


邹恒甫学术论文集

宏观，财政，金融，增长

(第三卷)

邹恒甫 / 著

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前 言

收集在《宏观，财政，金融，增长》三卷本里的论文是我与我的合作者二十年来发表的主要学术成果。我在哈佛大学读经济学硕士与博士时（1983—1989年），自己从来没有想到要在外国学术期刊发表论文，因为我一直打算拿到博士就回武汉大学当老师。1989年，一个偶然的机会让我进了世界银行研究部，正像1983年一个偶然的机会让我去了哈佛大学，更像1977年一个偶然的机会让我上了武汉大学。在世界银行研究部，最主要的任务是发表论文和写各国经济调研报告。如此，我就被逼迫着写论文、发论文。现在看来，只要有压力，人人都能发表国际论文。说真的，越笨的人发表得越多，而越聪明的人越会去投机当社会经济政治各方面的混混，尤其是到中国同流合污地摸钱摸权摸女人。

这三卷论文涵盖了众多方面：地方财政的动态模型；政府开支的结构；政府税收的结构；中央政府与地方政府的财政关系；财政联邦制度；财政分权；财政开支与经济增长；多级政府的最优税收结构和转移支付；公共资本的提供；收入分配的历史与实现；收入分配与经济增长的关系；收入不平等的原因；资本主义精神与储蓄、增长和资产定价；资本主义精神与货币及增长；金融与增长及收入分配；社会地位与生产条件下的资产定价；腐败、增长与经济增长；开放经济的货币政策；国际收支平衡的短期模型；美元化与通货膨胀税；国际贸易、国际收支平衡与重商主义；重商主义与国家发展富强的历史与现实；外国援助与国际债务；外国援助与发展中国家的经济发展；军事开支、武器积累与经济发展的关系；武器与资本积累的确定性模型与随机模型等。这三卷论文还有众多对中国经济各方面的分析与经济体制的比较。

这些论文的共同点就是造反与标新立异。我从来就不愿意接受现有的结论，哪怕对效用函数只定义在消费上都绝对不能忍受，因为资产阶级的首要目的是积

累财富。我还为重商主义平反，为非生产性公共开支叫好。在新模型和实证分析的基础之上，我反对财政分权定理，反对外国援助会刺激穷国经济增长的共识，反对快速增长会减少贫富差别的老调，反对货币超中性定理等。

我特别强调，这三卷论文的许多理论与实证分析说明，发展中国家特别是中国在教育、卫生、社会保障、法治、社会治理等方面欠账太多。把巨额的政府开支用于基础设施还不如花在教育、医疗、养老保险和幼儿保险等方面。这些都有助于促进人力资本更优地形成。而人力资本远比投资“铁公基”的物质资本重要。如果中国政府在教育、医疗、社会保障各方面的政府支出都占到 GDP 的 6%，加起来就是 18%，那就跟中等发达国家的国际标准比较接近了。如果每一项都达到 GDP 的 8%，总计就是 24%，那就跟美国接近了。如果赶上北欧、西欧和加拿大，每项都达到 GDP 的 10% 以上，那中国就可以实现免费医疗、免费教育和免费社保了。这其实是一个民主的进程，也是发达国家在一百多年来“自发形成的秩序”（但愿哈耶克不要在墓地里气得发抖啊）。

在此我衷心地感谢我的众多论文合作者：没有他们最热心的帮助与最无私的奉献，这三卷论文的发表是不可能的。

这三卷论文集的编辑徐玲要我给大学生、研究生和博士生多谈点我自己怎么开始写论文的经历，我不妨在此试试。我本人认为，人在 20 岁至 30 岁之间是最有稀奇古怪想法的时候。我自己在 1987 年 25 岁时最喜欢狂想。

例如，在学习了 Cash-in-Advance Models 后，我马上写了一篇 Credit-in-Advance Model：信用越多，购买越方便甚至越多，而购买货物使用的现金（cash）就越少。但一个人信用多的基础是什么？当然是一个人所拥有的财富或资本。如此，通货膨胀率越高，大家用现金购买的货物越少，而大家都会多用信用卡购物，也就是说，大家会多积累财富或资本。这也是否定货币超中性定理的一个简单办法。我写的此文一直没有发表，但我自己还是得意的。后来我看了卢卡斯（Robert Lucas）和斯托基（Nancy Stokey）合写的一篇论文，把货物购买分成现金产品（cash goods）与信用产品（credit goods），我自然地意识到：名人的想法也被我想到了。哈哈。后来我的许多学生说他们的模型被名人都用过了。我听到后总是回答：“如果不是如此那就证明你太有才了！”

再举一例。在科尔奈（Janos Kornai）的短缺经济学里，他不厌其烦地唠叨计划经济中投资扩张与短缺严峻的周期关系。我很快给他写出了社会主义计划委员会选择投资率与短缺程度的动态最优化模型，并得出了投资率与短缺的周期微分方程的显示解。科尔奈教授看了我的文章，他问我是如何学会动态优化方法的。

我回答：“就在研究生的课堂里学的。”后来，我意识到，年岁稍长的大数理经济学家往往也不学动态优化和动态规划，而他们仅仅停留在线性规划与非线性规划的水平上。这也是费尔德斯坦（Martin Feldstein）的毛病。

我还要回顾一下定义在消费和资本积累两个元素上的效用函数。当我写博士论文时，我把这种效用函数定义为我自己从1978年至1982年长期学习的马克思（Karl Marx）《资本论》的效用函数：资本家积累的目的主要是为积累而积累，消费不过是一个附带品。在哈佛学习经济学与数学的同时，我对韦伯（Max Weber）与桑巴特（Werner Sombart）等许多社会学家、历史学家也很痴迷，特别是关注他们关于新教伦理与资本主义起源抑或犹太教与资本主义起源的大争论。我同我的论文指导小组组长萨克斯（Jeffrey Sachs）讨论了这一博士论文的大致内容，他非常鼓励我并马上指出凯恩斯（John Maynard Keynes）《和约的经济后果》里关于资本主义本质的论述。萨克斯继续说道：“用韦伯的资本主义精神模型还可以在美国卖得出去，用马克思的资本的本质模型只怕不好卖啊。”

我那时候很听话，把我的博士论文里的六篇论文合起来命名为《资本积累的一个新实证（positive）模型》。言外之意是说：所有只定义在消费上的效用函数基础上的增长模型是规范的（normative）、不合实际的、强加于人的和虚妄的东西。当我写作博士论文时，我开始注意到库尔茨（Mordecai Kurz）1968年在《国际经济评论》（*International Economic Review*）上发表的资本财富效应模型，此模型认为社会主义计划委员会同样关注消费与资本积累。而在库尔茨之前，杜森贝里（James Duesenberry）在他1948年出版的博士论文里就把效用函数定义在消费、收入与财富三者之上！我很惊讶，无论自己如何疯狂地想象，我的确逃不出前人的魔掌。哈哈大笑。

1989年6月6日我得到博士学位。之后，我的阅读更加广泛。首先，我看到了马加姆达（Mukul Majumdar）和米特拉（Tapan Mitra）在《经济理论》（*Economic Theory*）上发表的用离散动力系统方法得到的惊人结果：他们在库尔茨的模型里证明了周期和混沌的存在。接下来，我很快看到了巴克西（Gurdip Bakshi）与陈志武在《美国经济评论》上发表的资本主义精神和股市资产定价的好论文！

说到底，我似乎也极难把自己写论文的具体感受告诉大家。这其中味道只有《庄子》里讲得最好：

桓公读书于堂上，轮扁斲轮于堂下，释椎凿而上，问桓公曰：“敢问公之所读者，何言邪？”公曰：“圣人之言也。”曰：“圣人在乎？”公曰：“已死矣。”

曰：“然则君之所读者，古人之糟粕已夫！”桓公曰：“寡人读书，轮人安得议乎！有说则可，无说则死！”轮扁曰：“臣也以臣之事观之。斫轮，徐则甘而不固，疾则苦而不入，不徐不疾，得之于手而应于心，口不能言，有数存乎其间。臣不能以喻臣之子，臣之子亦不能受之于臣，是以行年七十而老斫轮。古之人与其不可传也死矣，然则君之所读者，古人之糟粕已夫！”

伟大的萨缪尔森（Paul Samuelson）说过：一个人中断发表论文是在犯罪。他一辈子直到逝世还在写作、发表论文。但是，太多的中国经济学者与外国经济学者都过早地中断了他们的论文发表生涯。我希望学习了中级经济学的大学生、研究生和博士生看尽这三卷论文之糟粕，体会到庄子寓言的精妙，尽快地写出自己的好论文。如果有足够的压力，这是极容易做到的。邹恒甫都会发国际论文，哪个中国学生还不会呢？如果不搞“钱权色学”四位一体，那不知要发表多少新理论和论文啊！



2013年7月11日

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第 1 章

美元化和通货膨胀的 一个两国最优模型

Dollarization and inflation in a two-country optimization model

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In a two-country, two-currency model, this paper examines the conditions of dollarization, analyzes the effect of government inflation finance and studies the strategic interdependence of different-currency inflation. (JEL F30).

As in Ortiz (1983), dollarization here measures the degree of shift from using domestic currency toward foreign money as a legal tender. For obvious reasons, we take foreign money as the dollar. Many existing studies such as Fischer (1982, 1983) and Lamdany and Dorlhiac (1987) have focused on the country experiencing dollarization. In our study, we assume that there are two countries in the world: the USA and LA (which stands for Latin America); the dollar is the currency of the USA and the peso is the currency of LA; and dollarization is going on only in LA. In Section I we will set up a two-country optimization model for the representative families in the USA and LA and discuss the conditions for dollarization in LA under the assumption that the government in LA distributes its inflation tax to the public through lump-sum transfers. In Section II, we introduce government inflation finance in LA into the model and present a coherent, general equilibrium model for the determination of both peso and dollar inflation rates. The conditions for dollarization and the strategic choices of the peso and dollar inflation rates by the governments will be analyzed in detail. We summarize our main findings in Section III.

I. Currency substitution in LA and dollarization

We assume that there is free trade between the USA and LA and there is one homogeneous good with price p . A representative family in LA derives instantaneous utility from consumption and the liquidity services of real balances. With currency substitution in LA, both LA's peso and the US dollar provide liquidity services. Following Stockman (1978) and Liviatan (1981), we assume

* I am grateful to Jeffrey Sachs for encouraging me to write this paper and for helpful discussion. I thank an anonymous referee, Maxim Engers, and especially Michael Melvin for many suggestions and help on revising this paper. Responsibility for the contents of this paper is solely mine and not that of the World Bank.

that the preference of the representative family in LA is functionally separable in per capita consumption and the real balances:

$$U(c^*, m^*, m_f) = U(c^*) + V(m^*, Em_f),$$

where all variables are in real terms, and c^* is per capita consumption, m^* is per capita peso holdings, m_f is per capita dollar holdings, and E is the exchange rate; $U(\cdot)$ and $V(\cdot)$ are increasing and concave in c^* , m^* , and m_f .

Free trade between the USA and LA and one homogeneous good in the whole world market make it plausible to assume purchasing power parity:

$$p^* = Ep,$$

where p^* is the price of consumption goods denominated in pesos.

With two kinds of currencies in the portfolio of the representative family in LA, the per capita real asset in terms of pesos is the sum of these two currencies divided by the peso price:

$$a^* = (M^*/p^*N^*) + (M/p^*N^*) = m^* + EM/pN^* = m^* + Em_f,$$

where N^* is the population in LA. For simplicity we let the population growth rates in both the USA and LA equal zero.

We might as well assume that the initial exchange rate E is equal to one, then

$$a^* = m^* + m_f.$$

The typical family in LA maximizes a discounted utility over an infinite horizon subject to the budget constraint:

$$\begin{aligned} \text{Max } & \int_0^\infty [U(c^*) + V(m^*, m_f)] e^{-\rho^* t} dt \\ \text{s.t. } & a^* = y^* + x^* - c^* - \pi m_f - \pi^* m^*, \\ & a^* = m_f + m^*, \end{aligned}$$

where ρ^* is the time discount rate, y^* is per capita real income, x^* is the LA government's transfer to its citizens, π is the expected dollar inflation rate, π^* is the expected inflation rate for the peso, and a dot over a variable denotes the time derivative.

The optimal conditions are

$$\begin{aligned} \langle 1 \rangle \quad & V_1/V_2 = (\pi^* + \rho^*)/(\pi + \rho^*), \\ \langle 2 \rangle \quad & V_1 - U'(c^*)(\pi^* + \rho^*) + U''(c^*)\dot{c}^* = 0, \\ \langle 3 \rangle \quad & y^* + x^* - c^* - \pi^* m^* - \pi m_f - \dot{m}_f - \dot{m}^* = 0. \end{aligned}$$

The corresponding optimization program for a representative family in the USA is:

$$\begin{aligned} \text{Max } & \int_0^\infty u(c, m_u) e^{-\rho t} dt \\ \text{s.t. } & \dot{m}_u = y + x - c - \pi m_u, \end{aligned}$$

where y , c , and m_u are per capita output, consumption, and real balances in the

representative family of the USA, ρ is the time discount rate, and x is the government transfer to each family member.

The necessary conditions for optimization are

$$\langle 4 \rangle \quad u_2 - u_1(\pi + \rho^*) + u_{11}\dot{c} + u_{12}\dot{m}_u = 0,$$

$$\langle 5 \rangle \quad y + x - c - \pi m_u - \dot{m}_u = 0.$$

Now we turn to the LA and the US governments' money supplies and their transfer to their citizens. For simplicity, we further assume that the population sizes in these two countries are the same: $N = N^*$ and N and N^* are total population in the USA and LA respectively. Thus the real dollar supply per US citizen is

$$m = M/pN = (M_u/pN) + (M_f/pN) = m_u + (M_f/pN^*)(N^*/N) = m_u + m_f.$$

By definition,

$$\langle 6 \rangle \quad \dot{m}^* = [\theta^* - (\dot{p}^*/p^*)]m^*,$$

$$\langle 7 \rangle \quad \dot{m}_u = [\theta_u - (\dot{p}/p)]m_u,$$

$$\langle 8 \rangle \quad \dot{m}_f = [\theta_f - (\dot{p}/p)]m_f,$$

where θ^* is the peso growth rate in LA, θ_u and θ_f are the dollar growth rates in the USA and LA respectively. With perfect foresight,

$$\langle 9 \rangle \quad \dot{p}^*/p^* = \pi^*,$$

$$\langle 10 \rangle \quad \dot{p}/p = \pi.$$

Substituting $\langle 9 \rangle$ and $\langle 10 \rangle$ into $\langle 6 \rangle$, $\langle 7 \rangle$, and $\langle 8 \rangle$:

$$\langle 11 \rangle \quad \dot{m}^* = (\theta^* - \pi^*)m^*,$$

$$\langle 12 \rangle \quad \dot{m}_u = (\theta_u - \pi)m_u,$$

$$\langle 13 \rangle \quad \dot{m}_f = (\theta_f - \pi)m_f.$$

The transfer from LA's government to its citizens is

$$\langle 14 \rangle \quad x^* = \theta^*m^*.$$

The US government transfer is

$$\langle 15 \rangle \quad x = \theta_u m_u + \theta_f m_f.$$

Substituting $\langle 11 \rangle$, $\langle 12 \rangle$, $\langle 13 \rangle$, $\langle 14 \rangle$, and $\langle 15 \rangle$ into the dynamic equations $\langle 1 \rangle$, $\langle 2 \rangle$, $\langle 3 \rangle$, $\langle 4 \rangle$, and $\langle 5 \rangle$ and assuming the steady state (in the steady state, $\dot{c} = \dot{c}^* = \dot{m}_u = \dot{m}_f = \dot{m}^* = 0$), we get:

$$\langle 16 \rangle \quad V_1/V_2 = (\theta^* + \rho^*)/(\theta + \rho^*),$$

$$\langle 17 \rangle \quad V_1 - U'(c^*)(\theta^* + \rho^*) = 0,$$

$$\langle 18 \rangle \quad V_2 - U'(c^*)(\theta + \rho^*) = 0,$$

$$\langle 19 \rangle \quad y^* - c^* - \theta m_f = 0,$$

$$\langle 20 \rangle \quad u_2 - u_1(\theta + \rho) = 0,$$

$$\langle 21 \rangle \quad y - c + \theta m_f = 0.$$

One equation out of $\langle 16 \rangle$, $\langle 17 \rangle$, and $\langle 18 \rangle$ is redundant, but we present all here for the convenience of analysis. Equations $\langle 17 \rangle$ and $\langle 18 \rangle$ are optimal conditions regarding consumption and real balances holdings in LA and equation $\langle 20 \rangle$ is the corresponding optimal condition for the USA. These three equations imply that the marginal rates of substitution between real balances and consumption equal the opportunity cost of real balance holdings.

Condition $\langle 16 \rangle$ is the optimal condition for currency substitution in LA. It says that the marginal rate of substitution of the two currencies equals the ratio of their costs (the money growth rate plus the time discount rate). This optimal condition suggests that any currency with a high growth rate will be substituted away by the currency with a low inflation rate (surprisingly this is not true as shown in Proposition 1 below), and, in particular, complete dollarization is just a special case when the peso and dollar are perfect substitutes in generating liquidity services, *i.e.*, if $V(m^*, m_f) = V(m^* + m_f)$. In this case, $V_1 = V_2$ and complete dollarization will happen in LA so long as the peso inflation rate is higher than the dollar inflation rate. But this kind of perfect substitutability does not exist in the real world and both the peso and dollar are used as a medium of transaction in the countries experiencing dollarization, though the peso has a much higher inflation rate than the dollar. For this reason we will focus on the situation where the peso and dollar are imperfect substitutes.

The steady state budget constraint $\langle 19 \rangle$ says that the income in LA is divided between consumption and the cost of dollar holdings. From now on, the cost of dollar holdings, θm_f , will be denoted as s , where

$$s = \theta m_f;$$

it is the seigniorage collected by the USA. From the steady state budget constraint for the USA—equation $\langle 21 \rangle$, it is clear that the seigniorage has been redistributed among US citizens in the form of lump-sum transfers.

We now turn to the condition for dollarization under a flexible exchange rate. Throughout this section, it is assumed that consumption goods are normal and that an increase in income will lead to more consumption in the steady state:

$$dc^*/dy^* > 0,$$

which is the same as requiring that

$$\langle 22 \rangle \quad \Delta = V_{12}^2 - V_{11}V_{22} + U''(c^*)\theta\{(\theta^* + \rho^*)V_{12} - (\theta + \rho^*)V_{11}\} < 0,$$

because $dc^*/dy^* = [V_{12}^2 - V_{11}V_{22}]/\Delta$ and the numerator is negative as $V(\cdot)$ is concave.

As for the cross partial derivative, V_{12} , it can be positive (cooperant) or negative (noncooperant) as in Liviatan (1981). Calvo and Rodriguez (1977) and Liviatan (1981) have studied monetary expansion and real exchange rate determination under the assumption that the peso and dollar are cooperant. From Proposition 1 below, it is clear that dollarization will not take place when these two currencies are cooperant.

Proposition 1: If the dollar and peso are cooperant, $V_{12} > 0$, and then a high peso inflation reduces both peso and dollar holdings in LA; if the dollar and peso are noncooperant, $V_{12} < 0$, and a high peso inflation reduces peso holdings and raises dollar holdings in LA.