draw the attention of the Board to the following very important sentences on page 24 of the staff paper on the World Economic Outlook; "The imbalances, domestic as well as external, that prevail nowadays are so large that adjustment will inevitably have to take place gradually over a number of years. More generally, there is now a widely recognized need to move from policies with favorable short-run effects, at the expense of detrimental longer-run effects, to policies having slower but lasting beneficial effects."³⁷

217132.

³⁵ Ibid.

³⁶ Statement by Mr. Matsunaga on the World Economic Outlook Informal Session 78/42, 13 December 1978, IMF Archives, Ref: 216906.

³⁷ Ibid.

The WEO report issued in December 1977, which called for domestic expansion of the Japanese economy as seen in the previous section, expressed a link between theories on current account and desirable macroeconomic policies in the discussion. Combining the notion of the elasticity approach and absorption approach, it first put the responsibility of the adjustments for imbalances in the current account distribution among industrialised countries on surplus countries rather than the United States, a deficit member, as follows in the section entitled “Current picture of the adjustment process”.

To the extent that the deficit is attributable to differences in growth rates, the solution lies in a faster expansion abroad, especially in the strong surplus countries, and not in a throttling of the U.S. expansion. A cut in U.S. imports of petroleum also would be a beneficial development. Action on both of these fronts would lower pressures on the U.S. dollar.³⁸

Then, it required stimulating policies for Japan and pointed out the importance of domestic expansion for Germany as follows.

As in the case of the yen, the recent exchange rate appreciation is a welcome development internationally, but it requires the support of stronger domestic expansion if the needed external adjustment is to occur.³⁹

In August 1983, the imbalances in current accounts among member countries are discussed with relation to trade disputes. For example, concern about Japan’s surplus is indicated as “Japan has a growing current surplus that could lead to frictions with its main trading partners”.⁴⁰ Under such circumstances, the WEO points out the tight fiscal policies by Japan and Germany as follows.

In both countries, the national authorities are strongly committed to a medium-term strategy of marked reductions in both the actual fiscal deficit and the relative size of the public sector. They are also strongly committed to a restructuring of the budget that de-emphasizes social benefits and enhances incentives for business investment. Furthermore, they are convinced that these medium-term goals will retain their

³⁸ World Economic Outlook - General Survey, 27 December 1977, IMF Archives, Ref: 222820.

³⁹ Ibid.

⁴⁰ World Economic Outlook - General Survey, 19 August 1983, IMF Archives, Ref: 306988.

credibility only if continuous progress toward them is made.⁴¹

It also pointed out the cautious monetary policies by these two deficit countries because of concern on inflation as, “Monetary policies have remained cautious in both countries. In the Federal Republic of Germany, there has been only a moderate easing...In Japan, there has been no easing of monetary policy because the authorities believe that this would weaken the yen, with adverse consequences for domestic inflation and for relations with Japan's main trading partners”.⁴²

The WEO agreed on such macro-economic policies of two surplus countries, restrictive fiscal policies to keep credibility and cautious monetary policies to control inflation, and requested to ease the pace of tightening to enhance imports as, “In the circumstances, therefore, the staff believes that the appropriate stance of policies in Germany and Japan is one involving continuous progress toward the medium-term objectives of reducing fiscal deficits and rates of monetary growth, but moderating the speed of such progress in the light of the continued weakness of domestic demand”.⁴³ Again, they approve policies which could expand current account surpluses, namely tight fiscal policies, according to the savings and investment approach.

In August 1985, six years after the savings and investment approach appeared in the Research Department paper, WEO gave priority to “old view” theories even though it mentioned domestic savings and investment when considering the current account. The focus was on the current account imbalances between the United States and Japan, described as, “the major feature of the current account positions of industrial countries during early 1985 was the continued divergence between the large deficit of the United States and the large surplus of Japan”.⁴⁴

When projecting the current account balances of these two countries, the report first estimates trade balances considering the effects of changes in domestic demands and in exchange rates, indicating it basically relies on “old view” theories.

In the report, policies are expected to affect domestic savings and investment, but the report does not treat savings and investment as channels for affecting current account balances. It mentions domestic savings and investment as follows.

[T]he report stresses the interactions of policies and developments among Fund members. These interactions are particularly evident from the way in which

⁴¹ Ibid.

⁴² Ibid.

⁴³ Ibid.

⁴⁴ World Economic Outlook - General Survey, 26 August 1985, IMF Archives, Ref: 332128.

differences in economic policy mix have affected domestic savings and investment positions and hence interest rate differentials and trade flows.⁴⁵

The description above followed by sentences concerning trade restrictions as a result of current account imbalances, indicating that the debate on macro-economic policies was influenced by trade frictions. The report continues,

These differences are worrisome when they give rise to unsustainable imbalances, and when the means by which such imbalances are to be corrected are unclear. They are particularly troubling when, as at present, they generate demands for measures such as trade restrictions. The avoidance of recourse to such a fundamentally destructive policy response is a prime objective of international economic policy in current circumstances.⁴⁶

The following description on Japan in the same issue also indicates that trade flow mattered in the debate of current account imbalances.

In Japan, the key issue facing the authorities is not so much to stimulate the growth of GNP but to make it less dependent on foreign demand.⁴⁷

The report issued in August 1986 shifts from the “old view” to the “new view. The policy choices for the adjustment and the policy horizon shifted accordingly. The suggested policy tools for the adjustments became one to affect savings and investment balances and the policy horizon for it was the medium-term. Relying on the notion of the conventional savings and investment balance approach, “a country’s current account is governed by fundamental savings and investment relationships”, the WEO assesses trade restrictions to curb the trade disputed as, “not have a legitimate role to play in dealing with current account imbalances”. This issue calls for reducing fiscal deficits for a country with current account deficit as, “for a single country, a sustained reduction in its fiscal deficit will normally be associated over the medium term with a rise in private domestic investment, perhaps a small decline in private saving, and a strengthening of the external current account position”.⁴⁸

⁴⁵ Ibid.

⁴⁶ Ibid.

⁴⁷ World Economic Outlook - General Survey, 26 August 1985, IMF Archives, Ref: 332128.

⁴⁸ World Economic Outlook - Developments, Prospects, and Policy Issues, 20 August 1986, IMF

It should be noted that the publication of this issue was in the period when international macro-economic policy coordination evolved. On 22 September, 1985, G5 countries issued an announcement later called the “Plaza Accord”.⁴⁹ In the statement, it is declared, “the United States Government will: continue efforts to reduce government expenditure as a share of GNP in order to reduce the fiscal deficit and to free up resources for the private sector”.⁵⁰ The recommendation in the WEO in August 1986 is consistent with the Accord on this point. In the following 1986 and 1987, the leading countries attempted to institutionalise the policy coordination process through multi-lateral surveillance at the summit meetings.

Though the IMF as an institution is said to play a small role in the process of policy coordination among advanced countries, it shared the desirable policy choices for macro-economic adjustments with advanced countries as far as the descriptions in WEO are concerned.⁵¹

4. Examining Japan’s current accounts through savings-investment analytical lenses

In this section, we examine quantitatively the mechanism of fluctuations in Japan's current account balance from the 1950s to the 1980s, taking into account the savings and investment balance approach.⁵² As introduced earlier, theoretical considerations on the relationship between the current account balance and the saving-investment balance of a country's economy were conducted by Metzler and Mundell in the 1960s. However, no attempt was made to empirically clarify the relationship between savings, investment, and the current account balance using various data.⁵³ Most quantitative analyses on the current account balance for that period tend to rely on “old view” theories, such as an elasticity approach with the estimation of import/export

Archives, Ref: 340644.

⁴⁹ The description in this paragraph is based on Isii (1990) otherwise mentioned. Ishii, Naoko (1990), *The Economics of Policy Co-ordinations* (in Japanese, *Seisaku Kyocho no Keizaigaku*), Nihon Keizai Shinbunsha.

⁵⁰ Funabashi (1988).

⁵¹ Eichengreen (2019) evaluates that the IMF could not effectively carry out their role even though the Articles of Agreement at the time suggested the IMF’s role was to encourage policy coordination among member countries because the Fund was an unattractive venue for conducting negotiations for leading economies.

⁵² The analyses hereafter are conducted under the assumption of full-capital mobility. Therefore, the results should be interpreted with reservation as capital mobility was restricted until the progresses of capital account liberalisation led by OECD member countries in the 1960s. For the process of the capital account liberalisation of Japan, see Takagi (2015).

⁵³ Careful observation of savings, investment and current account data was made in the late 1970s (e.g., Artus (1979)). However, no empirical analysis has been conducted. The reasons for this include a lack of sufficient sample size for the time series data for estimation and insufficient recognition of the importance of empirical analysis itself.

functions, and have yet to comprehensively examine the relationship between the macroeconomic conditions and the current account balance. Therefore, in this study, we examine quantitatively the mechanism of fluctuations in Japan's current account balance from the 1950s to the 1980s, taking into account the savings-investment balance framework.

As explained earlier, the significance of the discussion based on this approach is twofold. First, based on the perspective of the excess or shortage of funds in a country or sector, the relationship between the current account balance and the behavioural patterns of households, firms, and governments can be captured. Second, based on the medium- to long-term and short-term fluctuations of economic agents, it is possible to decompose current account fluctuations into structural factors that vary over the medium to long term and non-structural factors that vary over the short term. Through this decomposition, we can obtain more detailed and deep insights into the pattern of current account fluctuations in each period, which are different from those based on the elasticity approach or the absorption approach.

When examining the current account balance in terms of medium- and short-term variables, the two theoretical frameworks introduced earlier are useful. The first is the classical openness model based on Metzler (1960), in which an economy is in the state of full employment. The second is the Keynesian open model known as the Mundell-Fleming model. The former is a framework that can capture relatively medium- to long-term economic conditions and structural movement in the current account balance. The latter, on the other hand, can capture short-term fluctuations and is suitable for capturing non-structural fluctuations, such as cyclical and temporary changes in the current account balance.⁵⁴

In this sub-section, we analyse the factors that caused fluctuations in Japan's current account balances from 1956 to 1985, taking into account the analytical framework above. This period corresponds to the era when Japan enjoyed high economic growth after the reconstruction from the damage caused by World War II, followed by a period of stable growth. During this period, Japan's external trades steadily increased.

In the late 1960s, the current account surplus gradually began to emerge, and in the 1980s, the surplus trend was firmly established. By closely examining the mechanisms behind these

⁵⁴ This multifaceted view of current account fluctuations dates back to Kindleberger (1955). Under the Bretton Woods system, policymakers in each country had to be aware of the “balance of payments ceiling” when pegging their currencies to the U.S. dollar due to the constraints of foreign exchange reserves. Kindleberger's idea seems to have been based on this awareness. In Japan, Ichimura (1957) and Kanamori (1965) pointed out the significance of the above viewpoint. However, detailed research in Japan did not begin until the 1980s. The Economic Planning Agency (1984) and the Ministry of International Trade and Industry (1984) developed elaborate studies on the mechanism of external imbalance generation against the background of the Japan-U.S. trade friction. And Ueda (1986), Fukao (1987), and Honma et al. (1987) conducted pioneering empirical research in this area.

medium- and long-term movements in the current account balance based on the multifaceted perspective introduced earlier, it is possible to understand how Japan's economy progressed from post-war reconstruction to a period of high growth and then to a period of stable growth from the external balance perspective.

An outline of the measurement method is as follows. First, the various functions that make up the savings-investment balance, such as the savings function and the investment function, are estimated, and the portion that can be explained by structural factors is extracted. Second, the structural current account balance is obtained by substituting each of the extracted functions into the savings-investment balance identity.⁵⁵ The choice of explanatory variables corresponding to the structural factors in each function is based on Ueda (1986), Fukao (1987), and Honma et al. (1987), which are pioneering works in this field.

Figure 1. Developments of actual and structural current accounts:
1956–1985

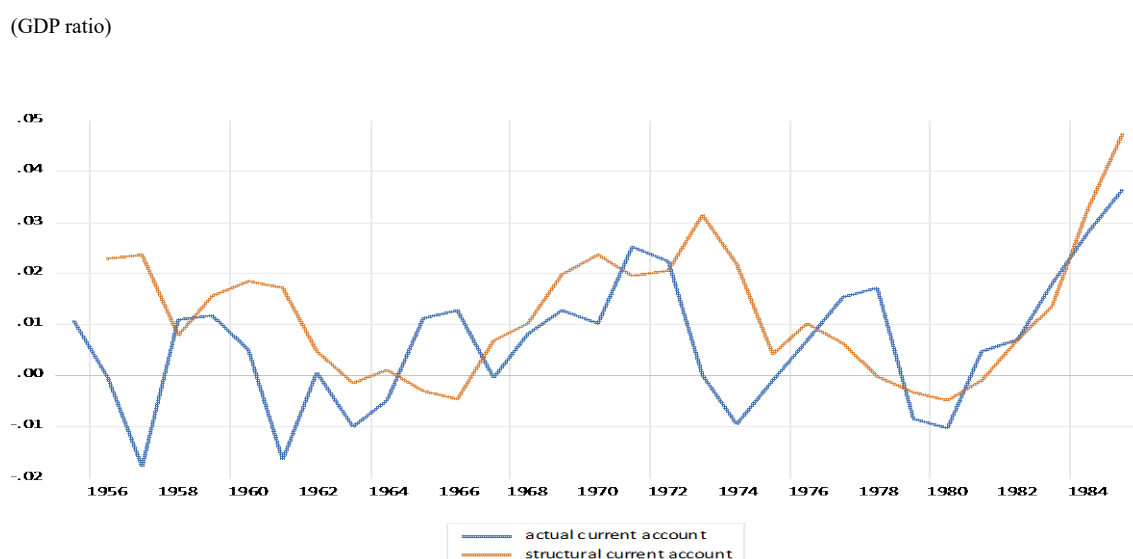


Figure 1 shows developments of the actual current account balances and the measured structural current account balances over the same period. As can be seen from the figure, the

⁵⁵ For details of the estimation of structural factors in each sector, see Appendix 1. In our analysis, private savings, household investment, and corporate investment are treated as independent series, but in reality, these series are interdependent. Therefore, it would be ideal to examine them in the framework of a macro general equilibrium system, such as a macro econometric model or a DSGE model. However, these analytical frameworks have a large framework (number of variables and equations) and complicated construction procedures, and it is not easy to analyse structural and non-structural factors. Therefore, while recognizing the interdependence of the various series, we took the style of this study.

structural factor has been mostly in surplus during the period, generally exceeding the level of the real current account balance. Specifically, from the late 1960s to the early 1970s, the structural factor increased markedly, reaching about 3% of GDP in 1969. Then, in the second half of the 1970s, the structural factor declined, but in the 1980s, it began to increase again, indicating that the actual current account balance is almost entirely dominated by the structural factor.

The estimates by some previous studies cover the second half of our sample period and the results above are by and large consistent with them. Ueda (1986) estimates the structural current account balance from 1971 to 1984 (Ueda (1986), Figure 1). According to his measurement, the structural current account balance was mostly in surplus in the 1970s, but the level of the surplus declined, and in 1980 there was a slight deficit. Thereafter, it rapidly improved, and by 1984, the structural current account surplus was around 2% of GNP. The structural current account balance from the 1970s to the early 1980s shown in Figure 1 in this paper does not differ significantly from Ueda's (1986) results, and the structural current account surplus in 1984, when we measured it, was about 3% of GNP.

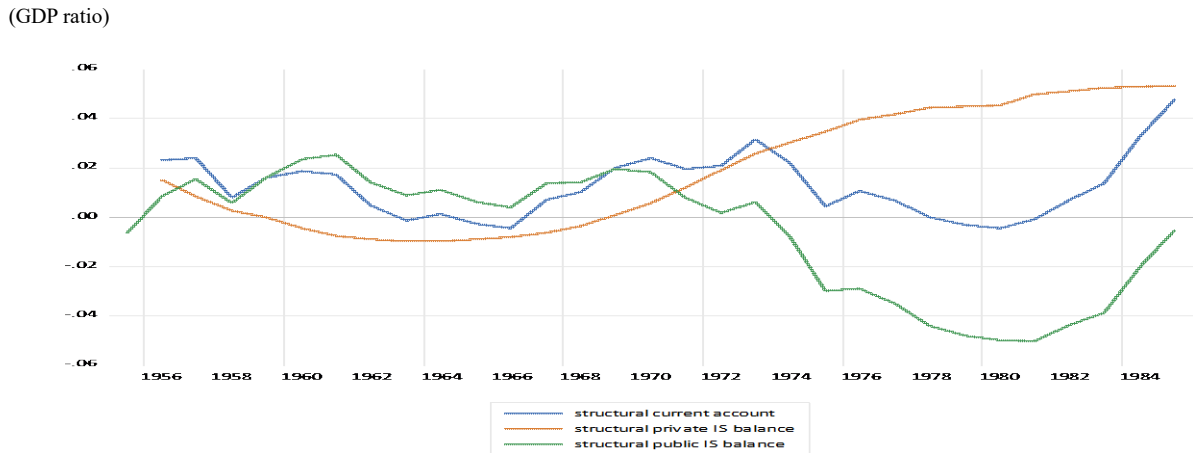
Homma et al. (1987) estimate the structural current account balance (in their paper, the high-employment current account balance) from 1970 to 1983. From 1970 to 1974, the structural current account balance was in surplus, but from 1975 to 1981 it remained in structural deficit. And it has been in surplus since 1982 (Hommma et al. (1987), Figure 10). Compared to the measurements in this paper and Ueda (1986), the period of structural current account deficits is somewhat longer, but the general trends are similar.

Fukao (1987) estimates the structural current account balance (called the equilibrium current account balance in his paper, not the level as a percentage of GDP) from the first quarter of 1979 to the third quarter of 1985 (Fukao (1987) Figure 6). As in other analyses, the structural current account balance was slightly in deficit from 1979 to 1980, but has been steadily increasing since then, and the structural current account balance in the first half of the 1980s does not deviate significantly from the actual value: in 1984, there was a surplus of about \$32 billion. Using the yen-dollar rate and GDP at that time to convert the result, the surplus was 2.67% of GDP.⁵⁶ As can be seen from the above comparison with previous pioneering studies, the measurement results of our study are generally valid.

Next, we show the results of estimates of the structural current account balance by sector and by item, i.e., the private and public sector savings and investment balances. We define the sum of the structural factors of private savings, private capital investment, and private housing investment as the structural balance of the private sector. We also define the public sector structural savings-investment balance as the public sector structural balance.

⁵⁶ Fukao (1987) measures the level of the equilibrium current account balance and does not calculate the ratio of GDP.

Figure 2. Developments of structural current account balances by sector



As shown in Figure 2, from the mid-1950s to the 1960s, structural balances of the private sector generally moved around zero, and the public sector's structural surplus was the main cause of the current account surplus over the same period. By contrast, the private sector's structural balance steadily recorded surpluses while the public sector's structural balance stayed in deficit from the late 1960s to the mid-1980s. The aggregated structural current account balance maintained a surplus, depending on the private sector's surpluses in structural balances. The decomposing analysis reveals that the underlying tone of Japan's current account surplus is based on a trend change in the behaviour patterns of the private sector, while the declines in current account surpluses in the second half of the 1970s and the increases in the mid-1980s were brought by the developments in the public sector.

Figure 3. Decomposition of structural IS balance in the private sector

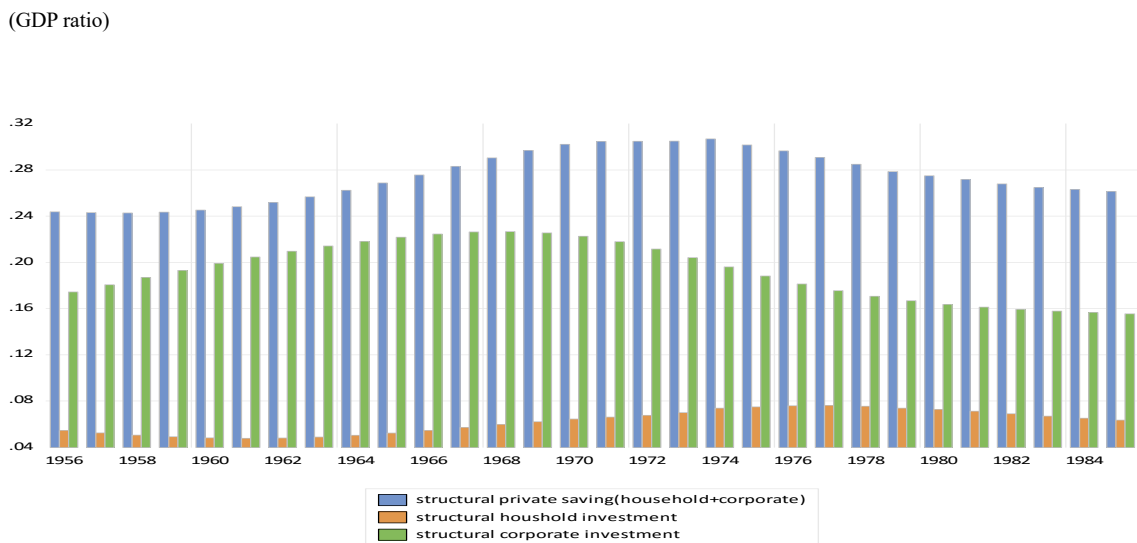
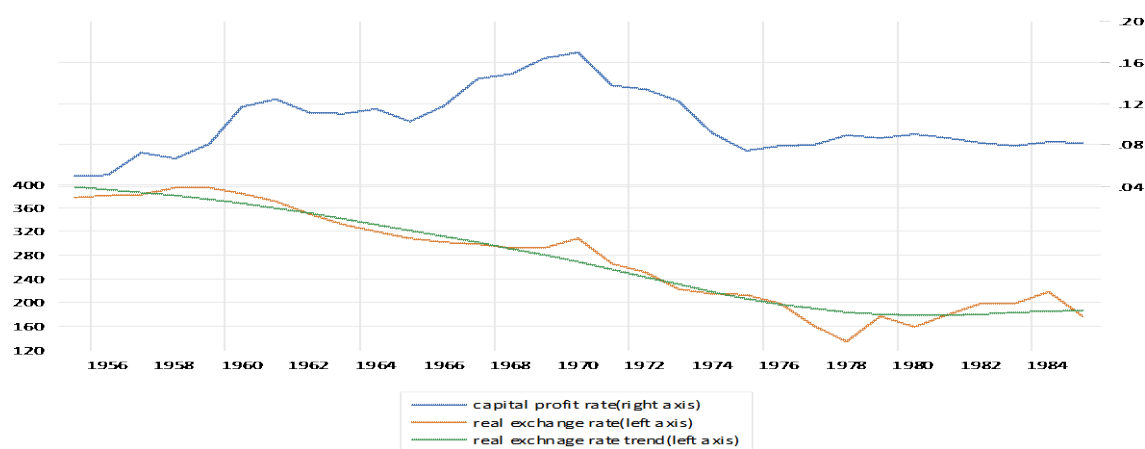


Figure 3 provides a breakdown of the structural current account balances of the private sector; private savings, private equipment investment, and private residential investment. From the late 1950s to the late 1960s, the structural factors of private savings and private capital investment both increased, resulting in balanced structural current accounts for the private sector. During the same period, equipment investments were unusually active as the 1960 Economic White Paper by the Japanese government described the phenomena as “investment begets investment”. Structural corporate investment maintained an upward trend against that backdrop.

After 1960, this pattern changed dramatically. The structural factor of private savings gradually declined, and the structural factor of capital investment declined at an even faster pace. The most important factor for the decline in capital investments is the decline in the profit rate of the corporate sector, which the sector had enjoyed in the period of high growth.⁵⁷ The developments of the capital profit rate in Figure 4 indicate that the corporate profits entered a downward trend from the early 1970s. The Japanese economy lost its former momentum of “investment begets investment”, and these changes resulted in a structural decline in Japan's current account surpluses.

Figure 4. Developments of capital profit rates and real exchange rates



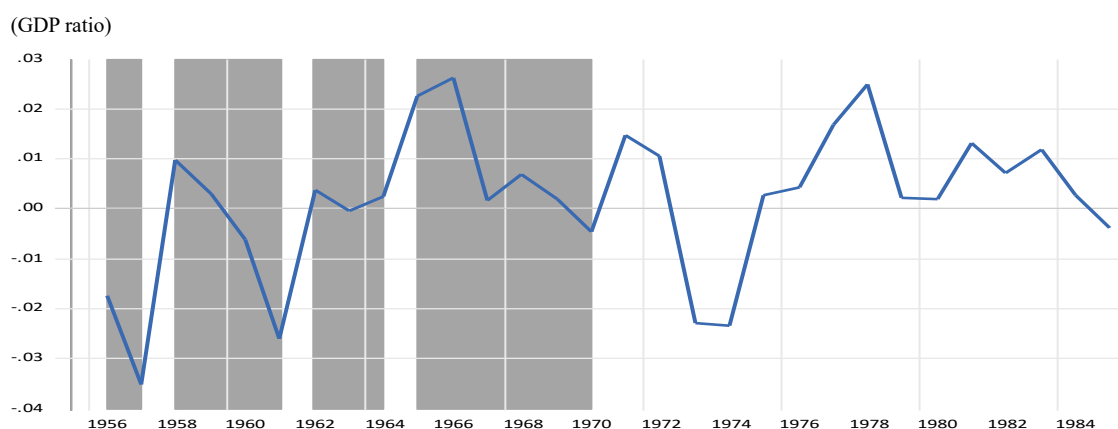
The 1970s and the 1980s formed an era of yen appreciation in general and we need to take into account the relationship between the underlying appreciation trend in the exchange rate and the structural current account surplus. When considering the impacts of changes in exchange rates on equipment investment with the savings-investment balance framework, the analytical time horizon is from the medium to long term rather than a short time period.

To clarify this point, Figure 4 illustrates the developments of the capital profit rate and the

⁵⁷ The Economic Planning Agency (1984), Chapter 2, Section 3, also points out the importance of private capital investment movements as a medium-term factor in Japan's current account fluctuations during the 1970s and 1980s.

real exchange rate, which are the medium- to long-term decision-making factors of firms. The real exchange rate of the yen against the dollar continued to appreciate from the late 1950s to the early 1980s. The impact of the yen's appreciation on corporate profits is complex, but in general, the negative impact on exports (i.e., sales) is strong, and the impact on the expected profit margin of firms is negative, resulting in a negative effect on the medium- to long-term capital investment trend and likely increasing the structural current account balance.⁵⁸ Figure 4 clearly shows that this relationship had been in place since the late 1960s.⁵⁹ However, from the late 1950s to the mid-1960s, the capital profit rate rose markedly despite the yen's appreciation. It could be interpreted that during the same period, the substantial growth in domestic demand had a positive effect on the capital profit rate of firms, surpassing the negative effect of the strong yen.

Figure 5. Developments of non-structural current accounts: 1956–1985



By subtracting the structural factors from the actual current account balance, we can obtain

⁵⁸ An interesting discussion of the relationship between exchange rates and capital investment during periods of rapid growth is provided by Eichengreen and Hatase (2007).

⁵⁹ Details of the supplementary investigation on the relationship between changes in real exchange rates and capital profit rate are in Appendix 2. From the trade side, exports grew steadily from the late 1960s to the end of the estimate period, the early 1980s, despite the strong yen. Ueda (1987) suggests the possible reason as an increase in non-price competitiveness that outweighed the decline in price competitiveness caused by the strong yen. Specifically, technological progress, particularly in the manufacturing sector, promoted the development of new products, which probably supported robust exports. Although equipment investment as a whole slowed down from the late 1960s, that in the manufacturing industry (particularly in the machinery industry) remained strong, and technological progress was driven by equipment investment. An appreciation of the real exchange rate also has the mechanism of reducing the current account balance by worsening the trade balance. Therefore, the medium- to long-term mechanism by which the real exchange rate changes the current account balance must be examined strictly from both the savings and investment side and the import/export side. This point is discussed in detail in Matsubayashi (2010), Chapter 3. Also, in Economic Planning Agency (1984), Chapter 2, the interdependence of the current account balance, capital investment, return on capital, and exchange rate is also discussed in detail.

the non-structural current account as shown in Figure 5. It fluctuates due to cyclical factors and other factors affecting economic performances in the short-term.⁶⁰ The shaded area in Figure 5 shows the period of economic boom, during which the non-structural current account balance was negative. The results of these analyses also show that the non-structural current account deteriorated during the first oil shock in 1974.⁶¹ Short-term fluctuations of exchange rates were also likely to have had an impact. In other words, real exchange rate depreciation should improve the non-structural current account balance through the trade balance.⁶² Thus, the non-structural current account balance is likely to be affected by short-term fluctuations in domestic and foreign business conditions and exchange rates, and this point is confirmed in the empirical analysis. To put it another way, from the late 1950s to the mid-1980s, Japan's current account balance was affected by cyclical factors based on the Keynesian approach (or Mundell-Fleming model) as well as structural factors based on the neo-classical approach (or Metzler model), suggesting that it is essential to consider the issue from a multiple perspective.

5. The structural developments of Japan's current accounts and policy advice

According to the “new view”, “one should assume that private savings and investment decisions are optimal unless there are particular reasons to believe to the contrary.... It follows that an increase in a current account deficit that results from a shift in private sector behaviour—a rise in investment or a fall in savings—should not be a matter of concern at all”⁶³ in theory. In practice, the reduction of Japan's current account surpluses was one of the most important issues in international adjustments in the 1970s and the 1980s, as shown in section 3.

In this section, we re-examine the perceptions by policy makers and policy suggestions in the 1960s and the 1970s, when the “old view” was dominant, referring to the results of estimates in the previous section.

The first case is in the late 1960s, when Japan's current account balances had been gradually recognized among policy makers. Kamio and Morita (2021) point out that in the late 1960s, Japan's trade balance broke away from the conventional pattern of worsening during economic upturns. Our measurement results in the previous section support their view. The result

⁶⁰ Other factors include unexpected exogenous incidents, such as wars, disasters, and terrorism, as well as large-scale economic shocks, such as oil shocks and financial shocks.

⁶¹ Supplemental estimation is provided in Appendix 3.

⁶² As the empirical results in Appendix 3 show, the non-structural impact of short-term changes in the real exchange rate is positive and meets the desired sign, but the effect is weak. One reason for this is that the period from 1960 to 1973 was a fixed exchange rate regime, which meant that the exchange rate fluctuated very little.

⁶³ Corden (1991).

that Japan's structural current account balance has generally been in surplus continuously since the late 1960s suggests that, over a longer time span, Japan may be reaching the stage of an immature creditor nation based on the so-called stages of balance of payments hypothesis (Figure 1). This point has been pointed out by the Economic Planning Agency (1984), the Ministry of International Trade and Industry (1984), and Ueda (1987).

The second case is the late 1970s. As shown in section 3.4, in the WEO dated 1 December 1978, the authors recommended to expand the fiscal expenditures. However, our estimates reveal that the structural current account surplus was led by the private sector rather than the public sector. Therefore, in order to suppress current account surplus in the medium term, reducing the private sector either through stimulating investment or reducing savings could have been an effective suggestion when assuming that setting a target for the current account was a reasonable option for policy makers.⁶⁴

Conclusion

Theories on the determinants of current account balances are not immutable. While Japan's current account surplus was a major issue for international policy debates between the late 1960s and the 1980s, existing theories, such as the absorption approach and the elasticity approach, coexisted with a novel theory known as the savings and investment approach. The earlier streams of theories supported adjustments in the short term and the new theory was useful to explain structural factors affecting current accounts in the long run.

The literature supporting the latter approach considers the earlier research stream being valid only for short- and mid-term adjustments, while the new theory was more useful for explaining the structural factors affecting current accounts over the long run. The review on historical materials from the archives of policymakers, such as the Bank of Japan, governmental departments of Japan, and international organisations, such as the Organisation for Economic Cooperation and Development (OECD) and the International Monetary Fund (IMF), reveal that the early appearance of this theory in research documents could be traced back to the late 1970s, but the penetration of the notion took many years.

The choices of the theory are linked to the choices of suggestions or requests of particular types of macroeconomic policies. Japan was sometimes requested to expand imports

⁶⁴ In the model we apply to estimate private savings and investment (for details, see Appendix 1), some determinant factors could be controlled through policies, though most of them are not affected by simple policy tools. For example, population growth as a determinant factor in the private saving function is affected by various factors in the complex process. For determinant factors on structural private savings and investment, the scope for controlling the items is narrow as most variables, such as potential GDP growth, are not affected by a small number of factors. As for the capital investment function, trends in corporate profits could be influenced by policies reducing friction for business activities and policies removing obstacles for the corporate sector could be policy options to reduce current account surplus in the long run.

with the support of the absorption approach. The savings and investment approach appeared with legitimacy in policymakers' documents only in the mid-1980s, when macroeconomic policy coordination had become more evolved, as evidenced by the Plaza Accord, with the suggestion of improving fiscal balances for countries with deficits.

We examine the development of Japan's current account balances between the mid-1950s and the mid-1980s using the savings and investment approach, which enables us to distinguish between structural and actual fluctuations. The estimated results indicate that the role of structural factors causing the current account surpluses was strengthened during the second half of the 1960s and the first half of the 1970s. It was then weakened until the mid-1980s. Our quantitative analysis suggests that the trend of Japan's current account surplus became more pronounced in the late 1960s. Finally, from the late 1970s through the mid-1980s, the structural current accounts surplus by the private sector due to the decline in investment played a crucial role to support the actual current account surplus.

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Appendix 1 Measurement of the structural current account

In this paper, we measure the structural current account balance under the following procedure. First, the main functions that constitute the savings-investment balance are estimated, and the portion that can be explained by structural factors is extracted (the explanatory variables that are structural factors are set with reference to Ueda (1986), Fukao (1987), and Honma et al. (1987)). Next, the structural current account balance is obtained by substituting each of the extracted functions into the savings-investment balance identity.

[1] Private saving function

Private saving is the sum of household saving and corporate saving (Estimation of the private saving function by summing household and corporate saving is also conducted by Homma et al. (1987).)

< Specification >

	Variable	Notation	Data source
Dependent variable	Nominal private saving (nominal GDP ratio)	SHFY	Cabinet Office (SNA)
Independent variable	Real GDP	YR	Cabinet Office (SNA)
	Real world interest rate	RRW	Details of the measurements are provided below.
	Consumer price inflation rate	PAI	Ministry of Internal Affairs and Communications
	Real GDP growth rate	GYR	Cabinet Office (SNA)
	Population growth rate trend	GPOPHP	Ministry of Internal Affairs and Communications

An interest rate is added as an explanatory variable. An increase in the interest rate has the effect of increasing consumption and reducing savings through interest income (income effect) and the effect of reducing consumption and increasing savings through higher yields on financial assets (substitution effect). Therefore, the desired sign cannot be determined.

In this study, the global interest rate is assumed to be the interest rate variable, taking into account international capital movement under an open economy. Specifically, we consider the real world interest rate, which is an unobservable variable determined to equalize the supply and demand of funds (global savings and investment) for the entire world economy. However, for the 1950s, it is difficult to obtain the nominal interest rates of all developed countries. Therefore, in this paper, the

U.S. real interest rate (TB rate converted to real terms by the consumption price inflation rate from the previous year to the current year) is used instead.

Table A-1. Estimation results 1956–1985 OLS

Const.	YR	RRW	PAI	GYR	GPOPHP	\bar{R}^2	DW	DWH
0.096	2.76E-07	0.0006	0.101	0.447	9.294	0.921	1.811	1.134
(8.880)	(12.958)	(0.699)	(2.231)	(6.435)	(8.770)			(0.359)

Const. is the constant term, \bar{R}^2 is the adjusted coefficient of determination with degrees of freedom, and DW is the Durbin-Watson ratio. Values in parentheses indicate t-values. DWH is Durbin-Wu-Hausman's exogeneity statistics (value in parentheses indicates p-value which shows the probability of supporting the null hypothesis that the explanatory variables satisfy the exogenous).

Based on the estimation results in Table A-1, the structural factor of the private saving function (STSHFY) is measured using the following procedure.

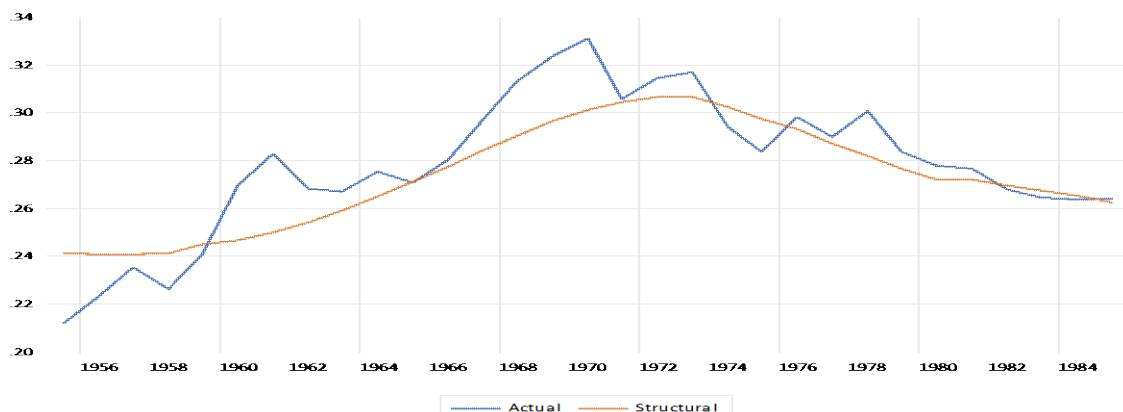
- (1) Real GDP (YR) is replaced by real potential GDP (YPOT).
- (2) Real GDP growth rate (GYR) is replaced by the real potential GDP growth rate trend (GYPHP). (GYPHP is considered to be a structural factor affecting corporate savings.)
- (3) The constant term and population growth rate trend (GPOPHP) are added as explanatory factors.

The STSHFY measurement equation based on the above procedure is as follows.

$$\text{STSHFY} = 0.096 + 2.76E - 07 \times \text{YPOT} + 0.447 \times \text{GYPHP} + 9.294 \times \text{GPOPHP} \quad (\text{A-1})$$

The actual and structural values of private saving (SHFY and STSHFY) are illustrated in Figure A-1.

Figure A-1 Actual and structural value of private saving



The measurement of real potential GDP is based on the methodology introduced by Hamada and Kurosaka (1984). The specific procedure is as follows. First, the period is divided into three sub-periods, and real GDP (logarithmic values) is regressed on the trend (in logarithms) and constant terms. The estimates of the obtained trend terms are as follows.

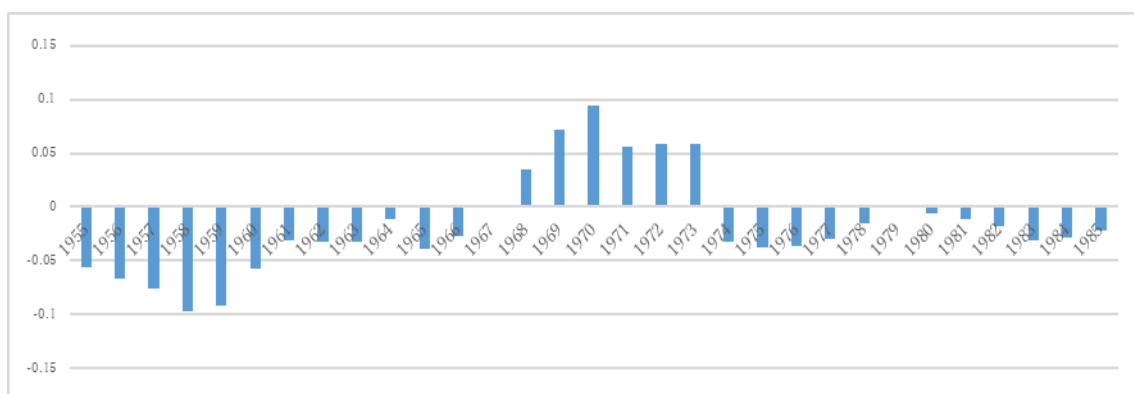
1955–1964 0.088

1965–1974 0.081

1975–1985 0.037

Next, using the 1967 real GDP as a benchmark, we measure the real potential GDP series by extrapolating forward and backward based on the trend term estimate and the constant term estimate. Based on the measured values, GDP gap is obtained as shown in Figure A-2.

Figure A-2. GDP gap



[2] Household residential investment function

The household residential investment function is estimated based on the following specification.

< Specification >

	Variable	Notation	Data resource
Dependent variable	Nominal household residential investment (nominal GDP Ratio)	IHY	Cabinet Office (SNA)
Independent variable	Real GDP	YR	Cabinet Office (SNA)
	Real world interest rate (one period lag)	RRW	
	Real GDP growth rate	GYR	Cabinet Office (SNA)
	Population growth rate trend	GPOPHP	Ministry of Internal Affairs and Communications

Table A-2. Estimation results 1956–1985 OLS

Const.	YR	RRW (-1)	GYR	GPOPHP	\bar{R}^2	DW	DWH
-0.015	1.22E-07	-0.0009	0.003	4.831	0.914	1.131	2.396
(-2.846	(11.290)	(-2.213)	(0.119)	(0.431)			(0.114)

Based on the previous estimation results (Table A-2), the structural factor of the private residential investment function (STIHY) is measured using the following procedure

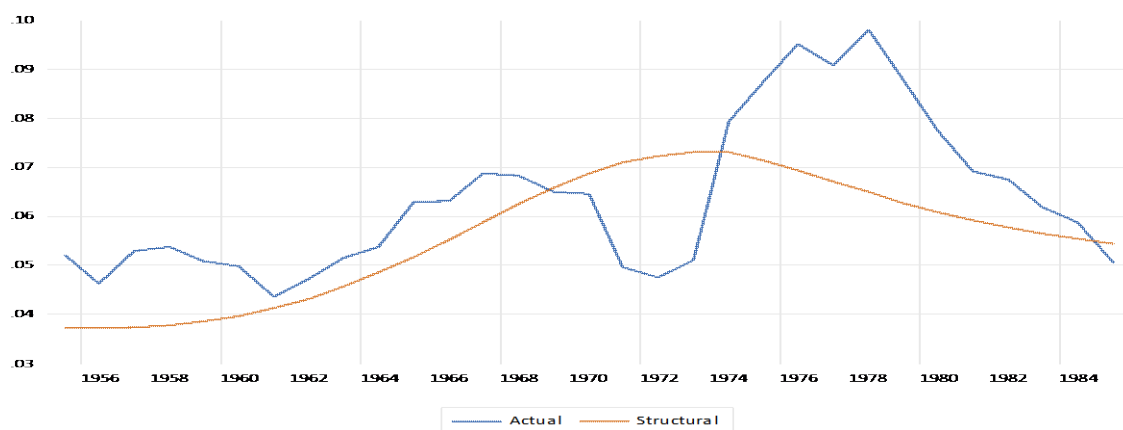
- (1) Real GDP is replaced by real potential GDP (YPOT).
- (2) The constant term and population growth rate trend (GPOPHP) are added as explanatory factors.

The STIHY measurement equation based on the above procedure is as follows.

$$\text{STIHY} = -0.015 + 1.22\text{E} - 07 \times \text{YPOT} + 4.831 \times \text{GPOPHP} \quad (\text{A-2})$$

The actual and structural values of private savings (SIHY and STSIHY) are illustrated in Figure A-3.

Figure A-3. Actual and structural value of private residential investment



[3] Private equipment investment function

The private equipment investment function is estimated based on the following specification.

< Specification >

	Variable	Notation	Data source
Dependent variable	Nominal private equipment investment (nominal GDP ratio)	IFY	Cabinet Office (SNA)
Independent variable	Capital profit rate	KR	Cabinet Office (SNA)
	Real world interest rate	RRW	
	Real GDP growth rate (one period lag)	GYR	Cabinet Office (SNA)
	Uncertainty indicators (3-period standard deviation of TSE stock index)	UNC	Tokyo Stock Exchange
	1978 dummy	DUM78	

Theoretically, uncertainty can be both a catalyst for and a deterrent to capital investment. In situations where firms' expected profits are a convex function of the future price of goods, increased uncertainty has the effect of increasing capital investment (Hartman (1992), Abel (1983)). On the other hand, under the assumption of imperfect competition and the assumption that there are adjustment costs for the destruction or reduction of capital equipment, uncertainty can reduce equipment investment (Dixit and Pindyck (1994)). Therefore, the desired sign for the coefficient of uncertainty is not determined.

Table A-3. Estimation results 1956–1985 OLS

Const.	KR	RRW	GYR (-1)	UNC (-1)	DUM78	\bar{R}^2	DW	DWH
0.089	0.711	-0.001	0.255	0.075	-0.037	0.808	0.931	1.973
(7.862)	(5.122)	(-1.441)	(2.355)	(2.124)	(-2.455)			(0.163)

Based on the previous estimation results (Table A-3), the structural factor of the private equipment investment function (STIFY) is measured using the following procedure.

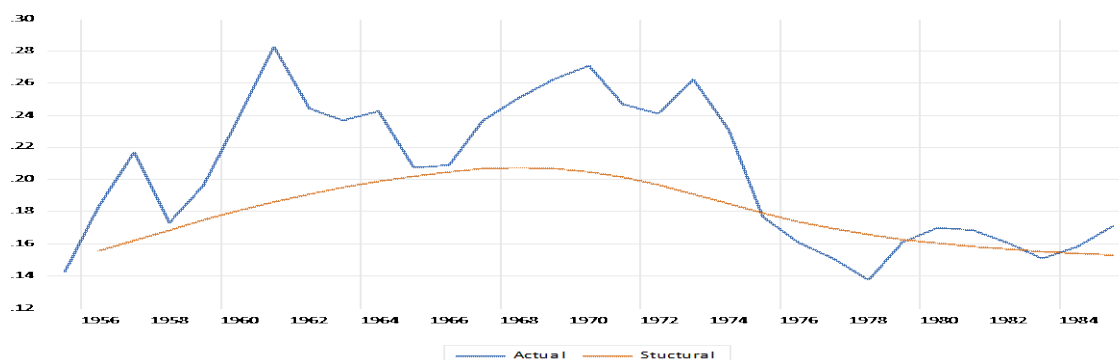
- (1) Capital profit rate is replaced by the trend value of capital profit rate (KRTR).
- (2) The real GDP growth rate is replaced by the real potential GDP growth rate trend (GYPHP).

The STIFY measurement formula based on the above procedure is as follows.

$$\text{STIFY} = 0.089 + 0.711 \times \text{KRTR} + 0.255 \times \text{GYPHP} (-1) \quad (\text{A-3})$$

The actual and structural values of private equipment investment (IFY and STIFY) are illustrated in Figure A-4.

Figure A-4. Actual and structural value of private equipment investment



[4] Private inventory investment function

The trend value of real inventory investment (GDP ratio) is assumed to be a structural factor (STINVY).

[5] Public sector saving and investment

The public sector saving and investment difference is determined as the difference between the amount of revenue and the amount of expenditure in the general government. General government revenue (GDP ratio) is estimated based on the following specification.

< Specification >

	Variable	Notation	Data source
Dependent variable	Nominal general government revenue (nominal GDP ratio)	REGY	Cabinet Office (SNA)
Independent variable	Real GDP	YR	Cabinet Office (SNA)

Table A-4. Estimation results 1956–1985 Maximum Likelihood method assuming AR1 in the error term.

Const.	YR	\bar{R}^2	DW	DWH
0.166	3.67E-07	0.969	1.809	0.537
(5.317)	(3.927)			(0.470)

Based on the previous estimation results (Table A-4), the structural factor of public revenue (STREGY) is measured by the following steps.

- (1) Real GDP (YR) is replaced by real potential GDP (YPOT).
- (2) The constant terms are added as they are as explanatory factors.

The measurement equation for STREGY based on the above procedure is as follows.

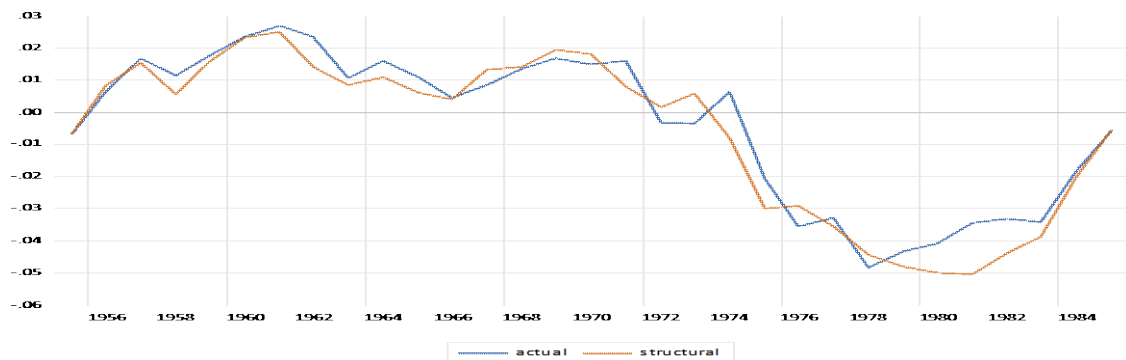
$$\text{STREGY} = 0.166 + 3.67E - 07 \times \text{YPOT} \quad (\text{A-4})$$

The ratio of general government expenditure (EXG) to GDP (STREGY=EXG/YN) is exogenous and its level is used as a structural factor. The structural IS balance of the public sector is then measured according to (A-5).

$$\text{STSPY} = \text{STREGY} - \text{STEXGY} \quad (\text{A-5})$$

The actual and structural values of IS balance in the public sector (ISPY and STISPY) are illustrated in Figure A-5.

Figure A-5. Actual and structural value of saving-investment balance in the public sector



Based on the above measurements, the structural factors of the IS balance for the macroeconomy can be calculated according to (A-6) and actual and structural values are shown in Figure 1 in the main text.

$$\text{STCAY} = \text{STHFY} - \text{STIHY} - \text{STIFY} - \text{STINZY} + \text{STSPY} \quad (\text{A-6})$$

Appendix 2: The Relationship between the structural current account balance and the real exchange rate

As explained based on Figure 4 in the main text, the impact of real exchange rate appreciation on capital profit rate has likely been firm since the mid-1960s. Therefore, under the estimation period from 1965 to 1985, we conduct the following supplementary test, where the explained variable is capital profit rate (Table A-5).

Table A-5. Estimation results 1965–1985 OLS

Const.	KR (-1)	REXR	TRREXR	\bar{R}^2	DW	DWH
0.001 (0.169)	0.721 (6.882)	0.0001 (2.747)		0.789	1.289	0.264 (0.613)
-0.0006 (0.751)	0.723 (5.659)		0.0001 (2.186)	0.785	1.308	0.100 (0.755)

Independent variables in the table are:

REXR: Real exchange rate (the nominal yen-dollar exchange rate multiplied by the ratio of CPI between US and Japan)

TRREXR: Trend in Real Exchange Rate (REXR).

Appendix 3 Determinants of non-structural current account balance

As explained with Figure 5 in the main text, possible sources of variation in the non-structural current account balance include short-term fluctuations, such as real exchange rates, domestic and international economic growth rates, and other special factors (e.g., oil shocks). Therefore, we conduct the following estimation with the non-structural current account balance (the actual current account balance (CAY) minus the structural current account balance (STCAY)) as the dependent variable (Table A-6).

Table A-6. Estimation results 1960–1985 OLS

Const.	DREXR	GYRJ	GYRUS	DUM74	\bar{R}^2	DW	DWH
0.0008 (0.148)	5.04E-05 (0.428)	-0.150 (-2.268)	0.178 (1.704)	-0.032 (-2.475)	0.261	1.637	0.150 (0.861)

Independent variables in the table are:

DREXR: One-period difference in real exchange rate (REXR)

GYRJ: Japan's real GDP growth rate

GYRUS: Real GDP growth rate of the U.S.

DUM74: First oil shock dummy (1974 = 1, other years = 0).