

社会科学文库·论丛

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网络效应：互联网发展 对全球经济的影响

葛伟民·著

论丛

本书主要分析了
美国网络新政和“新经济”之谜，
总结了比美国卡尔·夏皮罗和哈尔·瓦里安合
著的《信息规则——网络经济的策略指导》
一书多一倍的“信息规则”；论述了传统经济
学的危机和网络经济学基础，
提出了富有创意的“新要素禀赋论”和“可乐
定理”；剖析了美国的信息霸权主义和信息歧
视政策及数字鸿沟与一些国家的信息产业政策
等问题，并用事实和数据阐明了互联网发展
对经济、社会的影响；
作者还根据国际产业大转移的现状和趋势，提
出了一系列加快我国社会、经济信息化进程的
观点和对策建议。

· 上海社会科学院产业经济学重

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ABSTRACT

The Effect of Internet

——Influences of the Development of Internet on the Global Economy

With widespread application of computer and network, the concept of informatization has been enriched with new contents, and the world economic, political and military pattern and structure have also been changed. An emerging “digital divide” catches deep concern from the United Nations. And, we have also witnessed some other related events, say, the advent of American New Economy, the jumping and plummeting of NASDAQ, the “September 11th attack”, and the great shift of world IT industries with the entry of China into WTO. All these new issues need to be studied seriously and immediately, including some researches on basic theories and some studies on the influences to the development and security of concerned counties and regions.

The major framework of this thesis is arranged as followed. At the beginning of this paper, it will review the evolution histo-

ry of computer and Internet in order to grasp the theoretical basis and substantial evidence of information economics and network economics. And, the paper will examine the “coincidence” of the popularization of computer and Internet and the appearance of American new economy to reveal the essence of the American “network new deal” and “information hegemony”. Then, the paper will refer to the development of economics derived from the phenomenon of “new economy”. At the same time, the paper will analyze the essence of “new economy” and the international competitiveness under the condition of network economy in use of the economic principles of factor endowment theory, Inframarginal analysis theory and information economics. It will also explain the influences of Internet on the development of world economy and China economy on the basis of abundant facts and economic theories. Finally, the paper will analyze the trend of great shift of IT industries in the wake of temporary setback of American “new economy” and discuss the corresponding countermeasures that China should take from the point of view of international competitiveness, national security, economic development and so on.

As the kernel of this paper, it will apply innovative economic theories and economic techniques, including information rules, super marginal analysis, new factor endowment theory and “Cola Law”, etc. , to explain the influences of Internet on the development of world economy, international trade and international competitiveness. And, based on the results of theoretical analysis, the paper will employ a great quantity of data to illustrate

the trend of great swift of international industries under the condition of network economy. Furthermore, it will make theoretical analysis of the advantages and disadvantages of the great swift of international IT industries to disabuse the puzzle in the field of theory on such swift and remove worry about China's falling into as processing base of international IT industries. Simultaneously, it will put forward a set of countermeasures to improve information capability, enhance international competitiveness and win new factor endowment in China.

This thesis is composed of six chapters.

Chapter I mainly analyzes "the paradox of American network new deal and new economy". In this chapter, the paper will describe the evolution history of electronic computer and Internet and the formation of the WinTel framework and will discuss the concept of information superhighway and implementation of network new deal. Then, it will analyze the paradox of American "new economy" and "the productivity paradox of computer". At the same time, the paper will bring forward a dozen of "information rules" related with international trade theory from the evolution history of computer and Internet. The popularization of computer and network in recent decade is related closely with American "new economy", and the U. S. is a center for spreading. Information, information labor and information product have their particular characteristics. Thus, we cannot simply use labor hour as the measure of value of the product both in the practices and the theoretical analysis of the international trade. Once we use information goods instead of traditional

goods, “new economic theory” is needed in order to explain the “new economy” properly. The information rules referred to in this Chapter includes: Moore’s Law, Gilder’s Law, the mode of the economy of scale of software, compatibility, lock-in and switching cost, binding, information product as special “empirical product”; positive feedback, network effects, network externalities, the economy of scale in the demand side and extensive exchange value; Metcalfe law, the mode of the economy of scale of hardware, “high entry barrier” in the field of computer and “low entry barrier” in the field of network and the base of social venture capital; irregular choice and Inframarginal analysis, monopoly and difficulty to transfer of new factors of production, etc. Understanding all these information rules is very important to grasp the essence of network new deal and new economy comprehensively. It’s the innovative point of this chapter to describe and explain these information rules in detail.

Chapter II mainly analyzes the crisis of traditional economics and the basis of network economics, with the intention to prove the quite importance to take control of new factors of production in the modern international trade by the way of economic theoretical analysis. This chapter will discuss those traditional economic theories which has been realized as “outdated”, the classify of information economics, the theoretical basis of network economics, the philosophical puzzle, consumption standard and consumption guidance, value judgement of information goods, network economy, knowledge-based economy, economy of attention, value-added of information and international value transfer,

new factor-endowment theory, Inframarginal economics, “cola law” and amalgamation of economic theories. From the popularity of computer and Internet, we realize the value judgement and the use value of information goods are very special. The value judgement of information goods has irrational characteristic. And, consumption of information goods can be guided and even induced since value ideology can be infused. Another viewpoint of this paper is that, economics is such science, once the preconditions change, the deduction should be corrected. The innovative kernel theories of this chapter are new factor endowment theory and “cola law”, and the relevant core concept is “surplus product”.

Chapter III mainly analyzes American information hegemony and policy of information discrimination, the issue of information society and network economy being swindle or historical trend, the security problem of computer and network, the political significance and military application of IT and network, the emerging digital divide and the information industrial policies in different countries. In this chapter, the paper brings forward some important standpoints, including: the historical opportunity of development shouldn't be missed once again; who in possession of information will hold and take control of the world; there're potential pitfalls in network economy; excess protection of intellectual property and widening of digital divide will go against the developing countries. Western developed countries pay much attention on the development of IT industries and network economy. And, the rapid development of Internet and the governments' informati-

zation programs in the member states of the European Union recent years illustrate that they have gained a much higher realization of the significant role of informatization and the development of Internet to the economic growth and improvement of international competitiveness. That is to say, they are able to narrow the information gap with the U. S. , while enlarge the information advantage against the developing countries. This will bring further challenge to the general developing countries, which have been confronted with digital divide. We should lay much stress on this new challenge.

Chapter IV mainly analyzes the economic and social influences of the development of Internet on the basis of facts and data. This chapter examines the influences of Internet on the economic growth and social development of the U. S. and the whole world respectively. In this chapter, the paper will illustrate the direct contribution of IT industries to American economic growth, the improvement effect to industrial development, the role of restraining inflation and the contribution to employment. The paper will also study income of the staff and the employing situation in IT industries and the influence of such status to the growth of average income, and the influence of network economy to the energy consumption, etc. In this chapter, the paper puts forward the following major viewpoints; network economy is a special phase of information economy progress and a trend of the development of the whole world economy; e-commerce will gain rapid development; Internet will alter the people's life style; Internet will boost technological change; the rapid development

and extreme imbalance in regional distribution of Internet will widen the gap between rich and poor further; American information hegemony has been consolidated increasingly; there're also some opportunities of development for the poor countries in the wave of world development of network economy; cultural mix and fusion will expedite and will promote economic cooperation and integration.

Chapter V mainly analyzes the influences of IT and Internet on the economic and social development and the ideology of China, the effects of China's entry into the WTO and the corresponding countermeasures. In this chapter, a large quantity facts and data have been used to illustrate the following points of view: Internet economy has been the most rapid growing part of the economy in China recent years and the most vibrant factor in the overall national economy; the development of IT and network motivates the distribution, manufacturing and the foreign trade of computer and other electronic products; the development of network economy can upgrade the industrial structure of China; the development of e-commerce will improve the efficiency of economic development; networking of society and economy also hide some risks to which we should pay attention; regional imbalance of Internet distribution may widen the gap between the East and the West in China; the network economy has already brought some influences on people's life styles.

Chapter VI mainly analyzes the status and trend of the great shift of international industries at present. Applying new factor endowment theory and other relevant theories described in this

paper, from the aspects of economic growth, international competitiveness and national security, this chapter brings forward that we should catch hold of the opportunity to develop IT industries rapidly, promote informatization-driven industrialization and the informatization progress of society and economy in China. In this chapter, the paper brings forward some primary countermeasures, including: (1) considering national security, we must fulfil the development program of IT industries in the “Tenth-Five” Year Plan properly and support the development of national IT industries; (2) “soft investment” is much more important than “hard investment”; (3) in the process of international shift of IT industries, it will be strategically significant for upgrading the international position of China to increase capability to export of the hi-tech goods; (4) the development of e-commerce in China should keep pace with international development; (5) normalizing the development and application of the software of Management Information System; (6) paying attention to the security of computer and the issue of information security, enacting and reinforcing the laws and documents in the field of information and Internet and keeping studying some related difficult problems; (7) projecting regional informatization properly to take advantage of regional industrial structure and narrow the digital divide; (8) strengthening the construction of the industry of Internet information and content to resist on the “ideology invasion” by the way of Internet.

Keywords: Internet, New Factor Endowment, Information Rules, Inframarginal Analysis, Shift of Industries

序 言

IT 领域,包括互联网领域,轰轰烈烈的年代好像已经过去很久了。那种兴奋、那种躁动,那种期望一夜之间成为世界 IT 领域或网络新秀、成为暴发户的如梦如幻的年代,已经渐渐地淡出了人们的记忆。

这就像是长江从源头出发,上游有高山峡谷、急流险滩,江流涌动、浪花飞溅,蔚为壮观,常常能激发起人们的情绪,平添诗情画意。而过了三峡后,江波渐平,稳稳实实地向前流动,渐渐显得平凡。可是,实际上的流量,上游又岂能与之相比? ……

国内外关于信息经济的研究在许多年以前就已经开始了。关于“网络经济”这一信息经济发展的特殊阶段的研究,则是近 10 年才开始的。关于电子计算机和互联网络的作用,在许多“未来学”著述中,很早就有了描述。但是,计算机和互联网的“爆发性”普及,以及它们对于人类社会、经济和文化等方面形成的冲击和影响,是多少有点出乎人们预料的。

世界范围内的互联网络在经历了“网络泡沫”之后,仍然在以飞快的速度发展着。根据美国的一项对《财富》杂志评选的 500 家大企业中 50 家的调查,这 50 家企业今天 51% 收入是通过电话、

传真方式实现的。但是到 2000 年,他们通过电子商务进行交易的收入达到总收入的 52%。Dell 电脑公司就是一个很好的例子。该公司通过互联网来销售 PC。刚开始时每天的营业额大约 100 万美元。1998 年每天的营业额是 400 万美元。有数据表明,1994 年全球电子商务销售额仅为 12 亿美元,1996 年为 80 亿美元,1998 年竟高达 500 亿美元,2000 年更猛增到 3 000 亿美元,2001 年则为 5 500 亿美元^①。尽管“9.11”恐怖袭击事件引起全球经济下滑,但电子商务却仍然迅猛发展,国际数据公司(IDC)研究人员 2002 年 4 月 5 日发表的预测报道说:世界各国公司通过因特网购买商品和服务的贸易额到 2005 年可望达到 4.3 万亿美元,年均增长 73%。当然,这仅仅是互联网络对经济发展影响的一个方面。

Internet 的发展产生的另一个有影响力的概念是“地球村”。“地球村”是基于互联网络的概念。无论是用“全球化”还是用“一体化”来描述世界经济的发展趋势,它们的共同点是明显的:世界各国、各地区之间的联系是越来越强了,空间距离因为互联网络的广泛应用而“消失”。

Internet 的发展还使人们想起了遗忘已久的“毁于上帝之手”的“通天塔”,使世界经济学家们在“世界经济一体化”方面找到了新的论据和看到了新的趋势。网络还创造了新的社会和新的世界:首先,人们在网络上得到了参加真正的“蒙面舞会”的机会,产生了“虚拟人”、“虚拟社会”并引发了一系列新的社会、文化、伦理道德和管理秩序等问题;其次,网络化办公和电子商务的发展产生了另一种概念意义上的“虚拟”——“虚拟办公室”、“虚拟实验室”、

^① 这方面的统计由于口径上的差异,各个调查机构发布的数字可能存在一定程度的差异。但是,电子商务有着超乎寻常的发展速度和发展潜力,这一点是大家公认的。

“虚拟银行”和“虚拟商店”等,使得人们的生产方式和交换方式面临深刻的变化;再次,发达国家人们接受信息的主要方式的变化,预示了网络将在很大程度上改变人们的生活方式和消费方式。此外,尽管地区性“信息港”的建设只是近几年的事,但人们已经在网络教育和医疗方面受益匪浅。

在一定的意义上,Internet 是一个全新的社会系统,它不仅使人类的信息交流变得快速、便利、丰富多彩,而且它的横向分布式结构不同于以往人类传统的任何金字塔型社会结构;作为既建立于传统文化之上又超越于传统文化的独特的文化形态直至意识形态,Internet 创造了一个使人产生全新感受的“虚拟”社会。因此,除了直接的对传统生产方式和交换方式及消费方式的影响之外,Internet 更多地将以间接的方式和途径对传统的生产方式和交换方式及消费方式产生影响。或许,更多地将通过文化和意识形态的改变而影响人类社会整体的运转方式。

无论是在国外还是在国内,1996 年都被人们称为网络年。Internet 的真正高速发展是从 1996 年下半年开始的。近几年来,电子计算机的应用和各类信息网络尤其是 Internet 以极其惊人的速度得到发展和普及。以我国为例,在经济紧缩的国内环境中和东南亚金融危机的国际背景下,Internet 用户的年均数量增长仍然达到了每半年翻一番的惊人高增长率。1995 年 2 月,我国的 Internet 用户数仅 7 千,1996 年 7 月也才达到 4 万。1997 年 1 月,我国的 Internet 用户数为 62 万,一直到 2000 年,都以每半年翻一番的速度增长。2000 年 7 月为 1 690 万。以后数年,虽然增长率略微下降,但是总量增长仍然十分可观:2002 年 1 月,我国的 Internet 用户数达到 3 370 万,2003 年 1 月,为 5 910 万。2004 年 1 月,我国的 Internet 用户数达到了 7 950 万,在世界各国 Internet 用户数中排名第二。

1990年代以来,一些敏感的经济学家注意到,1991年3月以后10年中美国经济的高增长及1993年后开始实施的网络新政,在经济学上有许多不解之谜,传统的经济学理论在新的现实面前显得苍白、落后和格格不入。在网络时代来临的今天,经济学需要作出新的、相应的发展;而对于发展中国家来说,面临的是信息时代或网络时代的新的挑战和发展机遇。

乌家培教授于1996年8月6日在庐山召开的“中国信息经济学会1996年会《中国信息网络及其市场发展》研讨会”上曾认真地提出了引起大会代表们高度重视的“网络革命”概念。他认为,“现代通信、电子计算机、信息资源(信息内容)三者各自网络化及其相互渗透、连结、联合而形成信息的全方位服务网络(FSN),是名副其实的一场网络革命。可以说,网络革命是电信革命、计算机革命、软件革命,及与此相联系的信息技术革命和信息产业革命的综合反映。”他还认为,网络革命对经济发展的影响主要有:全面改进生产力各要素;有力地促使企业生产更好地适应市场需求的变化;引起市场营销的巨变;导致金融业务国际化和多样化;孵化出种种新行业;提高经济效益的途径会增多;等等。

回顾人类发展的历史并注意到最近几年的科技进步变化,我们可以发现:几乎所有的经济、社会、文化等等事物变化都已经存在着一个加速的过程。不论这是不是社会经济信息化的必然结果,但人类历史的发展确实已经明显地呈现出了一个加速过程。如果说,人类社会的文明进程中过去的200年比200多年以前的5000年发展速度更快;那么,过去的50年也比50年前的150年发展速度更快。而最近5年的发展速度,至少在计算机化和网络化方面,其发展速度更远远超过了5年以前将近50年的发展速度。同时,最近两年来Internet新增用户数,也远远超过了这之前的所有Internet用户数量的总和。这种加速过程甚至引起了一部

分哲学家和未来学家的恐惧。

综观人类发展的历史,截止到工业社会,农业革命和工业革命所引起的人类生产力的发展,主要依靠的是用各种方法延伸人类的体力;而建立在信息技术高速发展基础之上的信息革命所引起的人类生产力的发展,则主要依靠的是用各种信息技术方法延伸人类的脑力。

这就是信息革命要比农业革命和工业革命伟大得多的最根本原因。

如果要由此创造新名词的话,可以将人类迄今为止的社会(经济)形态划分成体力革命(经济)时代和脑力革命(经济)时代。在工业革命时代,人们利用机械和能源等,借助自然力和人造力取代原始人力,做了许许多多依靠人的单纯体力所不能做的事;在信息时代,人们又借助信息技术扩展了人的脑力:扩展了人对世界的感知和感测能力;扩展了人们之间的交流能力;扩展了人们的记忆和计算能力;还扩展了人们对于自然界、自然事物等的控制能力等等。人之区别于其他生物和优于其他生物,并不是体力上的优越而是脑力上的优越。因此,人类在脑力革命方面的意义远远超越人类在体力革命方面的意义。而目前,相当一部分学者和 IT 业界人士认为:以计算机技术的发展为支柱的信息革命,已经结束了以个人计算机普及为核心内容的“PC 时代”而进入了以网络发展——以 Internet 普及为核心内容的“后 PC 时代”,以至有人提出了“计算机就是网络”、“网络就是计算机”的口号。

基于 Internet 发展趋势,类似“地球村”的有关概念还有“数字地球”和“数字经济”等。

信息是一种生产要素,而网络经济的发展使得这种生产要素的作用变得空前巨大,这就是所谓的“网络效应”。在原有的经济理论和国际贸易理论中,很少考虑到这种生产要素的特殊性;要素

禀赋理论,也主要考虑“物质性”的要素而不是考虑信息这种特殊的要素。传统的边际分析理论,也不符合新的“网络规则”。早在1980年代初,美国未来学家托夫勒就曾在他的《第三次浪潮》一书中说:“当第三次浪潮重建世界经济时,经济学研究无法阐明当前发生的状况,备受攻击。传统的经济学思想,无论是西方学派还是马克思主义的,都已经脱离了迅速变化的实际。……需要……重新考虑许多根本性的问题。”^①

当然,近20年来,关于信息产品和关于信息作为生产要素的理论研究已经有所发展;近几年来,超边际分析理论(INFRAMARGINAL ECONOMICS)^②和网络经济学也已经有所发展^③。但是,这些理论尚未成为“主流经济学”。同时,变化太快的现实,也需要我们运用新的理论去进行分析研究和从中发现更新的理论。

本书的核心内容是:运用信息规则、超边际经济学、新要素禀赋论和“可乐定理”等创新的经济学理论,结合大量的事实、数据,分析研究当前以互联网络发展为主要表现形式的信息化对于经济增长和发展的巨大作用,并进一步论述了新要素禀赋论对于提升我国国际竞争力的重要意义。

本书的主线是:通过回顾计算机和互联网络的发展历史,寻

① [美]阿尔温·托夫勒:《第三次浪潮》,三联书店1983年版,第27页。原书1980年即出版。笔者曾在1987年写作《信息经济学》一书时引用过这段话,参见葛伟民:《信息经济学》,上海人民出版社1989年版,第1页。

② Xiaokai Yang:《What is Inframarginal Economics》,September, 2001.
<http://www.inframarginal.com/Introduction/whatisinframarginal.htm>.

③ 参见我国第一本《信息经济学》专著,上海人民出版社1989年9月版,后记说明:完成于1987年6月——交给出版社的时间,书中论述“信息价值理论”的主要是第二、第三章。读者如果有兴趣,可以对照一下[美]卡尔·夏皮罗、哈尔·瓦里安的《信息规则——网络经济的策略指导》,中国人民大学出版社2000年6月版。将会发现:关于“规则”的论述、关于“原理”的论述,是非常相似的。尽管前者的理论基础是马克思主义经济学,后者的理论基础是现代西方经济学。关于超边际分析理论,可以参见杨小凯的网页:<http://www.inframarginal.com/tc-index.html>。