A Comparison of "Zhejiang Model" and "Jiangsu Model" of China and Encouragement of Endogenous Export-oriented Strategy in Developing Countries

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ABSTRACT: Looking up in a map of China, people would find that there are two important provinces near the city of Shanghai. One is Zhejiang province which is on the south of Shanghai, the other is Jiangsu province which is just on the north of Shanghai. What is important relating them together is that the two provinces represent two types of models of development of economy. As is known in China, Zhejiang province boasts very large number of private enterprises while Jiangsu province is famous for its large number of foreign investment enterprises. Therefore, although both of them adopt export-oriented strategy to increase productive employment and people's income, the two provinces show different results, especially in the ways of employment and thus the working conditions. This article will first make a review on all the studies about comparison of "Zhejiang Model" and "Jiangsu Model", and then make an empirical analysis about the two different models and their effects on the ways of employment and on the wages and working conditions in the two provinces. After the analysis, what is found is that Zhejiang province shows much lower level of processing trade and foreign enterprises exporting which not only greatly increase the employment and income of local people but also improve the ratio of self employment and the working conditions. However, in Jiangsu province foreign enterprises crowd out private investment greatly with their monopoly in the industry, which then setback the development of small enterprises. And with high level of processing trade, wages of workers are largely lowered and so working conditions are worse than Zhejiang province. In conclusion, Zhejiang province's export-oriented production is more of endogenous than exogenous while Jiangsu province is just in the opposite. So for developing countries like China, endogenous export-oriented strategies should be encouraged, that is, private enterprises should be given more preferences in development and trade, which would increase the average wages and improve working conditions at the same time of generating more productive employment.

Part 1 a brief introduction of "Zhejiang model" and "Jiangsu model"

Zhejiang province is located in the southeastern coast of China, and on the north of it is the city of shanghai. With an area of 101,800 square kilometers and a population of about 46,000,000, Zhejiang province boasts 11 cities and 90 counties , While Jiangsu

province is located at the center of eastern coast of china and at the down part of the changjiang river and huaihe river, and on the southeast of it is the city of shanghai. The size of Jiangsu province is 102.600 square kilometers and its population is about 74,000,000, which live in 13 cities and 109 counties all together.

Since the reform and opening up, china has seen a very fast growth of economy, during the period of 1979—2004, the average growth rate of GDP has been 9.4%(the newest revised figure published by the stats in January of is 9.6%).among the areas which has pioneered the development of china, the most attracting two of them is zhejiang province and Jiangsu province. Calculated according to a fixed price, during the year 1979 - 2004, Zhejiang and Jiangsu respectively have an average growth rate of 13.1%$_N$ 12.4% , which is 3.5 and 3 percent higher than the country's average level. In 2004, people living in the town of Zhejiang has a pdi of RMB 14546 ($1759), while in the rural area the figure is RMB6096($737).In jiangsu province, the pdi of urban people is RMB10481.9 ($1267), while it is RMB4754 ($575), both of them are higher than that of the country. Which are RMB9422 7u($1139 and RMB2936($355. therefore, it can be seen that ,Zhejiang and Jiangsu province are the forces which have pushed the development of china as a whole. According to that, the ways of development of the two provinces are called respectively by the Chinese scholars as "Zhejiang model"and "Jiangsu model".

"Zhejiang model"is actually derived from "wenzhou model"(Wenzhou is one of its city) which is well known because it boasts a large number of private enterprises abounded together and all of them produce certain special type of merchandise. And what is also

important is that they cooperate to sell their goods around the country and abroad. As the statistics shows, from the reform and opening up till the end of 2005, Zhejiang has 304,000 small and medium-sized enterprises, which is about 99.6% of the total , and workers in them are about 7,823,000 , which are about 35% of all ; at the same time, they abound together and produce special products. For example, there is Leqing electrics, Haining leathers, Zhujiu pearl, etc. another thing typical of Zhejiang province is its specialized market. in 2005 there are all together 4008 commodity exchange markets with the deal value of RMB717.3b ($ 86.8b), ranking first consecutively for 15 years. Now it has been working actively to establish markets out of the province and even abroad in counries like Russia , south Africa ,middle-east, south America etc. "Jiangsu model", however firstly is typical of having a large number of collective enterprises at the town level, but later has become a model with a lot of foreign owned enterprises and with the processing trade as the main form of production. In 2004, Jiangsu province boasts 18198 foreign owned enterprises, with workers of 2,752,800 which is about 16.7% of all. Among all the foreign owned enterprises, most of them are from the area of hongkong, Taiwan Province of China, Japan and USA, the ratios are respectively 25.6%, 21.5%, 13.1% and 10.3% , workers are 24.3%, 16.9%, 13.6% and 9.8% of all ; in addition, in 2005 the province is good at processing trade and with a ratio of 66.7% , and in which 94.7% are from foreign owned enterprises. So, generally, Jiangsu province's forein trade dependence has reached 102%, and the dependence on export is 55% , while the dependence on import is 47% , what is surprising is that the city of Suzhou has a high ratio of 286% now. the another thing relating to the processing trade is that the main forms are processing with

customer's material and processing with imported materials. For example, only the first half part of 2006,the value for processing with customer's material are 22.89b$, which is about 28.2% of all ; and that for processing with imported materials are 58.25b$, which is about 71.8% of all $_{o}$ so, Jiangsu model represents the typical form of foreign investment in developing countries.

Part 2 the cycle process of "Zhejiang model"and " Jiangsu model"

In fact, both Zhejiang model and Jiangsu model are employing export oriented strategy .That is, the promotion of export can help the improvement of technology ,the upgrading of industry and the increase in income. However, Zhejiang model and Jiangsu model are different in the way of implementing the strategy and the results of the strategy. Firstly, Zhejiang model represents a positive cycle process as for the development of the firm and the economy as a whole , which can be shown as follows: :

Natual resources, culture, history, institutions etc. —>private visible capital + low-paid labor + low level of technology forms a group of

enterprises which can specialize in the production —

>cheap goods

- >export

- >income for visible capital + wages

= > more private visible capital + low-paid labor + improved technology

- >improved labor productivity

- >export
- >more income for visible capital + wages + higher market share

= >production expounded again

- >very high income for visible capital + high wages + very high market share + technology improvement

= >big scale + more labor + brand or invisible capital + high technology

- >high income and scale effects + high employment + income for invisible capital + high wages
- >big company
- multinational company

This cycle process of Zhejiang model is firstly due to the existence of abounding of the firms with private owned capital and with the direction of export, so it can be called an endogenous export-oriented strategy. From the cycle process of Zhejiang model, it can be seen that abounded together private owned enterprise specialize in their production and can produce cheap goods, which will compete in the market and so will bring back income. So with more goods exported , more income will be earned ,and with more income ,more tech improvement can be made, and thus labor productivity will be improved and more income can be earned and so on and on. Finaly , the company will have their own brand or invisible capital which can bring more money and what is important is that it can allow the firm to give more wages to the workers. Therefore, this is a positive cycle process.

Secondly, Jiangsu model also represents a cycle process, but it may be only horizontal, which means it may be positive but needs some conditions. So the process can be shown as follows:

Natual resources, culture, history, institutions etc.

- >foreign owned enterprises advocated by govt.(the main form is processing trade)

  + low-paid labour + middle level of tech(thrown up by west)

- >processing with materials

- >export

- >income for foreign capital + foreign brand income + low wages

= >more foreign investment + more low-paid labour + middle level of tech(waiting for new tech transfer)

- >more processing

- >more trade

- >more income for foreign capital + foreign brand income + low wages

= >big scale of capital(monopoly possibly) + more labor + new tech

- >improved labor productivity

- >export

- >high monopolistic income + high monopolistic brand income + low wages

At the same time,

= >more new foreign companies advocated by govt. + low-paid labor + new tech

- >more foreign companies + more labors but middle level of wages(as a result of competition) + new tech

- >more processing by different competing foreign companies

- >income for foreign companies + foreign brand income + higher wages

So from the cycle, it can be seen that Jiangsu model is advocated by the govt. as it is the govt. who actively attracts foreign investment by many preference measures. And the development of the economy is greatly pushed by the foreign invest ments, so this model can be called an exogenous export-oriented strategy. But, what should be paid attention to is that, the cycle process can be positive only that the govt will go on having more different foreign companies invest in Jiangsu, otherwise wages of the worker can not be improved even with an improvement of labor productivity. Fortunately, the success of Jiangsu model is just that the govt. has really done that. So all the foreign companies in Jiangsu compete with each other ,and both workers and local economies benefit from that competition.

Part 3 proof and comparison of the cycle process of the two models by empirical data

1 changes in the labor productivity of the two models

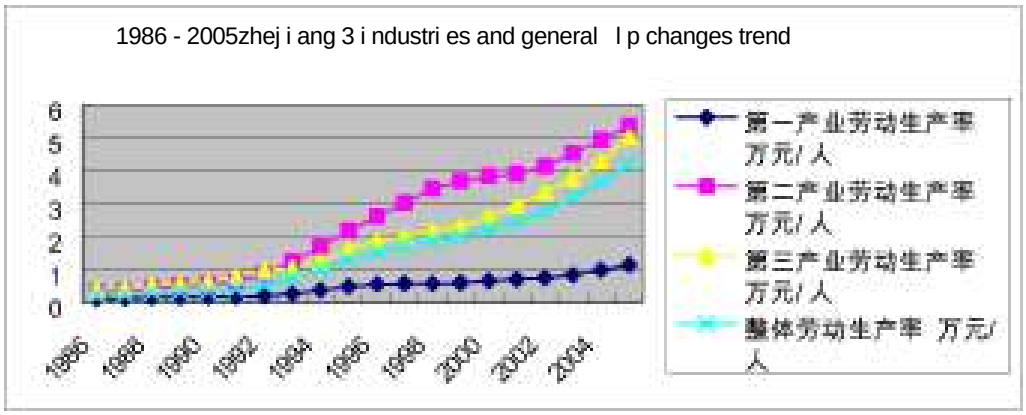
1) changes in labor productivity in Zhejiang model

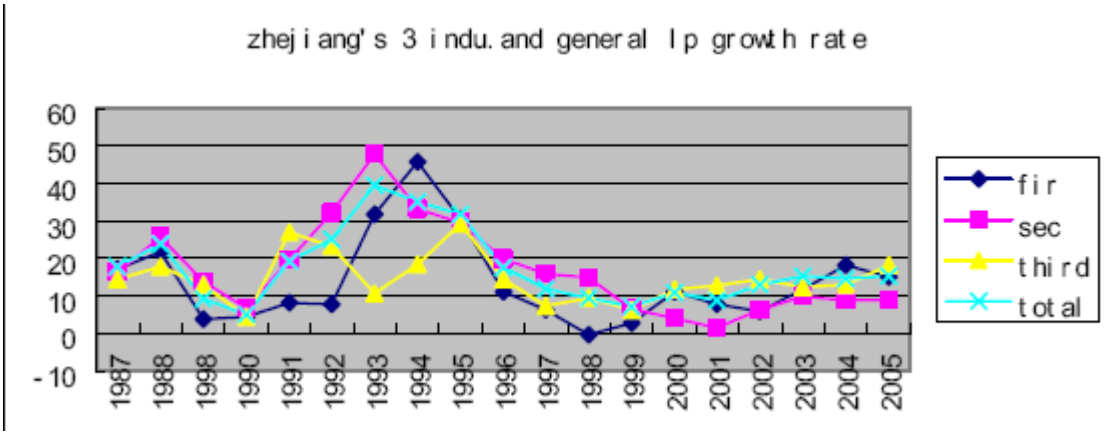
If the cycle process of Zhejiang model is right, then the labor productivity must have an great improvement all the time during the development of the company. otherwise it will be impossible for it to be positive cycle. By using data from 1986-2005 about the added-value and workers in 3 industries and by some simple calculation with added value divided by number of workers, labor productivities in 3 industries during the period can be got. And the general labor productivity can also be calculated. So the result is shown in table 1 as follows:

Table 1 : 1986 - 2005zhejiang's 3 industries and general labor productivity

	First industry lp	Second industry lp	Third industry lp	General lp
year	10000rmb/person	10000rmb/person	10000rmb/person	10000rmb/perso
1986	0.106875676	0.30176571	0.38396856	0.209544003
1987	0.125321342	0.35094259	0.43927376	0.246943425
1988	0.152617458	0.44096457	0.51736627	0.305969881
1989	0.158520823	0.50154521	0.58417061	0.334429972
1990	0.165680125	0.53533207	0.61049112	0.351538094
1991	0.179386828	0.64098539	0.77556567	0.41938698
1992	0.19321216	0.84771863	0.95507147	0.524946354
1993	0.254679487	1.25373401	1.05749134	0.732166411
1994	0.371221878	1.67014799	1.25195681	0.99003601
1995	0.484969245	2.16303501	1.61849677	1.305042764
1996	0.53852546	2.59150765	1.85188417	1.534441155
1997	0.571987438	3.00474137	1.98667732	1.717675814
1998	0.569209269	3.45061775	2.17583883	1.881223597
1999	0.585075456	3.67490821	2.31399671	2.016193769
2000	0.65049951	3.81894193	2.58773941	2.235350318
2001	0.701604764	3.87430011	2.91966899	2.434397547
2002	0.742563664	4.12002069	3.34154439	2.750105828
2003	0.829535096	4.52306847	3.75642705	3.171950437
2004	0.98135899	4.91903328	4.24777045	3.636157827
2005	1.128593098	5.34827225	5.01853890	4.195656925

From the table 1 ,it can be seen that labor productivity in those 3 industries and in general do improve quickly. But industry 1's lp is the lowest one which is due to the lewis'theory of dual economy because in developing countries, there are more labors than needed in the agriculture. According to table 1, we can get diagrams about the trend of the changes of lp and growth rate of lp in 3 industries and in general, which can be shown as follows:





From the diagram, it can be seen that at the beginning of 1990s, the lp has greatly improved. This, in fact, has proved that the effect on lp of specialization of abounded private enterprises. Later on, lp also improve greatly but with a comparatively low speed and the growth rate of third industry is higher than the other 2 after year 2000, which

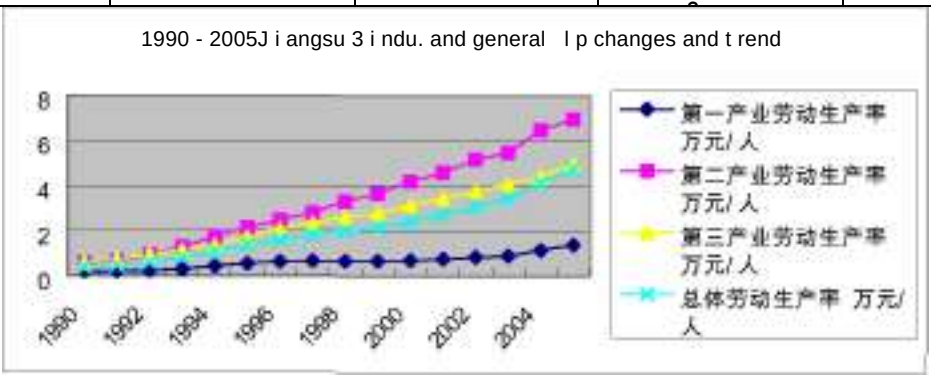
shows that invisible products are become more and more important and there is an upgrading of the industry.

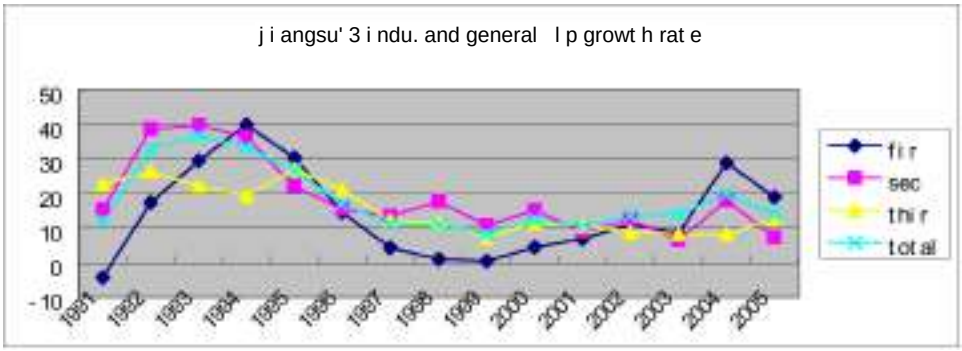
2) changes in lp of Jiangsu model

Also it can be seen in the Jiangsu model that lp has been improving all the time. With data during 1990 - 2005 about the added value and workers of 3 industries and in general , it can be easily calculated and we get the lp in 3 industries and in general, which are shown in table two as follows:

Table 2 1990 - 2005jiangsu's 3 industies and general lp changes and trend

	First industry lp	Second industry	Third industry lp	General lp
year	10000rmb/person	10000rmb/person	10000rmb/person	10000rmb/perso
1990	0.203521821	0.573336093	0.59859417	0.396875429
1991	0.19491066	0.66139607	0.73484439	0.444794418
1992	0.228699187	0.916855074	0.92818189	0.591056753
1993	0.296071213	1.281515638	1.13406483	0.809001619
1994	0.414470762	1.749136138	1.35459373	1.080156005
1995	0.540625797	2.134806195	1.72180874	1.369074492
1996	0.619808655	2.465607956	2.08267966	1.602148041
1997	0.646458106	2.798900738	2.33840662	1.783611897
1998	0.653255769	3.29540105	2.61013853	1.98083801
1999	0.656317855	3.646311971	2.79737823	2.140780911
2000	0.686211486	4.195488508	3.11941329	2.411692143
2001	0.734049912	4.579990667	3.45533209	2.667838111
2002	0.814912983	5.143129806	3.76225071	3.032790393
2003	0.88508	5.475683743	4.07509814	3.451466637
2004	1.140634755	6.464038861	4.40988424	4.140971046
2005	1.357379029	6.933862328	4.96263383	4.720751992





From the diagram above ,it can also be seen that Jiangsu 's 3 industries and general lp has been growing very fast and at the beginning of 1990s there is also high speed improvement of lp which is due to the govt. advocated introducing of foreign investment . later on ,there is also steady improvement in lp , but not like Zhejiang province ,its 3rd industry does have higher speed after the year 2000, which is one of the difference between Zhejiang and Jiangsu model .

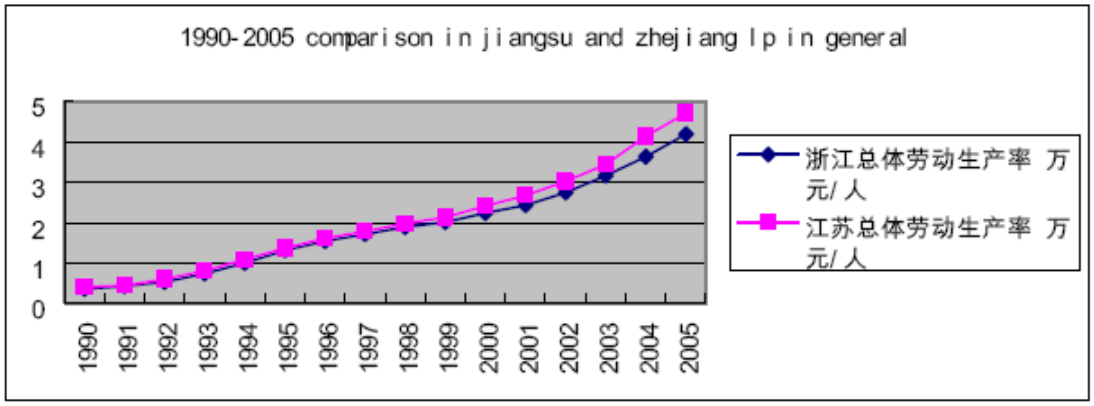
3) comparison of Zhejiang and Jiangsu model of their lp

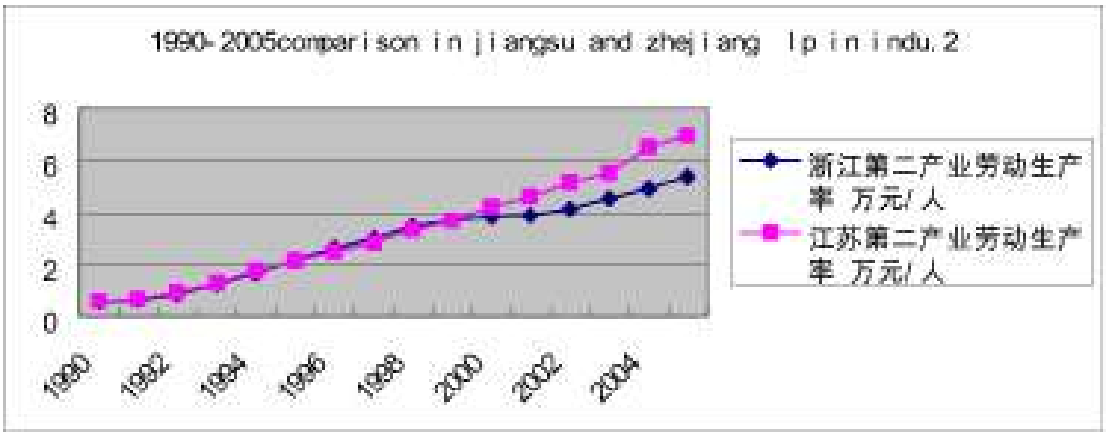
Firstly ,only lp of industry 2 and in general are chosen to show the difference because the export oriented strategy employed in 2 provinces are mainly shown in the industry 2 .

Table 3 comparison of lp in industry 2 and in general in Zhejiang and Jiangsu

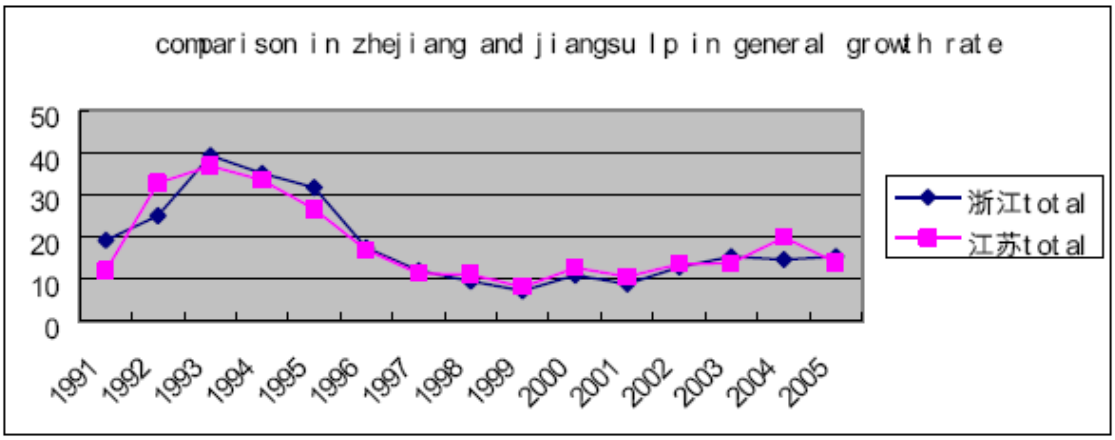
	Zhejiang lp in general	Jiangsu lp in general		Zhejian lp in indu. 2	Jiangsu lp in indu.2
year	10000rmb/perso	10000rmb/person	Year	10000rmb/person	year
1990	0.351538094	0.396875429	1990	0.53533207	0.573336093
1991	0.41938698	0.444794418	1991	0.64098539	0.66139607
1992	0.524946354	0.591056753	1992	0.84771863	0.916855074
1993	0.732166411	0.809001619	1993	1.25373401	1.281515638
1994	0.99003601	1.080156005	1994	1.67014799	1.749136138
1995	1.305042764	1.369074492	1995	2.16303501	2.134806195
1996	1.534441155	1.602148041	1996	2.59150765	2.465607956
1997	1.717675814	1.783611897	1997	3.00474137	2.798900738
1998	1.881223597	1.98083801	1998	3.45061775	3.29540105
1999	2.016193769	2.140780911	1999	3.67490821	3.646311971
2000	2.235350318	2.411692143	2000	3.81894193	4.195488508
2001	2.434397547	2.667838111	2001	3.87430011	4.579990667
2002	2.750105828	3.032790393	2002	4.12002069	5.143129806
2003	3.171950437	3.451466637	2003	4.52306847	5.475683743

2004	3.636157827	4.140971046	2004	4.919033282	6.464038861
2005	4.195656925	4.720751992	2005	5.348272259	6.933862328





As shown in the diagram, generally and in indu.2 zhejiang has a lower lp than Jiangsu since 1990. and the difference has become bigger since 2000. and what else is that the difference in lp in indu.2 between Zhejiang and Jiangsu. The reason is that foreign companies has higher level of tech than that of Zhejiang which bring much higher lp in indu. 2 and so that the lp in general.


comparison in zhejiang and jiangsu lp in general growth rate
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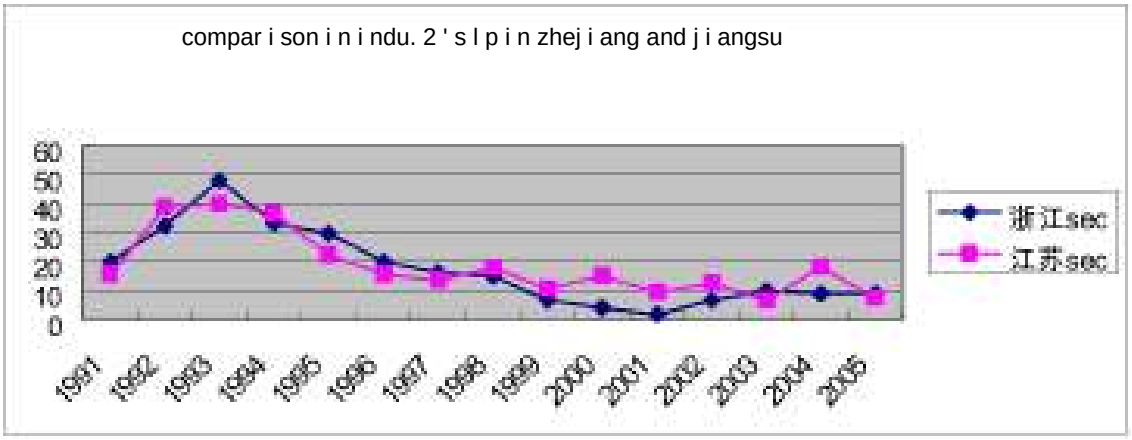


The growth rate of lp in indu.2 and in general shows the same problem .as shown in the diagram, at the beginning of 1990s , Zhejiang has had a higher speed but later Jiangsu surpassed Zhejiang .

2 comparison of tech improvement in Zhejiang model and Jiangsu model

The increase in lp comes from improvement in tech. in fact, both Zhejiang model and Jiangsu model depend much on improvement in tech to have a higher lp. So the no.of patent application and no. of approved are shown in table 4:

Table 4 no. of patent application and no. approved

year	Area	No.of application				Approved			
		Total	Invention	utility	design	total	Invention	Utility	design
2004	Jiangsu	23532	4423	9405	9704	11330	1026	5474	4830
	Zhejiang	25294	3578	9021	12695	15249	785	5492	8972
2003	Jiangsu	18393	3279	8228	6886	9840	626	5381	3833
	Zhejiang	21463	2751	7750	10962	14402	429	4947	9026
2002	Jiangsu	23532	4423	9405	9704	11330	1026	5474	4830
	Zhejiang	25294	3578	9021	12695	15249	785	5492	8972
2001	Jiangsu	10352	1394	5680	3278	6158	244	3738	2176

	Zhejiang	12828	1093	5216	6519	8312	174	3549	4589
2000	Jiangsu	8211	1160	4590	2461	6432	341	4095	1996
	Zhejiang	10316	859	4439	5018	7495	184	3439	3872
1999	Jiangsu	7091	827	4219	2045	6143	167	4055	1921
	Zhejiang	8177	587	3465	4125	7071	108	3524	3439
1998	Jiangsu	5829	768	3499	1562	3787	85	2289	1413
	Zhejiang	7074	571	3309	3194	4470	47	1967	2456
1997	Jiangsu	5339	587	3275	1477	2962	106	1816	1040
	Zhejiang	6262	493	3062	2707	3167	64	1488	1615
1996	Jiangsu	4980	561	3209	1210	2578	98	1781	699
	Zhejiang	5162	403	2845	1914	2410	45	1377	988
1995	Jiangsu	4078	538	2709	831	2413	72	1884	457
	Zhejiang	4042	357	2323	1362	2131	54	1455	622

It can be seen that totally Zhejiang has more patent application and approving than Jiangsu during the period of 1995 - 2004. but what is bad is that Zhejiang's invention no. are very low and most of the patent are utility and design and design are more than utility, which is just the reason for the low level of lp of Zhejiang than Jiangsu. In fact Zhejiang is greatly short of high level of human resources compared to Jiangsu and other big cities like shanghai and Beijing .but the situation is changing. The Zhejiang govt. is employing many preference measures to attract gifted people.

Table 5 and 6 are about the R&D of 2004 and 2005, table 5 shows how much money and how many people are intended for doing R&D, while table 6 shows the workers and money which have been actually used in R&D items.

Table 5 workers and money for R&D

Area	Workers for R&D		Money for R&D (10000rmb)	
	2004	2005	2004	2005
Jiangsu	74852	95494	1239904	1758413
Zhejiang	36644	48799	622376	923790

6 R&D items

Area	R&D items		R&D workers		R&D money (10000rmb)	
	2004	2005	2004	2005	2004	2005
Jiangsu	3823	4297	60881	76234	1089928	1595448
Zhejiang	2445	3112	34468	44882	598358	893893

From the table above, it can be seen that Jiangsu has more money and worker for R&D than Zhejiang, which further explain while Jiangsu has a high lp than Zhejiang province. But what should be know is that although with so much R&D input, Jiangsu doesn't have a higher patent application than Zhejiang , which means some of the result of R&D are not for use in china ,but in other countries, so that's one of the big problem Jiangsu is facing .

And it can also be seen from table 7, which also shows that Jiangsu spend a lot of money buying tech from abroad

Table 7 how to get the tech 1 0000rmb

area	Buy tech abroad		Money for absorption		Buy tech domestically	
	2004	2005	2004	2005	2004	2005
Jiangsu	549744	415481	63688	60633	90289	96164
Zhejiang	151700	159523	35094	43295	40682	95157

3 comparison of wages between Zhejiang and Jiangsu

To judge that if the model is good or not its results for the economy should be considered. From data about unemployment rate, both Zhejiang and Jiangsu have low level of that no. but about pdi Zhejiang and Jiangsu show results differently. In fact, Zhejiang has maintained high level of pdi than Jiangsu for many years and difference is about 1900rmb. And Zhejiang has ranked only after Beijing and shanghai in the list of pdi.

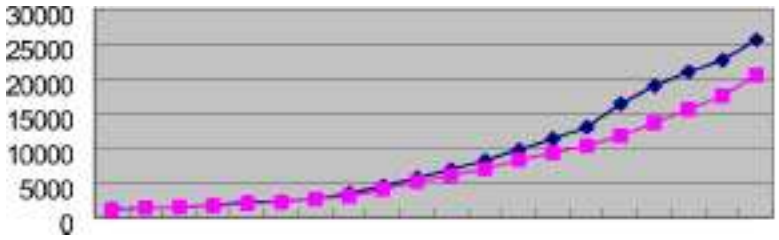
Table 8 average wages of workers rmb

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
浙	1241	1493	1841	2031	2220	2422	2884	4201	5597	6619	7413	8386	9759	11201	13076	16385	18785	21367	23506	25896
苏	1218	1471	1796	1918	2129	2302	2800	3613	4974	5943	6603	7108	8256	9171	10299	11842	13509	15712	18202	20957

Table 9 cpi of Zhejiang and Jiangsu

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
zhejiang	106.2	108.8	121.5	118.2	102.1	103.5	107.5	119.8	124.8	116.6	107.9	102.8	99.7	98.8	101	99.8	99.1	101.9	103.9	101.3
jiangsu	107.1	109.2	121.9	117.1	103.2	104.9	106.6	118.2	123.2	115.8	109.3	101.7	99.4	98.7	100.1	100.8	99.2	101	104.1	102.1

real average wages i n zhej i ang and j i angsu



From tables above , it can be seen that Zhejiang 's average wages of workers become higher and higher after 1996, which just shows that although the 2 area has similar trend in lp changes ,but the wages are quite different. It is due to 2 factors, first is that the income for capital and the second is that who owned the patent and where the patent are being used. So we can see the next part and find the reason

4 foreign investment scale in Zhejiang model and Jiangsu model

Zhejiang model features the development with private owned capital while Jiangsu model is characterized by a large scale of foreign capital, which can be shown by table 10 and 11 as follows:

Table 10 foreign capital used rmb

	1990	1991	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Zhejian	3251	5845	96690	110807	127814	91736	84234	76562	97740	137314	189790	299586	384077
Jiangsu	10816	18317	332247	452353	469685	295576	413637	365231	299142	388787	607080	905137	862256

Table 11 contract value of foreign capital rmb

	1990	1991	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Zhejiang	11076	24191	250515	268199	235486	91279	111239	100817	147356	313027	468782	644183	805212
jiangsu	19136	52344	773284	1208032	919340	487292	399494	310472	502753	821507	1103980	1702253	2205387

So from the table above , it can be seen that, Zhejiang has used much more foreign capital investment than Zhejiang ,that's why the income for the capital are owned by foreign capital and so the average wages are lower than Zhejiang .but as shown in the wages table , average wages of Jiangsu are still rising ,the reason is that more foreign companies come to Jiangsu which bring competition in the labor market. As for this, the data can be seen in the following table 12

Table 12 no. of new foreign investment

	1990	1991	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
5Sf£	191	349	2160	1448	928	377	528	570	705	1128	1558	2301	2030
	251	722	4208	3350	2343	743	651	688	896	1671	2960	3454	3532

Part 4 strategies or policies for Zhejiang and Jiangsu

As is analyzed above, both Zhejiang model and Jiangsu model has strengths and weaknesses.

Firstly, for Zhejiang model, it has been a very good model in increasing wages and income in general ,but since the process of tech improvement is slow, it needs to have more R&D inputs. Only by doing that, lp can be improved as quickly as possible and so that the income can be greatly increased.

Secondly, for Jiangsu model, what is most important is that it must have more foreign companies in the same line gradually invest in Jiangsu all the time, otherwise, though it can achieve a very high level of GDP , it will always stay with a low level of pdi. And because of the preference given to the foreign companies, low taxes and rent of the land had been levied on them. Therefore, finally the production of foreign companies will not only be bad to the economy as a whole and may have bad effects on the environment locally.

So, generally, for developing countries, Zhejiang model should be preferred .that is, the endogenous export- oriented strategy. But ,developing countries should pay more attention on R&D to increase its labor productivity. And at the same time, foreign capital can be induced to improve the competition so that there will be more impetus for local private firms to improve lp and so that have the possibility to increase wages of the workers.