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As Asian NIC's View on Service Trade Liberalization: Singapore's Case

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Services trade liberalization is on the agenda of the General Agreement of Tariffs and Trade (GATT) in the Uruguay Round. Like many Asian developing countries, services in Singapore is growing as revealed here using input-output techniques. "Servicization" in Singapore increases its vulnerability as a small, open economy. Its surpluses in services have narrowed its current balance of payments account deficit. Service sectors which have the potential growth attributes include transport, communication and telecommunication services, financial services and tourism. Singapore thus takes a stronger interest on trade liberalization developments on a bilateral basis or under the Association of Southeast Nations (ASEAN).

I. Introduction

Services are traditionally neglected and relegated as "non-tradables." Reality has overtaken events, as development both economically and technologically has led to (Shelp, 1984, p. 1):

> "Agriculture, mining and manfacturing are the bricks of economic development. The mortar that binds them together is the service industry."

Its importance is demonstrated in the attempt to include trade in services in the Uruguay Round of multilateral trade negotiations (MTN). This has a major source of discord between a group of ten "hardline" developing

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"tertiarization" of the labour force. "Long waves" of technological and social innovation (Miles and Gershuny, 1983, p. 122) have added a quarternary sector, namely the "information sector," just as the tertiary sector was the focus of "post-industrial" society.

Many unique features of services make developing a theory of value for services difficult (Richardson, 1987). While the majority of economists (like Sapir and Lutz, 1981, Krommenacker, 1985 and Hindley and Smith, 1984) agrees that there is nothing in the Hecksher-Ohlin-Samuelson (HOS) model of comparative advantage which is intrinsically less applicable to services, Bhagwati (1985) found it unnecessary to reaffirm this. Others disagree (Herman and van Holst, 1981) while Deardorff (1984) left the theory of comparative advantage intact, only doubting its usefulness empirically. Krugman (1983) uses the theory of intraindustry trade which postulates that either economies of scale or production differentiation leading to international trade, explains trade between advanced countries.

Combining two ideas of "arbitrary comparative advantage" whereby some countries artifcially achieve comparative advantage by research and development (Cline, 1982) with that of the increasing rate of technical change which shortens the lifetime of products, the product cycle theory applied to services, is invalidated. Comparative advantage may not shift over the lifetime of a service to reflect factor costs (non-R & D). It may remain with the original innovator long enough for a new, replacement product to be introduced, renewing competition.

Given the technological and social innovations in services, a hypothesis, however partial, may be simulated on the growth sequence. The path taken by advanced industrial countries over in terms of the primary-secondary-tertiary and even quaternary sectors, had been a smooth one, relatively free from competition as developing countries were latecomers. The polarity of actors has however widened, with NICs and others in the process. The supremacy of developed countries in both manufactures and services is being challlenged by newly industrializing countries (NICs), which regard services as one potential growth node.

Under the General Agreement on Tariff and Trade (GATT), the Group of Negotiations on Services (GNS) was formed at Punta del Este in 1986. A general agreement on trade in services (GATS) to extend internationally agreed rules to crossborder trade in services, dismantle trade barriers and to open markets to foreign competition however, has a difficult birth.

Singapore gave a concrete proposal for a structure of a service agree-

Domestic Product (GDP at 1985 market prices), a significant leap from 60.3% and 63.0% respectively in 1970 and 1980 (see Table 1). The percentage of contribution by services to GDP for Singapore in 1987 was 62%, placing it nearer to the range of industrial market economies

Table 1

GROSS DOMESTIC PRODUCT
(1985 market prices, S$million)

	1960	1970	1980	1985	1988	1989
Agr & fishing	183	268	325	292	206	192
Quarrying	11	28	65	111	88	89
Manufacturing	839	3,022	8,500	9,184	13,773	15,137
Utilities	87	235	578	796	1,012	1,086
Construction	266	1,153	2,056	4,168	2,788	2,824
Commerce	1,244	2,682	5,453	6,636	8,552	9,258
Tpt & Comms	444	886	3,448	5,235	6,786	7,426
Fin & Bus Svc	701	2,028	5,683	10,553	13,961	16,006
Other Svc	1,000	1,847	3,389	4,677	5,231	5,497
Total	4,957	12,345	28,832	38,924	48,224	52,679

+ Add imputed bank services charges and less import duties.

Source: Singapore National Accounts 1987 & Yearbook of Statistics, 1989.

(World Development Report, 1989). The contribution of services by its ASEAN partners in 1987 range from 41% in Indonesia to 49% in Thailand.

Singapore is a city-state with negligible primary commodity exports but large, positive balance of services. The most important services exports are other private and other transportation services. Extreme care must however be exercised in interpreting private flows as Singapore's merchandise trade with Indonesia is excluded from its trade due to political sensitivities. It is likely to be hidden under errors and omissions or other private flows. If it is in the latter, two phenomenon may be explained. One is it would partially account for the unusually large volume of services

and business services, community, social and personal services and non-profit organizations. The latter includes wholesale and retail trades, restaurants and hotels, but excludes hawkers and stallholders.

1. Methodology of Input-Output Analysis

The fundamental balance equation for each sector, i, is expressed in equation (1):

$$(1) \qquad X_i = a_{ij}X_j + (C_i + E_i + K_i)$$

where: a_{ij} = intermediary demand of goods from sector i for one unit of output of sector j

X_i = output of sector i

C_i = consumption of goods from sector i

E_i = export deliveries by sector i

K_i = other final demands (government expenditure, investments)

Re-writing (1) in matrix form:

$$(2) \qquad X = AX + C + E + K$$

By rearranging, this equation becomes:

$$(3) \qquad (I-A)X = C + E + K$$

$$(4) \qquad X = (I-A)^{-1}\ (C + E + K)$$

where $(I-A)^{-1}$ is the familiar Leontief inverse matrix from whose elements are the Leontief multipliers are computed.[8]

An increase of one dollar's final expenditure on the domestic output of sector i will directly change the output of sector i and indirectly change the output of other sectors. The output multiplier of sector i is the total output of all n sectors required to satisfy one dollar's worth of final demand for the domestic output of sector i. It is obtained by the sum of the ith column of the Leontief inverse matrix.

The total (direct and indirect) impact of the n sectors on employment and income are easily computed. Let (v) be the (lxn) row vector of value-

8 In equation (4), if consumption is also endogenised, such as making the assumption $C_{ij} = c_{ij}Y_j$, where Y_j is the income in sector j and c_{ij} is the consumption coefficient, the Leontief-Keynes multipliers are obtained. The qualitative analysis of this section will not be changed except that the magnitude will be increased by 25%.

7 Port svcs	0.0004	1.3270	0.8269	16.1366
8 Air transport	0.0017	1.2255	0.4634	14.9784
9 Container svcs	0.0003	1.4731	0.6437	18.3002
10 Forwarding & warehousing	0.0004	1.5708	0.7856	19.2405
11 Other transport svcs	0.0017	1.7747	0.6030	21.7364
12 Crane & hoisting svcs	0.0003	1.5663	0.7712	18.9573
13 Communications	0.0003	1.2084	0.9155	14.7708
14 Life insurance	0.0004	1.8766	0.9007	16.0474
15 General & other insurance	0.0003	1.7754	0.6113	15.0025
16 Banking	0.0002	1.2530	0.8757	10.7086
17 Finance companies	0.0002	1.1440	0.9510	9.5587
18 Other financial svcs	0.0004	1.4237	0.8388	12.9052
19 Real estate	0.0002	1.1861	0.8267	10.0154
20 Legal svcs	0.0003	1.3383	0.9105	12.2167
21 Accounting & data process	0.0003	1.3379	0.8201	12.1638
22 Architectual & engineering	0.0005	1.5231	0.7860	13.7534
23 Petroleum/mining/consult'y	0.0002	1.3556	0.6448	11.8687
24 Employment/lab contracting	0.0005	1.7702	0.8061	18.1229
25 Advertising svcs	0.0003	1.6720	0.5677	14.4517
26 Leasing of machinery/equipment	0.0003	1.4029	0.7395	12.9988
27 Management consultants	0.0005	1.4468	0.8249	13.2982
28 Other business & technical	0.0006	1.5309	0.6561	14.3384
29 Producers of government svcs	0.0003	1.3032	0.6837	41.0911
30 Security svcs	0.0002	1.2019	0.9113	40.3718
31 Education	0.0004	1.3023	0.8611	41.5309
32 Medical & health svcs	0.0002	1.3585	0.7613	42.0248
33 Environmental health svcs	0.0003	1.8245	0.7699	51.4257
34 Cinema svcs	0.0008	1.6796	0.5938	53.3515
35 Broadcasting/entertainment	0.0004	1.9225	0.8587	43.6005
36 Other recreational svcs	0.0003	1.3421	0.8308	42.3316
37 Personal & household svcs	0.0004	1.4995	0.6867	43.6771
38 Repairs of household goods	0.0004	1.3478	0.5558	42.3763
39 Repairs of road to equipment	0.0003	1.4907	0.4924	43.5760
40 Domestic svcs/non-profit svcs	0.0003	1.3385	0.8706	42.0703
41 Ownership of dwellings	0.0000	1.1959	0.8230	39.7840

Source: Computed from Singapore, Input-Output Tables, 1983.

positions while real estate and finance companies are the two with the lowest output multipliers. Water and air transport also have low output multipliers, probably due to the latters' export-orientation and little linkage with other domestic sectors. The output multipliers for the tourist industry show that every dollar of tourist expenditure generates approximately between S$1.50 and S$2 of output, depending on whether the induced effects are included (Leontief versus Leontief-Keynes multipliers, see Toh and Low, 1988).[9]

9 In the literature, Type I and Type II are in more common use than Leontief and Leontief-Keynes multipliers, which account for direct and indirect effects, and direct, indirect and induced effects respectively.

Reflecting the importance of the oil industry in this region, petroleum and mining consultancy services ranked third in the export/output ratio in 1983. Medical and health services appear to be rather prominent in its export performance as it is among the top ten service exporter by this ratio in 1983. For every dollar of output in this sector, 24 cents are exported.

Table 3 also shows the service sector has the lowest import requirement per unit of output compared to other sectors, if quarrying were excluded. Water transport industry and the air transport industry take on first and second placing respectively. Again, transport service industries, like road transport, repairing and other transport services, as well as advertising services, household appliances repairing services, general (non-life) insurance services, feature prominently in the services import/output ratio. Service

Table 3

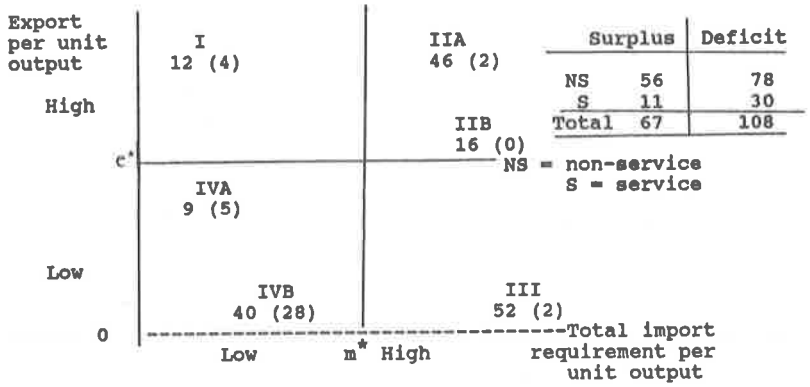
COMPARISON OF EXPORT RATIOS, IMPORT REQUIREMENTS AND FOREIGN EARNING PER UNIT OUTPUT

Industries	1973	1978	1983
Export/Output			
Agr/fishing	0.1254	0.1661	0.1621
Quarrying	0.0098	0.0058	0.0672
Mfg	0.6633	0.7323	0.7678
Utilities	0.0373	0.0328	0.0403
Construction	0.0000	0.0000	0.0009
Services	0.2282	0.2946	0.2532
Import/Output			
Agr/fishing	0.4351	0.4855	0.4389
Quarrying	0.1020	0.3003	0.1746
Mfg	0.6407	0.7111	0.7333
Utilities	0.1169	0.3930	0.4594
Construction	0.3854	0.4383	0.3480
Services	0.1661	0.2358	0.2220
Foreign exchange			
Agr/fishing	−0.3097	−0.3194	−0.2768
Quarrying	−0.0922	−0.2945	−0.1074
Mfg	0.0226	0.0213	0.0345
Utilities	−0.0796	−0.3602	−0.4192
Construction	−0.3854	−0.4383	−0.3471
Services	0.0622	0.0588	0.0311

Source: As in Table 2.

Diagram 1

Export ratios versus import requirements by industry



ing water and air transport services. Among the five service industries in Quadrant IVA are wholesale and retail trade, medical services, other financial services and forewarding and warehousing services. The 11 surplus foreign exchange earning service industries constitute 26.8% of the total of 41 industries, while such non-service industries form 41.8% of 134 all non-service industries. Despite the smaller number of industries, the impact of the surplus foreign exchange service industries overwhelms that of the 30 deficit service ones, as revealed by balance of payments analysis. In general, port and related container and warehousing services, air transport and other transport services and wholesale and retail are among the service industries with surplus foreign exchange capability.

The bulk of the 30 deficit foreign exchange service industries below the 45-degree line are in Quadrant IVB, among which are restaurants, hotels, communications, banks and finance companies personal and households services, education and government services. There are no service industries in Quadrant IIB (High export-high import: deficit).

4. Factor Intensity of Services Sector

The factor intensity of the service industry is discussed in terms of the labour-capital ratio and skill intensity. In 1983, the service sector as a whole has the second highest labour-capital ratio as measured by employ-

11 Other transport svcs	10.28	0.54	53.06
12 Crane & hoisting svcs	17.39	0.96	34.24
13 Communications	12.40	0.63	57.01
14 Life insurance	33.22	3.33	92.31
15 General & other insurance	38.89	4.22	54.26
16 Banking	34.17	3.16	118.05
17 Finance companies	28.39	2.57	112.25
18 Other financial svcs	25.21	2.28	87.57
19 Real estate	10.74	0.99	105.85
20 Legal svcs	17.36	1.54	46.93
21 Accounting & data process	25.75	2.33	38.66
22 Architectural & engineering	29.24	2.70	40.51
23 Petroleum/mining consult'y	25.15	2.41	59.10
24 Employment/lab contracting	33.56	2.89	19.35
25 Advertising svcs	31.73	2.90	38.66
26 Leasing of machinery/equipment	4.59	0.42	57.12
27 Management consultants	19.51	1.75	41.32
28 Other business & technical	24.18	2.17	33.80
29 Producers of government svcs	32.08	1.04	31.19
30 Security svcs	62.64	2.09	15.74
31 Education	46.25	1.58	28.24
32 Medical & health svcs	39.47	1.36	37.09
33 Environmental health svcs	42.06	1.49	17.81
34 Cinema svcs	44.27	1.43	31.82
35 Broadcasting/entertainment	44.97	1.47	37.02
36 Other recreational svcs	8.71	0.29	40.94
37 Personal & household svcs	50.51	1.75	15.52
38 Repairs of household goods	67.95	2.22	22.27
39 Repairs of road tp equipment	81.17	2.70	20.83
40 Domestic svcs/non-profit svcs	31.36	1.06	36.38
41 Ownership of dwellings	26.05	0.84	103.33

Being ranked high in terms of both income and employment generation, gives it a low ranking in terms of productivity as measured by value-added per worker. However, its productivity, contrary to popular belief, is still higher than that of the manufacturing sector in 1983. Within the service sectors, the banking and financial services industry enjoys the highest productivity.

B. Balance of Payments Analysis

Table 5 shows a surplus in trade in services throughout the period

1989. These trends explain the greater volatility in fluctuation for service exports than service imports though both have generally upward trends. While Singapore has a continuous reliance on service imports, the demand for its service exports is more largely determined by external conditions beyond its control and subject to cyclical factors.

Disaggregating trade in services into freight and insurance, travel, investment income, government transactions and other transportation and services, the bulk of service exports is from freight and insurance especially in 1975 and the early 1980s. Exports of travel services grew quite significantly while that of government transactions fell dramatically due to expenditure of foreign diplomatic, consular and other representations and armed forces. On the import side, the share from freight and insurance has been declining and other transportation and services has overtaken it as being the largest item in service imports.

Decomposed into these five components, deficit is only found in the first item while continous surplus is observed in travel, government transactions and other transportation and services. Freight and insurance is responsible for eroding the surplus in balance of services though the erosion has declined with time. The surplus from travel is growing though in a rather fluctuating manner while that for government transactions has dropped to a rather small proportion by 1989. As for investment income referring to income on invested financial capital including profits, dividends and interest, it has been in surplus except in 1972-74 and 1976-83, probably due to remitted and unremitted profits of foreign investors who contribute a large share of capital investment in Singapore. Interestingly, deficits due to such profits accrued in the years when the economy was performing rather well. In part, the returns of the Government of Singapore Investment Corporation (GSIC) which was set up in 1981, may have compensated for paying the profits to these foreign investors for surplus to be attained since 1983.

Finally, it is noted that the surplus in balance of services may serve to negate for the deficit due to merchandise trade and reduce the dependency on foreign investment which has traditionally performed this compensatory role. The surplus of balance of services as a percentage of the deficit in trade balance in 1960, was 63.1%, rising to 107.3% in 1966, falling to 28.0% in 1971 and growing to another peak of 207.6% in 1989.[12]

In particular, Singapore has always enjoyed a surplus in the travel balance (the net position of overseas visitors versus residents travelling

12 It is noted that net total exports (goods and services) have turned from deficits to surpluses since 1985.

Finally, liberalization in service trade may increase regulatory protective guises in manufactures as in quantitative restrictions and other non-tariff barriers in developed countries. Many NICs may pose serious threats to developed countries in certain services, such as South Korea in construction activities and Singapore in port and telecommunications services.

On balance, Singapore can support liberalization in trade in services though caution may be sounded in a few areas. As already noted, there is the impact on soverignty rights in factors of both labour and capital. The requirements in terms of a flexible and sophisticated business and financial environment must be fulfilled. In terms of manpower, the local entrepreneurial response must be forthcoming. Whereas in manufacturing, capital is imported together with technological and managerial know-how, the expertise element is more obvious in services. Fortunately for Singapore, this ingredient has evolved smoothly over time.

Wherever feasible, services to be encouraged would be those where the consumers come to Singapore instead of those where the producers or providers going abroad. This is in line with the total business hub concept where more income, employment and linkages with other sectors would be created when the traffic of such service transactions is into rather than out of Singapore.

V. Concusions

The growth and vitality of the service sector will proceed with or without the government's intercession. While a full circle seems to have been reached, there is a qualitative difference insofar as the present service sector has diversified and upgraded beyond entrepot trading services. The circle has not only enlarged, it has pulled the economy into a higher orbit of income, technology, skills and linkages.

As service infrastructures develop in the NICs, a logical question is whether some critical mass is necessary before a services economy can be fully launched to allow services to be the engine of growth. The perception is affirmative and again a parallel may be drawn from the development of the manufacturing from the agrarian base. As interindustry linkages grow with manufacturing, linkages in services are similarly engendered for the evolution of a well-rounded service sector. An economy like Fiji for instance, thriving only on tourism as a form of services, cannot be said to have this critical mass.

Both the variation in phases of growth and critical mass concept lead to another query, whether an economy can start off or leap into services

Appendix 1

Decomposition of Employment Multipliers

Industries	Occupation (# of workers)		
	Prof & Admin	Clerk/Sale	Production
Agr/fishing	1.6158	3.2558	15.9437
Quarrying	3.4173	4.7311	5.9597
Mfg	1.2755	2.8571	6.2575
Utilities	1.4156	2.2925	4.1221
Construction	1.7105	3.2465	9.7855
Services	5.5943	11.7805	4.8982
Service Industries			
1 Wholesale & retail trades	2.4998	23.2850	3.5150
2 Restaurants	2.2590	23.2638	4.0949
3 Hotels	2.3051	22.3102	3.3071
4 Passenger transport by land	2.2989	6.6145	7.4786
5 Freight transport by land	3.2594	10.2275	10.1413
6 Water transport	1.8782	5.9901	7.8239
7 Port svcs	1.9506	6.1294	7.9742
8 Air transport	1.7704	5.6819	7.4911
9 Container svcs	2.2930	7.1559	8.7045
10 Forwarding & warehousing	2.2542	7.7672	8.6952
11 Other transport svcs	2.7021	8.5427	10.3460
12 Crane & hoisting svcs	2.5124	7.9045	8.3609
13 Communications	1.7875	5.6000	7.3177
14 Life insurance	4.5530	9.6209	1.7047
15 General & other insurance	4.3236	9.0496	1.4916
16 Banking	3.0306	6.4174	1.1509
17 Finance companies	2.7601	5.8203	0.9157
18 Other financial svcs	3.3877	7.5758	1.7535
19 Real estate	2.8514	5.9674	1.0935
20 Legal svcs	3.3167	7.1868	1.4527
21 Accounting & data process	3.2998	7.1575	1.4563
22 Architectural & engineering	3.5947	8.0025	1.9500
23 Petroleum/mining consult'	3.1479	6.9337	1.6822
24 Employment/lab contracting	4.4564	10.3817	2.6650
25 Advertising svcs	3.3971	7.7243	3.1704
26 Leasing of machinery/equipment	3.3307	7.6237	1.8515
27 Management consultants	3.4462	7.6914	1.9439
28 Other business & technical	3.5280	8.0271	2.5105
29 Producers of government svcs	10.6222	16.2121	5.8921
30 Security svcs	10.5991	16.0349	5.3597

23 Petroleum/mining consult'y			0.7146
24 Employment/lab contracting			0.0136
25 Advertising svcs			0.0106
26 Leasing of machinery/equipment			0.0594
27 Management consultants			0.1470
28 Other business & technical	0.1518	0.1881	0.2298
29 Producers of government svcs	0.0000	0.0000	0.0037
30 Security svcs	0.0000	0.0000	0.0107
31 Education		0.0033	0.0015
32 Medical & health svcs		0.0032	0.2380
33 Environmental health svcs			0.0000
34 Cinema svcs	0.0436	0.0558	0.1318
35 Broadcasting/entertain svcs		0.0014	0.0121
36 Other recreational svcs		0.0071	0.0072
37 Personal & household svcs	0.0000	0.0126	0.0102
38 Repairs of household goods			0.0303
39 Repairs of road up equipment		0.0077	0.0073
40 Domestic svcs/non-profit svcs	0.0000	0.0000	0.0008
41 Ownership of dwellings	0.0000	0.0000	0.0000

Import/Output

1 Wholesale & retail trades	0.0523	0.1192	0.1270
2 Restaurants	0.3263	0.3312	0.2664
3 Hotels	0.1655	0.2130	0.1608
4 Passenger transport by land	0.2855	0.2128	0.1765
5 Freight transport by land			0.2217
6 Water transport		0.3332	0.5725
7 Port svcs			0.0865
8 Air transport		0.4897	0.5199
9 Container svcs		0.3682	0.3210
10 Forwarding & warehousing		0.3599	0.1345
11 Other transport svcs			0.3553
12 Crane & hoisting svcs			0.1638
13 Communications	0.1319	0.0741	0.0610
14 Life insurance	0.2799	0.0905	0.0650
15 General & other insurance			0.3548
16 Banking	0.0869	0.0825	0.0992
17 Finance companies			0.0270
18 Other financial svcs		0.1070	0.0859
19 Real estate	0.0327	0.1047	0.0432
20 Legal svcs		0.0682	0.0635
21 Accounting & data process		0.0875	0.1531

21 Accounting & data process		−0.0777	−0.1274
22 Architectural & engr svcs		0.3224	−0.1318
23 Petroleum/mining consult'y			0.3870
24 Employment/lab contracting			−0.1425
25 Advertising svcs			−0.3915
26 Leasing of machinery/equipment			−0.1701
27 Management consultants			0.0244
28 Other business & technical	0.0391	−0.1394	−0.0797
29 Producers of government svcs	−0.3256	−0.3618	−0.3023
30 Security svcs	−0.1662	−0.0520	−0.0485
31 Education		−0.1209	−0.0902
32 Medical & health svcs		−0.1787	0.0420
33 Environmental health svcs			−0.1993
34 Cinema svcs	−0.1543	−0.1852	−0.1172
35 Broadcasting/entertain svcs		−0.0977	−0.0583
36 Other recreational svcs		−0.2275	−0.0958
37 Personal & household svcs	−0.3213	−0.2960	−0.2560
38 Repairs of household goods			−0.3641
39 Repairs of road tp equipment		−0.4594	−0.4642
40 Domestic svcs/non-profit svcs	−0.0872	−0.1758	−0.0948
41 Ownership of dwellings	−0.0125	−0.0568	−0.0448

Sources: As in Table 2.

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