The Political Economy of the Japanese Yen and the

U.S.-Japan Trade Conflict

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Abstract

In this paper, we use a version of the Dixit-Grossman-Helpman (1997) common agency model and apply the lobbying framework to exchange rate policies. In particular, we formalize Ron McKinnon's idea that the appreciation of the Japanese yen in the past was due to trade pressure applied by the U.S. government. We extend the theory to examine the case where the Japanese firms are modeled as a coalition of shareholders and incumbent employees (Aoki 1988). We conclude by pointing out that this approach is applicable and relevant to the current disputes on the level of the Yuan exchange rate between the U.S. policymakers and the Chinese government.

1. **Introduction**

Professor Ronald McKinnon has many seminal and influential ideas in many diverse areas of economics, including international trade, international finance, economic development and the economics of transition economies. Among his considerable and impressive achievements, Ron is a world-renowned expert on the economy of Japan. We are honored to have an opportunity to contribute to this conference to celebrate Ron's numerous accomplishments. We are privileged to learn from Ron's work and delighted to be a part of this important conference to honor Ron's significant contributions to the economics profession.

2. **A Basic Model of the McKinnon-Ohno Theory of U.S. – Japan Trade Conflict**

2.1 The McKinnon-Ohno Thesis

In a highly influential book published by the MIT Press in 1997, *Dollar and Yen: Resolving Economic Conflict between the United States and Japan*, Professor Ronald McKinnon and Kenichi Ohno presented their seminal idea on the role of exchange rates in the context of the U.S. –Japan trade conflicts. At the risk of doing gross injustice to their sophisticated and complex theory, let us simply restate the main points of Ron's ideas in our

own simple language. The point here is to show that Ron's theory is so rich that it can encompass and be compatible with political economy models that are popularly used in other context.

Professor McKinnon's theory - in our naïve understanding – is as follows: since the 1970s, Japan has had trade conflicts with the United States in a variety of sectors, including television sets, autos, semiconductors, paper, supercomputers, steel, flat panel displays, etc. Japan has been under constant pressure to provide market access to the U.S. exporters as well as to restrain its exports to the United States. A major indicator of the state of the U.S. – Japan trade relation is the size of the bilateral trade imbalances. Japan's trade surplus with the United States is seen by the U.S. trade negotiators and policymakers as a sign of the net benefits received by Japan. Professional economists consider bilateral trade imbalances as related to macroeconomic factors such as the saving-investment imbalances and the national budget deficits, but political economy considerations lead policymakers and trade negotiators to view the U.S. trade deficits with Japan differently.[1] Whenever the U.S. deficits with Japan rise, U.S. trade negotiators will be under pressure to start negotiating with Japan on broad - based (such as the Structural Impediment Initiative SII) or on sectoral issues

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[1] In another context, Fung and Lau (2001) consider the extent and importance of U.S.-China trade imbalances in U.S.-China economic relations.

(such as the automobile voluntary export restraint VER), pressuring Japan to open up its markets and to reduce its exports to the United States.[2] In turn, to placate the U.S. government, the Japanese policymakers will act to raise the dollar value of the yen, which tend to reduce Japanese exports, raise U.S. and other foreign imports and consequently to cut the trade deficits. Over time, the U.S. – Japan trade conflicts contribute to the secular appreciation of the Japanese yen. In addition, the secular rise of the Japanese yen also contributes to the current slump of the Japan economy (McKinnon and Ohno 2001).[3]

To celebrate Ron's seminal idea on the political economy of the Japanese yen and its linkage to U.S. – Japan trade conflict, we next will use an illustrative model to highlight how the McKinnon-Ohno thesis encompasses a popular approach used in the political economy of trade and trade policies.

2.2 A Menu Auction Approach to the Political Economy of the Japanese Yen

To start our model of Ron's influential theory, consider an open economy (Japan) with two sectors: one formal sector and one informal sector. The

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[2] McKinnon and Fung (1993) examine the equivalence of quotas and VERs to tariffs in a floating exchange rate system.

formal sector consists of two firms: the export-competing Japanese firm produces good x for the U.S. market and the import-competing firm produces good y for the Japanese market. The informal sector produces the numeraire good n with a mobile factor only. The technology for the numeraire good is constant return to scale. The goods, x and y are produced with the mobile factor and a specific factor. The mobile factor is supplied inelastically to Japan's economy. As long as the informal sector is active, the constant marginal product of the mobile factor fixes its economy-wide return to unity.

Total population in the economy is normalized to one. A fraction a^x of the population owns the specific factor used in the production of good x and has a direct stake in the export-competing firm, a fraction a^y of the population owns the specific factor used in the production of good y and has a direct stake in the import-competing firm. The remaining 1-a^x-a^y (hence after, a^m) individuals are the owners of the mobile factor, which are used in both formal and informal sectors, and earn a fixed return normalized to one. The owners of the mobile factor are assumed to be inactive politically. Each

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[3] Economic growth and slump in Japan is an example of how an economy without natural resources deals with its economic development. For an excellent examination of the role of natural resources in economic growth in various countries, see Wright (2001).

individual is allowed to own at most one specific factor. Owners of the specific factor organize as interest groups for political activity.

The behavior of firms in the formal sector is simple Nash quantity duopoly (similar to those in Brander-Spencer 1985). This part of the model is familiar to the strategic trade policy literature, but it is useful for our expositions later in the paper. The export competing firm produces good *x*, and competes with the foreign, U.S. firm, which produces *x** in the U.S. market. The exporting Japanese firm charges p^x in U.S. dollars but it cares about profits in yen. *e* is the Yen/$ exchange rate. The Japanese firm maximizes profit $\boldsymbol{p}^x$ and the U.S. maximizes profit $\boldsymbol{p}^{x*}$:

$$\boldsymbol{p}^x(x, x^*; e) = xep^x(x + x^*) - c(x) \tag{1}$$

$$\boldsymbol{p}^{x*}(x, x^*) = x^* p^x(x + x^*) - c^*(x^*)$$

where *c* and c^* are the costs of the domestic Japanese firm and the foreign U.S. firm, each producing *x and x**, respectively.

After some algebra, we show that a higher *e* (a yen depreciation) will raise $\boldsymbol{p}^x$. That is, a yen depreciation will raise Japanese exporting firm's profits.

The import-competing firm in Japan produces good *y* and competes with the U.S. exporting firm. The import-competing Japanese firm maximizes profit $\boldsymbol{p}^y$ and the U.S. firm maximizes profit $\boldsymbol{p}^{y*}$:

$$\boldsymbol{p}^y(y, y^*) = yp^y(y + y^*) - c^y(y) \tag{2}$$

$$\boldsymbol{p}^{y^*}(y, y^*; e) = \frac{1}{e} p^y(y + y^*; e)y^* - c^{y^*}(y^*)$$

where c^y and c^{y^*} are the costs of the Japanese firm and the U.S. firms producing y and y^*. c^y is in yen while c^{y^*} is in U.S. dollars. p^y is the yen price of y while $(1/e)p^y$ is the dollar price of the U.S. export good to Japan. Some algebra will show that $d\boldsymbol{p}^y/de > 0$, i.e. a yen depreciation will raise the Japanese firm's profits. In sum, a yen depreciation will act like an export subsidy plus an import tax to raise Japan's export yen profits and to raise the yen profits of the Japanese import-competing firm. Conversely, a yen appreciation will be equivalent to an export tax plus an import subsidy lowering the yen profits of both the Japanese exporter and the Japanese import-competing firms.[4]

Turning now to the demand side, all individuals in Japan have the same preferences and maximize the utility function:

$$U^i(n, Y^c) = n^i + u(Y^{ci}) \tag{3}$$

where $i = x$, y and m represents the shareholders of the export-competing firm, the import-competing firm, and the owners of the mobile factor, respectively; n^i is the consumption of the numeraire good; $Y^{ci} = y^{ci} + y^{*ci}$ is

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[4] However, if we allow export subsidy and import tariff to be politically determined as well, then the results will be quite different. For details, see Fung and Lin (2002).

the total consumption of the homogeneous goods y and y^* by individual i.

The function $U(y)$ is differentiable, increasing and strictly concave in all

arguments. Utility is maximized subject to the budget constraint:

$$I^i \geq n^i + p^y Y^{ci} \qquad (4)$$

where I^i is the net income of individual i; p^y is the domestic yen price of

good y.

From Equation (3) and Equation (4), the indirect utility function of each

individual in group i has the form:

$$V^i = I^i + u(Y^{ci}) - p^y Y^{ci}$$

$$= I^i + CS(p^y)$$

where $i = x, y$ and m; CS = consumer surplus derived from consumption of

the good in the import sector. We assume that the exportable good x is not

consumed domestically.

The gross indirect utility functions for each individual in each group are

$V^x = \dfrac{p^x}{a^x} + CS$; $V^y = \dfrac{p^y}{a^y} + CS$; $V^m = \dfrac{p^m}{a^m} + CS$, where p^x and p^y are described in

Equation (1) and Equation (2); and p^m is the total constant return to the

mobile factor. Taking the yen-dollar exchange rate as given, the indirect

utility function identifies the utility level of an individual in group i when

there is no lobbying.

Given the yen-dollar exchange rate, the gainers and the losers from an intervention in the foreign exchange market can be identified, which further gives rise to the lobbying motives of various groups in Japan. With no lobbying, we assume that the Japanese policymakers can choose an appropriate level of the exchange rate to maximize social welfare. The government's objective function is given by:

$$Max_e \ W \ = \boldsymbol{a}^x V^x + \boldsymbol{a}^y V^y + \boldsymbol{a}^m V^m$$

where W is the social welfare level which can be attained in the absence of any political contributions to the government. The socially optimal exchange rate is then given by $e^W = \arg\max W$. A more complicated theory of exchange rate determination can be obtained by setting one portion of the exchange rate to be determined by the market, while a fraction of the spot rate is determined by policymakers. To save space, we will just consider the above simple case and assume that the yen is determined entirely by policymakers.[5]

The lobbying structure follows Grossman-Helpman (1994) framework which applies Bernheim and Whinston's (1986) study on menu-auctions and common agency. The two interest groups, as bidders, offer various

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[5] In a situation where there is perfect capital mobility, we need to make further assumptions about the effectiveness of exchange market intervention to argue that the yen exchange rate can be set by the Japanese policymakers. Since it is not the intent of this paper to study this aspect of exchange rate

contribution schedules corresponding to different exchange rates to the Japanese government at the first stage. The government, as the auctioneer, sets the exchange rate by evaluating the weighted sum of contributions and aggregate social welfare at the second stage. An equilibrium is a set of contribution schedules and the politically-determined exchange rate.

The equilibrium contribution schedules imply that the interest groups make contributions up to the point where the marginal benefit from the resulting change in the yen exchange rate exactly equals to the marginal contribution costs. In equilibrium, the contribution schedules of each interest group are given by:

$$\boldsymbol{a}^i V_e^i = \boldsymbol{l}_e^i(e) \tag{5}$$

where $i = x, y$; $\boldsymbol{l}^i(e)$ is the contribution schedule provided by interest group i and they are differentiable at e.

The government's objective is to maximize the possibility of being reelected. With lobbying, other than providing a high standard of living to the general public, the government has another resource to enhance its possibility of being reelected, i.e. the contributions provided by the interest groups. With lobbying, the government's objective function contains not

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determination, we will simply follow Professor McKinnon's argument and assume that the policymakers in Japan has the ability to affect the yen rate.

only the aggregate social welfare but also the total level of political

contributions. The objective function can be written as

$$Max_e \ V^G = (\boldsymbol{b}-1)\big[\boldsymbol{l}^x(e)+\boldsymbol{l}^y(e)\big]+W \tag{6}$$

where $\boldsymbol{b} > 1$ represents the weight that the government puts on the

contributions provided by the interest groups.[6]

The first order condition of the government's optimization problem is:

$$V_e^{\ G} = \boldsymbol{b}(\boldsymbol{a}^x V_e^{\ x}+\boldsymbol{a}^y V_e^{\ y})+\boldsymbol{a}^m V_e^{\ m}=0 \tag{7}$$

The politically determined yen-dollar exchange rate is given as

$e^r = \arg\max V^G$. This is the basic framework for a politically determined

yen-dollar rate.

Now we follow Ron's important idea and introduce the element of the

foreign pressure. The source is political lobbying due to the U.S. trade

negotiator. To incorporate this idea we assume that the Japanese

policymakers will take into account of the U.S. interest in the objective

function of the government. An index of the U.S. interest is a function of

decreasing Japan's trade surplus *TB* with the U.S. Thus we have

$$V^G = (\boldsymbol{b}-1)\big(\boldsymbol{l}^x(e)+\boldsymbol{l}^y(e)\big)+\boldsymbol{q}f(TB)+W \tag{8}$$

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[6] $\boldsymbol{b} > 1$ implies that the government values a dollar offered by the interest groups more than dollar in the hands of the public.

where $0 < \boldsymbol{q} < 1$ is the weight attached by the Japanese policymakers on the U.S. special interest, viz. Japan's trade surplus with the U.S. The first order condition for this expanded objective function of the government is:

$$V_e^G = (\boldsymbol{b}-1)\left(\boldsymbol{l}_e^x + \boldsymbol{l}_e^y\right) + We + \boldsymbol{q}f'(TB)TB_e = 0 \qquad (9)$$

where $f' < 0$ and subscripts are partial derivatives. Assuming that the Marshall-Lerner condition holds, $\partial TB/\partial e > 0$, i.e. a yen appreciation will reduce Japan's trade surplus with the United States.[7] What is the impact of the political pressure of the U.S. trade negotiator on the yen- dollar exchange rate? Totally differentiate (9) and using the implicit function theorem gives:

$$V_{eq}^G \, d\boldsymbol{q} + V_{ee}^G \, de = 0$$

$$de/d\boldsymbol{q} = -V_{eq}^G / V_{ee}^G \qquad (10)$$

In particular (10) holds for an initial value of $\boldsymbol{q} = 0$ so that

$$de^r/d\boldsymbol{q}\Big|_{\boldsymbol{q}=0} = -f'(TBe)/V_{ee}^G < 0 \qquad (11)$$

since $f' < 0$ by construction, $TB_e > 0$ and $V_{ee}^G < 0$ is the sufficient second order condition. Eq. (11) shows that a rise in $\boldsymbol{q}$ will lead to an appreciation of the yen exchange rate. Comparing some U.S. pressure to no U.S. pressure, the politically determined value of the yen is higher with U.S. influence to reduce Japan's trade surplus.

Proposition 1   In the menu auction approach, Japanese yen appreciates

with political pressure from U.S. trade negotiators.

Proposition 1 highlights the richness of Professor McKinnon's theory on

U.S.-Japan trade conflict and the role of the yen exchange rate. It

encompasses and is compatible with a popular approach to the political

economy of trade policies. On honoring and celebrating Ron's seminal

ideas, we have also made use of work by major scholars who are associated

with Stanford – including work by Doug Bernheim and Jim Brander. [8]

3. The Political Economy of the Yen and the Current Slump in Japan

Professor McKinnon further extended his vision of the political economy

of the exchange rate and links it to the current slump in the Japanese

economy. Ron argues that the appreciation of the yen contributed to

deflation in Japan. Furthermore, yen appreciation will also put pressure on

the Japanese banks. While our model is too narrow to do full justice to

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[7] This may not be true in a cleanly floating exchange rate system. Since the intent of this paper is to provide an illustrative model of Professor McKinnon's theory, we shall just follow his argument and make the necessary assumptions to get the result that a yen appreciation will reduce the Japanese trade surplus.
[8] Another colleague of Ron who has done seminal work in the general area of rent seeking is Professor Anne Krueger (1974).

Ron's thesis, we can further derive some similar results using the menu

auction approach. [9]

From the profit function of the U.S. exporter and the Japanese import-

competing firms, we can get

$$dy/de + dy^*/de = -\boldsymbol{p}_{y^*e}^{y^*}(\boldsymbol{p}_{yy^*}^y + \boldsymbol{p}_{yy}^y)/\Delta^y < 0$$

where $\boldsymbol{p}_{yy^*}^y = p^{y\prime}+yp^{y\prime\prime}$, $\boldsymbol{p}_{yy}^y = 2p^{y\prime}+yp^{y\prime\prime}$, $\boldsymbol{p}_{y^*e}^{y^*} = -(p^y + y^*p^{y\prime})/e^2$, and

$\Delta^y = \boldsymbol{p}_{yy}^y \boldsymbol{p}_{y^*y^*}^{y^*} - \boldsymbol{p}_{yy^*}^y \boldsymbol{p}_{y^*y}^{y^*}$. The impact of the U.S. influence on the yen and the

import price is

$$dp^y/d\boldsymbol{q} = \left(\frac{de^r}{d\boldsymbol{q}}\right)\left(\frac{d(y+y^*)}{de^r}\right)\left(\frac{dp^y}{d(y+y^*)}\right) < 0 \tag{12}$$

In particular (12) holds for an initial value of $\boldsymbol{q} = 0$. U.S. pressure will lead

to a yen appreciation by Proposition (1). An appreciation will raise the total

output of the importable sector in Japan, which leads to a lowering of the

price level.

Suppose now we introduce a banking industry and a main bank

maximizes B:

$$B = (i - \hat{i})v(i, k) + s^x \boldsymbol{p}^x + s^y \boldsymbol{p}^y \tag{13}$$

where i is the loan rate, $\hat{i}$ is the deposit rate so that $(i - \hat{i})$ is the interest rate

spread. v is the volume of loans, k is the demand for physical capital, which

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[9] In particular, our model is a real rather than a monetary model. Furthermore, our model is a partial

depends on outputs x and y, s^i ($i = x, y$) is the proportion of shares held by the bank over the Japanese export firm and the import-competing firm. We can directly incorporate the banks as an additional lobbyist, but the result with respect to the exchange rate is exactly similar,

$$V^G = (\boldsymbol{b}-1)\left(\boldsymbol{l}^x + \boldsymbol{l}^m + \boldsymbol{l}^B\right) + W + \boldsymbol{q}f(TB)$$

where l^B is the campaign contribution schedule by the private main bank. Using the same analysis as before we get

$$de^r/d\boldsymbol{q}\big|_{\boldsymbol{q}=0} = -\left(f'TBe\right)/V_{ee}^G < 0$$

Suppose we leave the issue of whether the main bank is a lobbyist aside and study the impact of the yen exchange rate change on bank profits, we have

$$dB/d\boldsymbol{q} = \frac{de^r}{d\boldsymbol{q}}\frac{dB}{de^r}$$

$$= \left[(i - \hat{i})\frac{\partial v}{\partial k}\frac{\partial k}{\partial e^r} + s^x\frac{d\boldsymbol{p}^x}{de^r} + s^y\frac{d\boldsymbol{p}^y}{de^r} + v(\frac{di}{de^r})\right]\frac{de^r}{d\boldsymbol{q}} \qquad (14)$$

For simplicity, we can consider the macro impact on the interest rate via the uncovered interest parity condition (McKinnon and Ohno 2001). On average there has been an appreciation of the yen of appropriately 4% from early 70s to the mid 90s. Thus the expected change of the yen-dollar exchange rate is roughly 4%. As inflation in the U.S. stabilizes and the U.S.

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equilibrium model.

interest rate is lowered, the Japanese interest rate gets compressed to zero.

Higher value of the yen reduces Japanese exports and the import-competing

good, with a lower demand for physical capital, i.e. $dk / de^r > 0$. In the

previous section, we have demonstrated that profits of Japanese firms

decline with a yen appreciation, i.e. $dp^x / de^r > 0$ and $dp^y / de^r > 0$. Finally,

via the uncovered interest parity condition, we have $di / de^r > 0$ and

assuming that both the loan rates and the deposit rate moves in the same

direction, we have $d\hat{i} / de^r > 0$. Thus, all the terms of (14) point to the same

direction, with $dB / de^r > 0$ and from Proposition 1 we have $de^r / dq < 0$ so

that $dB / dq < 0$.

Proposition 2   With the menu auction approach, U.S. lobbying leads to

an appreciation of the Japanese yen which leads to a

decline of the price level and a drop in the profits of the

Japanese commercial bank.

4. The Political Economy of the Japanese Yen in the Presence of the J-Firm

Suppose we adopt Masa Aoki's model and consider the Japanese firm as

a coalition of shareholders and incumbent workers. The Japanese manager

acts as a Nashian arbitrator and maximizes a weighted sum of the

shareholders interest (S_i, $i = x$, y) and workers interests (L_i, $i = x$, y) within

the firm. In effect, let the objective function of the Japanese export firm be

F^x and that of the import- competing firm be F^y, then the Japanese managers

maximize

$$F^x = S_x^{\gamma} L_x^{1-\gamma}$$
$$F^y = S_y^{\sigma} L_y^{1-\sigma}$$

where γ and σ are the weights attached to the shareholders interests in the

export and the import- competing sector, respectively. In the menu auction

approach, shareholder and worker of each firm will act as separate lobbyist

and will provide separate campaign contribution schedules: the Japanese

policymakers maximizes

$$V^{G2} = (\beta-1)(l_{Kx}^x + l_{Lx}^x + l_{Ky}^y + l_{Ly}^y) + W^2 + qf(TB)$$

(15)

$$V_e^{G2} = (\beta-1)(l_{Kxe}^x + l_{Lxe}^x + l_{Kye}^y + l_{Lye}^y) + W_e^2 + qf'(TB_e) = 0$$

The aggregate social welfare now is given by

$$W^2 = a^{Kx} V_{Kx} + a^{Lx} V_{Lx} + a^{Ky} V_{Ky} + a^{Ly} V_{Ly} + a^m V_m$$

where a^{Ki} is the population of the shareholders in the export sector and

import-competing sector and a^{Li} is the population of the incumbent workers

in sector i. Whatever the definition of W^2 and V^{G2}, the impact of the

pressure from the U.S. – Japan trade conflict remains as

$$de^{\,r}\big/d\boldsymbol{q} = -\big[\,f'(TBe\,)\big]\big/V_{ee}^{\,G2} < 0$$

where $f' < 0$, $TB_e > 0$ and $V_{ee}^{\,G2} < 0$ so that $de^{\,r}\big/d\boldsymbol{q} < 0$, i.e. increasing U.S.

pressure will lead to an appreciation of the Japanese yen.

Proposition 3   Even with Aoki's type J-firm, the McKinnon thesis

remains valid, i.e. pressure from the U.S. trade negotiator

will lead to an appreciation of the Japanese yen.

5. Variable Weight on U.S. Interest and Lobbying

In the section we examine the McKinnon-Ohno theory as applied to the

mid-1990s to late 1990s. The behavior of the yen during this period seems

to display little trend. How does one explain this relative lack of pressure on

the yen to appreciate? We can accommodate this phenomenon by allowing

the weight attached to the U.S. interest to be a function of changing

conditions. Two aspects of the 90's seem to have changed this weight.

First, the long period of boom years for the U.S. in the 1990s. Prosperity in

the U.S. has lessened the pressure on U.S. trade negotiators to negotiate

opening of Japan's markets and reducing Japanese exports. U.S.

corporations have been doing exceptional well until recently and the

importance of competition from Japan becomes less. Second, Japan's

decade long slow growth also means that the competitive threat from Japan has declined substantially. The U.S. government also seems to be more willing to lessen pressure on Japan so that Japanese policymakers can focus on their internal reforms. For these reasons, we can write q as a function of the two countries relative national incomes, $Y \equiv Y^{US}/Y^J$. As Y^{US} rise relative to Y^J, as is the case since the mid-90s, q becomes smaller. In other words,

$$V^{G3} = (\boldsymbol{b}-1)(\boldsymbol{l}^x + \boldsymbol{l}^y) + W + \boldsymbol{q}(Y)f(TB)$$

$$\frac{de^r}{dY} = \left(\frac{de^r}{d\boldsymbol{q}}\right)(\boldsymbol{q}') > 0$$

As fortunes between the two countries are reversed since the mid-1990s, the U.S. trade negotiators reduce pressures on the Japanese government. Japanese policymakers put less weight on the U.S. interest and there is less pressure on the yen to appreciate.

Proposition 4   In the menu auction approach, if we permit the weight attached to the U.S. interest to be a function of relative national incomes, the McKinnon thesis is compatible with the behavior of the yen in the 1990s.

6. Conclusion

We are delighted and honored to be a part of this occasion to honor Professor McKinnon's seminal ideas and his impressive achievements. We wrote this paper to illustrate one of his many important contributions to the profession: the U.S. – Japan trade conflict and its impact on the yen.

We have chosen a popular political economy model to demonstrate how the McKinnon-Ohno thesis holds in a variety of settings. Ron's ideas are so rich that they can accommodate and encompass models that have been applied to other areas.

In celebrating Ron's work, we make central use of his creative thesis. Along the way, we also happen to borrow ideas from Ron's many friends, colleagues and former students associated with the Stanford community, including Doug Berheim (the menu auction model), Jim Brander (the international oligopoly model), Larry Lau (the importance of bilateral trade balances to policymakers), Masa Aoki (the main bank system and the cooperative J-firm) and Ken Ohno (his coauthor). Directly and indirectly, the whole Stanford community, in conjunction with us here, are all joining together to celebrate and honor Professor Ronald McKinnon.

Finally, given the current disputes between the policymakers in the U.S. and China on the appropriate level of the Chinese Yuan, we would like to

argue that the approach adopted in this paper is directly applicable to the

case of China. We intend to extend our research in that direction in our next

paper.

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