Detailed Tables

Chapter 7

Detailed Table 7.1
Selected indicators of technological innovation in manufacturing, mining and selected segments of the service sector – Brazil & São Paulo State, 2003-2005 7-3

Detailed Table 7.2
Innovation rates in manufacturing and mining by type of innovation – Brazil & São Paulo State, 2001-2005 7-5

Detailed Table 7.3
Contribution of innovative firms to total sales and exports in manufacturing – Brazil & São Paulo State, 2005 7-6

Detailed Table 7.4
Selected indicators of technological innovation in manufacturing and mining by size of workforce – Brazil & São Paulo State, 2003-2005 7-7

Detailed Table 7.5
Innovator shares of net sales and exports in mining and manufacturing by origin of capital – Brazil & São Paulo State, 2005 7-8

Detailed Table 7.6
Selected indicators of technological innovation in manufacturing and mining by origin of capital – Brazil & São Paulo State, 2003-2005 7-9

Detailed Table 7.7
Structure and intensity of internal R&D spending in mining and manufacturing by origin of capital – Brazil & São Paulo State, 2003-2005 7-10

Detailed Table 7.8
Share of multinationals in internal R&D spending in mining and manufacturing – Brazil, São Paulo State & selected countries, 2003-2005 7-11

Detailed Table 7.9
Selected indicators of technological innovation in manufacturing and mining by size of workforce – São Paulo State, 2001-2005 7-12

Detailed Table 7.10
Innovation originators by branch of manufacturing – São Paulo State, 2001-2005 7-13

Detailed Table 7.11
Innovation protection rates and information Sources for innovation in manufacturing and mining – Brazil & São Paulo State, 2003-2005 7-14

Detailed Table 7.12
Patenting rates for innovative firms in manufacturing and mining by size of workforce – Brazil & São Paulo State, 2001-2005 7-15

Detailed Table 7.13
Information Sources for innovation in manufacturing by type of Source – Brazil & São Paulo State, 2003-2005 7-16

Detailed Table 7.14
Innovative firms in manufacturing citing foreign Sources of information for innovation by type of Source – Brazil & São Paulo State, 2003-2005
7-17

Detailed Table 7.15
Innovative firms in manufacturing with domestic cooperative relations by type of partner – Brazil & São Paulo State, 2003-2005
7-18

Detailed Table 7.16
Innovative firms in manufacturing and mining with cooperative relations with universities and research institutions located in Brazil by origin of capital – Brazil & São Paulo State, 2003-2005
7-19

Detailed Table 7.17
Innovative firms in manufacturing with R&D cooperative relations by type of partner – Brazil & São Paulo State, 2003-2005
7-20

Detailed Table 7.18
Innovative firms in manufacturing with R&D cooperative relations by type of partner – São Paulo State, 2001-2005 7-21

Detailed Table 7.19
Innovative firms in manufacturing with cooperative relations with universities and research institutions by location – Brazil & São Paulo State, 2003-2005
7-22

Detailed Table 7.20
Structure of innovative firms' spending on innovation activities in manufacturing by type of activity – Brazil & São Paulo State, 2003 & 2005
7-23

Detailed Table 7.21
Spending on innovation activities in manufacturing by type of activity – Brazil & São Paulo State, 2005 7-24

Detailed Table 7.22
Intramural R&D intensity by branch of manufacturing and OECD average – Brazil, São Paulo State & selected countries, 2005
7-25

Detailed Table 7.23
Structure of intramural R&D spending by innovative manufacturing firms in selected sectors – Brazil & São Paulo State, 2005
7-26

Detailed Table 7.24
Intensity of extramural R&D in manufacturing, mining and selected segments of the service sector as % of value added – Brazil & São Paulo State, 2005
7-27

Detailed Table 7.25
Spending on intramural and extramural R&D in manufacturing, mining and selected segments of the service sector by Source of funding – São Paulo State, 2005
7-28

Detailed Table 7.26
Innovative firms in manufacturing that received government support by type of program – Brazil & São Paulo State, 2003-2005
7-29

Detailed Table 7.1
Selected indicators of technological innovation in manufacturing, mining and selected segments of the service sector – Brazil & São Paulo State, 2003-2005

Sector	Innovation rate (% all firms) (1)		Innovators for home market (% all firms)		Innovation originators (% innovators) (2)		Patenting rate (% innovators) (3)		Total cooperation (% innovators) (4)		Internal R&D intensity (% MVA) (2005) (5)		Total economic impact (% net sales) (6) (2005)		Impact on exports (% net exports) (7) (2005)	
	Brazil	SP	Brazil	SP	Brazil	SP	Brazil	SP	Brazil	SP	Brazil	SP	Brazil	SP	Brazil	SP
Selected services	**57.0**	**54.2**	**13.5**	**19.0**	**78.5**	**84.4**	**5.4**	**4.8**	**24.1**	**26.2**	**6.1**	**3.2**	–	–	–	–
IT activities & related services	57.6	54.6	13.3	18.9	78.3	84.6	4.5	4.8	19.3	24.8	3.8	4.0	–	–	–	–
Telecommunications services	45.9	45.2	7.8	20.6	76.6	80.7	2.8	3.0	64.2	60.9	1.2	2.7	–	–	–	–
Manufacturing	**33.6**	**33.6**	**4.2**	**5.9**	**60.0**	**63.0**	**6.2**	**8.3**	**7.1**	**8.7**	**1.5**	**2.1**	**18.9**	**21.0**	**14.0**	**19.5**
Recycling	22.6	20.1	0.0	0.0	69.0	100.0	18.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Furniture, sundry industries	32.5	25.0	2.5	2.4	58.0	67.0	6.7	15.0	1.8	3.4	1.3	2.1	16.0	24.5	15.8	40.7
Other transport material (except aircraft)	31.2	39.2	12.9	22.3	82.3	80.4	2.1	4.1	21.9	1.5	2.0	1.6	24.1	11.3	36.0	5.3
Aircraft	35.4	60.9	5.9	6.2	60.5	73.3	0.0	0.0	15.9	17.2	18.9	23.1	100.0	100.0	69.2	79.4
Automotive vehicles	37.0	44.2	6.6	7.7	61.1	63.6	11.1	13.6	12.3	17.2	4.2	4.6	31.3	24.1	21.3	16.1
Precision instruments	68.0	65.6	14.6	15.9	83.4	80.7	16.5	19.5	10.8	13.5	4.4	4.3	18.3	14.9	9.0	5.2
Electronic material, communications equipment	56.9	60.0	19.4	19.6	79.1	84.3	10.2	11.3	20.7	14.6	4.2	6.3	19.2	12.9	15.6	6.7
Electrical appliances & materials	45.7	40.5	11.6	11.4	70.0	69.4	11.6	14.4	12.6	11.3	3.5	3.8	30.3	32.6	23.9	30.6
IT equipment	69.2	74.5	16.8	10.0	89.5	92.6	15.5	12.5	11.9	7.1	5.3	8.4	36.2	36.0	46.3	72.7
Plant & equipment	39.3	37.1	10.8	11.7	77.7	78.3	16.6	13.1	8.9	7.0	1.4	1.5	38.5	45.9	37.1	45.1
Metal products	31.1	28.5	3.2	4.9	63.2	54.9	3.8	4.6	6.5	6.6	0.5	0.6	12.1	8.3	7.4	7.1
Basic metallurgy	46.0	44.9	5.7	3.4	56.9	54.9	10.3	4.8	5.8	4.9	0.4	0.5	9.8	13.7	5.5	12.4
Non-metallic mineral products	23.4	24.3	1.9	2.7	46.1	70.5	1.9	5.2	9.9	17.3	0.8	1.0	15.8	18.7	9.9	2.8
Rubber & plastic	34.0	34.7	5.8	5.2	60.7	53.6	10.7	8.4	9.6	8.7	1.1	1.2	15.8	15.4	26.9	16.0
Pharmaceuticals	52.4	69.0	12.2	22.7	63.8	67.9	8.4	12.2	18.4	25.7	1.4	1.1	12.8	11.5	7.2	2.2

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Detailed Table 7.1 (continued)
Selected indicators of technological innovation in manufacturing, mining and selected segments of the service sector – Brazil & São Paulo State, 2003-2005

Sector	Innovation rate (% all firms) (1)		Innovators for home market (% all firms)		Innovation originators (% innovators) (2)		Patenting rate (% innovators) (3)		Total cooperation (% innovators) (4)		Internal R&D intensity (% MVA) (2005) (5)		Total economic impact (% net sales) (6) (2005)		Impact on exports (% net exports) (7) (2005)	
	Brazil	SP	Brazil	SP	Brazil	SP	Brazil	SP	Brazil	SP	Brazil	SP	Brazil	SP	Brazil	SP
Chemicals (except pharmaceuticals)	49.5	53.8	13.7	19.2	82.1	87.8	9.4	10.3	16.2	10.9	1.8	2.2	14.2	15.7	10.6	10.4
Coke, refined petroleum products, ethanol	50.1	47.9	11.7	9.1	55.3	61.4	2.4	0.0	11.1	4.8	1.2	0.3	14.7	5.8	1.0	3.4
Publishing, printing	36.5	37.2	1.0	1.5	39.6	32.5	1.6	1.3	2.5	2.2	0.1	0.2	20.4	16.5	10.0	16.7
Pulp, paper	31.7	23.2	2.2	4.0	49.0	69.3	5.0	14.0	5.8	10.3	0.5	0.7	15.9	16.8	12.5	3.9
Wood products	28.3	27.3	1.4	5.3	57.9	75.4	2.3	2.6	3.5	17.1	0.3	0.8	6.1	4.0	5.2	1.6
Leather, footwear	32.7	33.1	1.2	1.1	48.5	38.9	3.3	4.8	6.8	9.8	0.9	1.2	20.3	16.9	9.9	5.0
Apparel	28.0	22.9	0.9	0.4	47.3	56.9	1.3	1.4	3.2	7.6	0.5	0.2	11.5	5.2	23.7	8.6
Textile products	33.3	31.8	4.0	5.0	62.7	55.5	5.5	9.1	2.3	3.1	0.5	0.4	15.9	21.5	12.7	18.5
Tobacco	25.2	61.8	8.0	0.0	76.9	76.8	37.6	76.8	11.3	0.0	0.6	0.0	50.6	4.6	18.3	34.1
Food, beverages	32.5	30.3	3.7	4.3	62.4	55.6	2.9	4.3	6.6	8.9	0.4	0.3	9.2	8.3	4.3	4.9
Mining	**23.1**	**29.8**	**1.5**	**1.6**	**27.4**	**12.0**	**1.7**	**3.0**	**12.8**	**2.5**	**0.2**	**0.2**	**2.2**	**17.7**	**0.6**	**1.2**

Source: IBGE, PINTEC 2005 (microdata).
(1) Number of firms introducing at least one new product and/or process during the period considered by PINTEC, as a percentage of the total number of firms surveyed
(2) Firms creating (not just applying) product and/or process innovations during the reference period for PINTEC, alone or in cooperation, as a percentage of the total number of innovative firms.
(3) Innovative firms filing patent applications with patent offices during the reference period for PINTEC, as a percentage of all innovative firms.
(4) Innovative firms citing cooperation for innovation with one or more partners during the reference period for PINTEC, as a percentage of all innovative firms.
(5) Total spending on internal R&D activities during the reference year for PINTEC, as a percentage of manufacturing value added for all firms in the sector.
(6) Percentage of net sales attributed to new products introduced during the reference period for PINTEC.
(7) Percentage of net export revenue attributed to new products introduced during the reference period for PINTEC.

Detailed Table 7.2
Innovation rates in manufacturing and mining by type of innovation – Brazil & São Paulo State, 2001-2005

Type of innovation	Innovation rate in industry (% innovative firms)			
	Brazil		São Paulo State	
	2001-2003	2003-2005	2001-2003	2003-2005
Total	**33.3**	**33.4**	**31.1**	**33.6**
Product	20.3	19.5	18.8	20.4
Process	26.9	26.9	24.6	26.0
Product + process	14.0	13.1	12.3	12.8

Source: IBGE, PINTEC 2003 & 2005

Note: The innovation rate is the number of firms introducing at least one new product and/or process during the period considered by PINTEC, as a percentage of the total number of firms surveyed.

Detailed Table 7.3
Contribution of innovative firms to total sales and exports in manufacturing – Brazil & São Paulo State, 2005

Total sales & exports	Total manufacturing
Brazil	
Sales by innovative firms (R$ 1000) (A	978,288,822
Total sales (R$ 1000) (B)	1,202,698,981
A / B (%)	81.3
São Paulo State	
Exports by innovative firms (R$ 1000) (C)	199,889,624
Total exports (R$ 1000) (D)	231,493,662
C / D (%)	86.4

Source: IBGE. PINTEC 2005.

Detailed Table 7.4
Selected indicators of technological innovation in manufacturing and mining by size of workforce – Brazil & São Paulo State, 2003-2005

No. of employees	Indicators of technological innovation in industry (% of all firms)			
	Firms introducing product and/or process innovations		Firms introducing innovations to home market	
	Brazil	São Paulo State	Brazil	São Paulo State
Total	**33.4**	**33.6**	**4.2**	**5.8**
10-29	28.5	27.6	2.7	3.8
30-49	30.8	30.3	3.1	4.1
50-99	40.6	41.2	4.6	6.2
100-249	55.5	55.1	8.7	10.2
250-499	65.2	64.5	13.4	16.2
500 +	79.2	80.6	41.8	49.1

Source: IBGE. PINTEC 2005.

Note: The percentages shown are for firms introducing at least one product and/or process innovation during the reference period for PINTEC, in proportion to the total number of firms surveyed.

Detailed Table 7.5
Innovator shares of net sales and exports in mining and manufacturing by origin of capital – Brazil & São Paulo State, 2005

Origin of capital	Share of innovative firms					
	Sales by innovative firms (R$ 1000) (A)	Total sales (R$ 1000) (B)	A / B (%)	Exports by innovative firms (R$ 1000) (C)	Total exports (R$ 1000) (D)	C / D (%)
Brazil						
Total industry	**1,004,769,305**	**1,240,553,107**	**81.0**	**214,949,358**	**249,859,241**	**86.0**
Domestic	608,584,655	801,982,353	**75.9**	115,407,656	140,314,906	**82.2**
Foreign	396,184,649	438,570,754	**90.3**	99,541,702	109,544,335	**90.9**
São Paulo State						
Total industry	**438,786,103**	**553,098,694**	**79.3**	**85,589,820**	**101,170,796**	**84.6**
Domestic	187,436,909	273,409,985	**68.6**	28,850,960	38,904,001	**74.2**
Foreign	251,349,194	279,688,709	**89.9**	56,738,860	62,266,795	**91.1**

Origin of capital	Share of São Paulo State / Brazil (%)			
	Sales by innovative firms	Total sales	Exports by innovative firms	Total exports
Total industry	**43.7**	**44.6**	**39.8**	**40.5**
Domestic	30.8	34.1	25.0	27.7
Foreign	63.4	63.8	57.0	56.8

Source: IBGE. PINTEC 2005.

Detailed Table 7.6
Selected indicators of technological innovation in manufacturing and mining by origin of capital – Brazil & São Paulo State, 2003-2005

Origin of capital	Indicators of technological innovation by industrial firms (%)			
	Brazil		São Paulo State	
	Total innovative firms	Firms innovating for home market	Total innovative firms	Firms innovating for home market
Total industry	**33.4**	**4.2**	**33.6**	**5.8**
Foreign	64.8	32.9	65.3	35.0
Domestic	32.7	3.6	32.5	4.8

Source: IBGE. PINTEC 2005.

Note: The percentages shown are for firms introducing at least one product and/or process innovation during the reference period for PINTEC, in proportion to the total number of firms surveyed.

Detailed Table 7.7
Structure and intensity of internal R&D spending in mining and manufacturing by origin of capital – Brazil & São Paulo State, 2003-2005

Origin of capital	Structure & intensity of internal R&D spending							
	2003				2005			
	R&D spending (R$ 1000)	Net sales (R$ 1000)	R&D structure (%)	R&D / net sales(%)	R&D spending (R$ 1000)	Net sales (R$ 1000)	R&D structure (%)	R&D / net sales (%)
Brazil								
Total	**5,098,811**	**953,705,415**	**100.0**	**0.5**	**7,112,928**	**1,240,553,107**	**100.0**	**0.6**
Domestic	2,663,866	612,268,065	52.2	0.4	3,954,624	801,982,353	55.6	0.5
Foreign	2,434,945	341,437,350	47.8	0.7	3,158,304	438,570,754	44.4	0.7
São Paulo State								
Total	**3,102,601**	**444,222,707**	**100.0**	**0.7**	**4,112,479**	**553,098,694**	**100.0**	**0.7**
Domestic	1,300,470	231,151,843	41.9	0.6	1,785,949	273,409,985	43.4	0.7
Foreign	1,802,131	213,070,865	58.1	0.8	2,326,531	279,688,709	56.6	0.8

Source: IBGE, PINTEC 2003 & 2005.

Detailed Table 7.8
Share of multinationals in internal R&D spending in mining and manufacturing – Brazil, São Paulo State & selected countries, 2003-2005

Selected countries	Share of multinationals in internal R&D spending by businesses (%)
Ireland	72.1
São Paulo State (1)	58.1
Belgium	57.1
Brazil (1)	47.8
United Kingdom	45.0
Canada	34.9
Spain	26.7
Germany	26.2
France	22.6
United States	14.5
Japan	4.3

Sources: IBGE. PINTEC 2003; OCDE (2006).

(1)Percentage of total industry.

Detailed Table 7.9
Selected indicators of technological innovation in manufacturing and mining by size of workforce – São Paulo State, 2001-2005

No. of employees	Indicators of technological innovation by industrial firms (%)					
	Innovation rate (1)		Patenting rate (2)		Intensity of internal R&D (% MVA) (3)	
	2001-2003	2003-2005	2001-2003	2003-2005	2003	2005
Total	**31.1**	**33.6**	**8.2**	**8.6**	**1.9**	**2.1**
10-29	26.1	27.6	3.3	4.7	1.2	1.5
30-49	32.9	30.3	5.9	8.4	1.4	1.6
50-99	34.4	41.2	9.5	6.3	0.9	1.3
100-249	46.3	55.1	14.3	13.5	0.6	1.3
250-499	50.2	64.5	19.8	20.2	0.6	1.5
500 +	77.4	80.6	37.3	36.7	2.5	2.4

Source: IBGE, PINTEC 2003 & 2005.

(1) Number of firms introducing at least one new product and/or process during the period considered by PINTEC, as a percentage of the total number of firms surveyed.

(2) Innovative firms filing patent applications with patent offices during the reference period for PINTEC, as a percentage of all innovative firms.

(3) Spending on internal R&D activities as a percentage of manufacturing value added.

Detailed Table 7.10
Innovation originators by branch of manufacturing – São Paulo State, 2001-2005

Branch of manufacturing	Percentage of all innovative firms	
	2001-2003	2003-2005
Recycling	100.0	100.0
Furniture, sundry industries	69.9	67.0
Other transport material (except aircraft)	71.8	80.4
Aircraft construction, assembly & repair	67.6	73.3
Automotive vehicles, trailers, bodies	64.2	63.6
Precision instruments	82.1	80.7
Electronic material, appliances, communications equipment	68.4	84.3
Electrical appliances, machines, materials	75.9	69.4
IT equipment, office machines	92.0	92.6
Plant & equipment	63.9	78.3
Metal products	42.8	54.9
Basic metallurgy	42.4	54.9
Non-metallic mineral products	56.4	70.5
Rubber, plastic	53.4	53.6
Pharmaceuticals	70.3	67.9
Chemicals (except pharmaceuticals)	73.8	87.8
Coke, refined petroleum products, nuclear fuel, ethanol	52.1	61.4
Publishing, printing, reproduction of recordings	41.8	32.5
Pulp, paper, paper products	65.2	69.3
Wood products	67.7	75.4
Leather, footwear, travel articles	60.4	38.9
Apparel, accessories	41.4	56.9
Textile products	65.0	55.5
Tobacco products	0.0	76.8
Food, beverages	59.4	55.6

Source: IBGE, PINTEC 2003 & 2005.

Note: Innovation originators are firms creating (not just applying) product and/or process innovations during the reference period for PINTEC.

Detailed Table 7.11
Innovation protection rates (1) and information sources for innovation in manufacturing and mining – Brazil & São Paulo State, 2003-2005

Innovation protection rates (1) & sources of information for innovation	Innovative industrial firms (%)	
	Brazil	São Paulo State
Innovation protection rates (1)		
Protection by trademark	23.6	25.7
Protection by trade secrecy	8.3	9.6
Protection by patent	4.5	5.8
Protection by utility model	3.4	4.3
Protection by design registration	3.2	3.7
Protection by lead time	2.1	2.9
Protection by copyright	3.2	2.9
Protection by other methods	1.7	2.0
Protection by design complexity	1.6	1.8
Information sources for innovation		
Other departments	41.7	44.5
Customers, clients	42.8	43.9
Online information networks	36.9	40.3
Suppliers	40.2	37.8
Trade shows, exhibitions	37.3	36.1
Competitors	23.3	23.3
Conferences, events, journals	15.6	16.7
R&D department	7.5	11.0
Testing & certification institutions	7.4	9.3
Universities, research institutions	6.0	7.5
Training & technical assistance centers	6.6	6.6
Consulting firms, independent consultants	6.0	6.6
Licenses, patents, know how	3.9	5.1
Other group companies	3.1	4.7

Source: IBGE. PINTEC 2005.

(1) Innovative firms declaring the use of at least one method of innovation protection, as a percentage of all innovative firms identified by PINTEC.

Detailed Table 7.12
Patenting rates (1) for innovative firms in manufacturing and mining by size of workforce – Brazil & São Paulo State, 2001-2005

No. of employees	Patenting rates (1) for industrial firms (% innovative firms)			
	2001-2003		2003-2005	
	Brazil	São Paulo State	Brazil	São Paulo State
Total	6.1	8.6	6.1	8.2
10-29	3.4	4.7	3.0	3.3
30-49	6.9	8.4	5.5	5.9
50-99	6.5	6.3	7.7	9.5
100-249	10.7	13.5	10.1	14.3
250-499	19.5	20.2	14.1	19.8
500 +	28.0	36.7	29.2	37.3

Source: IBGE, PINTEC 2003 & 2005.

(1) Innovative firms filing patent applications with patent offices during the reference period for PINTEC, as a percentage of all innovative firms.

Detailed Table 7.13
Information sources for innovation in manufacturing by type of source – Brazil & São Paulo State, 2003-2005

Information sources for innovation	No. of firms assigning high importance to source (A)		A / B (%)	
	Brazil	São Paulo State	Brazil	São Paulo State
Source				
Other departments	12,485	4,743	41.7	44.5
Customers, clients	12,823	4,679	42.8	43.9
Online information networks	11,041	4,298	36.9	40.3
Suppliers	12,051	4,027	40.2	37.8
Trade shows, exhibitions	11,183	3,848	37.3	36.1
Competitors	6,992	2,485	23.3	23.3
Conferences, events, journals	4,663	1,777	15.6	16.7
R&D department	2,241	1,168	7.5	11.0
Testing & certification institutions	2,204	987	7.4	9.3
Universities, research institutions	1,812	797	6.0	7.5
Training & technical assistance centers	1,974	707	6.6	6.6
Consulting firms, independent consultants	1,809	706	6.0	6.6
Licenses, patents, know how	1,166	540	3.9	5.1
Other group companies	937	501	3.1	4.7
Total innovative firms (B)	**29,951**	**10,653**		

Source: IBGE. PINTEC 2005.

Note: To identify the main sources used by firms, only sources to which firms assigned high importance were selected. The last two columns show the number of firms assigning high importance to the source as a percentage of the total number of innovative firms.

Detailed Table 7.14
Innovative firms in manufacturing citing foreign sources of information for innovation by type of source – Brazil & São Paulo State, 2003-2005

Information sources for innovation	No. of firms using foreign information sources (A)		A / B (%)	
	Brazil	São Paulo State	Brazil	São Paulo State
Source				
Online information networks	2,472	1,200	8.3	11.3
Suppliers	1,825	830	6.1	7.8
Trade shows, exhibitions	1,491	679	5.0	6.4
Other group companies	904	521	3.0	4.9
Conferences, events, journals	772	428	2.6	4.0
Competitors	648	302	2.2	2.8
Licenses, patents, know how	352	189	1.2	1.8
Customers, clients	437	158	1.5	1.5
Consulting firms, independent consultants	208	84	0.7	0.8
Testing & certification institutions	139	60	0.5	0.6
Training & technical assistance centers	94	47	0.3	0.4
Universities, research institutions	83	45	0.3	0.4
Total innovative firms (B)	**29,951**	**10,653**		

Source: IBGE. PINTEC 2005.

Detailed Table 7.15
Innovative firms in manufacturing with domestic cooperative relations by type of partner – Brazil & São Paulo State, 2003-2005

Type of partner	Brazil		São Paulo State	
	No. of firms with cooperative relations (A)	A / B (%)	No. of firms with cooperative relations (C)	C / B (%)
Partners				
Customers, clients	1,245	58.2	559	60.0
Suppliers	1,231	57.6	573	61.5
Competitors	348	16.3	163	17.5
Other group companies	115	5.4	47	5.1
Consultants	571	26.7	236	25.4
Universities, research institutions	812	38.0	295	31.7
Training & technical assistance centers	579	27.1	223	24.0
Total innovative firms with cooperative relations (B)	**2,139**		**931**	

Source: IBGE. PINTEC 2005.

Detailed Table 7.16
Innovative firms in manufacturing and mining with cooperative relations with universities and research institutions located in Brazil by origin of capital – Brazil & São Paulo State, 2003-2005

Origin of capital	Firms cooperating with universities & research institutions in Brazil (A)		Firms with cooperative relations (B)		A / B (%)	
	Brazil	São Paulo State	Brazil	São Paulo State	Brazil	São Paulo State
Total industry	**819**	**296**	**2,194**	**933**	**37.3**	**31.7**
Domestic	666	197	1,864	711	35.7	27.7
Foreign	153	99	330	223	46.3	44.5

Source: IBGE. PINTEC 2005.

Detailed Table 7.17
Innovative firms in manufacturing with R&D cooperative relations by type of partner – Brazil & São Paulo State, 2003-2005

Type of partner	Brazil		São Paulo State	
	No. of firms with R&D cooperative relations (A)	A / B (%)	No. of firms with R&D cooperative relations (C)	C / B (%)
Partners				
Customers, clients	558	26.1	296	31.8
Suppliers	616	28.8	271	29.1
Universities, research institutions	424	19.8	184	19.8
Other group companies	249	11.6	157	16.9
Consultants	270	12.6	140	15.0
Training & technical assistance centers	142	6.6	76	8.2
Competitors	126	5.9	35	3.8
Total innovative firms with cooperative relations (B)	**2,139**		**931**	

Source: IBGE. PINTEC 2005.

Detailed Table 7.18
Innovative firms in manufacturing with R&D cooperative relations by type of partner – São Paulo State, 2001-2005

Type of partner	Industrial firms with R&D cooperative relations			
	2001-2003		2003-2005	
	Absolute nos.	%	Absolute nos.	%
Customers, clients	88	25.3	296	31.8
Suppliers	126	36.4	271	29.1
Competitors	27	7.7	35	3.8
Other group companies	124	35.7	157	16.9
Consultants	37	10.6	140	15.0
Universities, research institutions	131	37.6	184	19.8
Training & technical assistance centers	12	3.5	76	8.2

Source: IBGE. PINTEC 2003 & 2005.

Detailed Table 7.19
Innovative firms in manufacturing with cooperative relations with universities and research institutions by location – Brazil & São Paulo State, 2003-2005

Location of partner universities or research institutions	Firms cooperating with universities & research institutions (A)		Firms cooperating with universities & research institutions on R&D (B)		Innovative firms (C)		A / C (%)		B / C (%)	
	Brazil	São Paulo State	Brazil	São Paulo State	Brazil	São Paulo State	Brazil	São Paulo State	Brazil	São Paulo State
Total	**855**	**302**	**424**	**184**	**29,951**	**10,653**	**2.9**	**2.8**	**1.4**	**1.7**
Brazil	812	295	*	*	*	*	2.7	2.8	*	*
Abroad	43	7	*	*	*	*	0.1	0.1	*	*

Source: IBGE. PINTEC 2005.

Detailed Table 7.20
Structure of innovative firms' spending on innovation activities in manufacturing by type of activity – Brazil & São Paulo State, 2003 & 2005

Type of innovation activity	Structure of innovative industrial firms' spending on innovative activities							
	Brazil				São Paulo State			
	2003		2005		2003		2005	
	Current prices (R$ 1,000) (A)	A / Total (%)	Current prices (R$ 1,000) (B)	B / Total (%)	Current prices (R$ 1,000) (C)	C / Total (%)	Current prices (R$ 1,000) (D)	D / Total (%)
Total	**23,034,602**	**100.0**	**33,724,694**	**100.0**	**12,115,313**	**100.0**	**19,015,498**	**100.0**
Intramural R&D	5,070,319	22.0	7,035,353	20.9	3,101,940	25.6	4,107,300	21.6
Extramural R&D	669,081	2.9	944,069	2.8	375,125	3.1	511,916	2.7
Acquisition of other external knowledge	792,332	3.4	1,608,146	4.8	506,832	4.2	1,017,333	5.4
Acquisition of plant & equipment	11,329,753	49.2	16,122,355	47.8	5,705,878	47.1	9,088,318	47.8
Training	457,473	2.0	626,747	1.9	247,412	2.0	358,252	1.9
Market introduction of innovations	1,381,089	6.0	2,325,028	6.9	733,179	6.1	1,565,849	8.2
Industrial design	3,334,555	14.5	4,398,048	13.0	1,444,947	11.9	2,016,604	10.6
Acquisition of *software*	–	–	664,947	2.0	–	–	349,927	1.8

Source: IBGE. IBGE, PINTEC 2003 & 2005.

Detailed Table 7.21
Spending on innovation activities in manufacturing by type of activity – Brazil & São Paulo State, 2005

Type of innovation activity	Spending by innovative industrial firms			
	Brazil		São Paulo State	
	Total spending (R$ 1,000) (A)	A / net sales BR (%)	Total spending (R$ 1,000) (B)	B / net sales SP (%)
Total		**2.80**		**3.45**
Intramural R&D	7,035,353	0.58	4,107,300	0.75
Extramural R&D	944,069	0.08	511,916	0.09
Acquisition of other external knowledge	1,608,146	0.13	1,017,333	0.18
Acquisition of software	664,947	0.06	349,927	0.06
Acquisition of plant & equipment	16,122,355	1.34	9,088,318	1.65
Training	626,747	0.05	358,252	0.07
Market introduction of innovations	2,325,028	0.19	1,565,849	0.28
Industrial design	4,398,048	0.37	2,016,604	0.37
Spending on innovation activities	33,724,694		19,015,498	
Net sales	1,202,698,981		550,495,665	

Source: IBGE. PINTEC 2005.

Detailed Table 7.22
Intramural R&D intensity by branch of manufacturing and OECD average – Brazil, São Paulo State & selected countries, 2005 (1)

CNAE 1.0 sector	Intensity of intramural R&D for selected countries (% value added)											
	São Paulo State (2005)	Brazil (2005)	Canada (2002)	Spain (2002)	USA (2002)	South Korea (2003)	France (2002)	Germany (2002)	Italy (2003)	Norway (2002)	U.K. (2002)	OECD average (2001)
Manufacturing	**2.1**	**1.5**	**3.9**	**2.4**	**7.8**	**7.3**	**7.4**	**7.7**	**2.4**	**4.8**	**6.9**	**7.7**
Aircraft	23.1	18.8	15.5	26.1	18.5	81.0 (2)	29.4	23.7 (2)	18.2 (3)	5.7	23.8	–
Pharmaceuticals	1.1	1.3	25.6	17.4	21.1	4.4	27.2	22.7 (2)	6.0 (3)	13.8	52.4	20.8
IT equipment	8.3	5.2	63.6	24.1	32.8	4.4	15.8	18.1	8.6 (3)	37.2	5.9	37.0
Electronic material, communications equipment	6.3	4.1	54.4	16.2	25.4	23.4	57.2	39.2	17.3 (3)	44.9	23.6	30.9
Precision instruments	4.3	4.3	–	6.4	49.1	10.3	16.1	14.0	6.8	13.8	8.3	27.9
Electrical materials	3.7	3.5	5.8	3.4	5.5	3.3	7.3	3.8	1.7 (3)	8.9	9.2	10.6
Automotive vehicles	4.6	4.2	1.5	4.3	13.4	13.8	13.6	19.1	11.5	13.4	10.9	14.2
Chemicals (except pharmaceuticals)	2.2	1.8	1.9	2.9	6.5	5.6	7.4	11.3 (2)	3.5 (3)	–	5.9	8.5
Other transport material (except aircraft)	–	–	1.1	5.8	15.3	13.8 (2)	2.5	16.4 (2)	3.3 (3)	3.1	30.5	–
Plant & equipment	1.4	1.4	2.4	3.2	6.6	5.3	5.9	5.7	2.5	6.6	6.4	6.3
Vessels	–	–	–	6.3	–	2.3 (2)	1.7	2.9 (2)	0.8 (3)	2.1	8.6	–
Rubber, plastic	1.2	1.1	0.5	0.9	2.3	2.3	6.3	2.7	2.2	3.5	0.8	4.1
Coke, refined petroleum products, ethanol	0.3	1.2	2.4	1.3	4.8	1.9	2.1	1.0	0.2	–	10.5	1.9
Non-metallic mineral products	1.0	0.8	0.2	0.6	1.0	1.4	2.1	2.0	0.3	1.3	0.9	2.1
Basic metallurgy, metal products	0.5	0.4	1.5	0.9	1.2	1.6	1.4	1.5	0.3	2.8	0.7	1.6
Furniture, recycling	2.0	1.2	0.7	0.8	–	1.6	2.2	1.4	0.3	3.4	0.8	1.3
Wood, pulp & paper, publishing & printing	0.5	0.3	0.8	0.3	1.4	0.5	0.3	0.3	0.2	1.2	0.2	1.0
Food, beverages, tobacco	0.3	0.4	0.4	0.7	1.3	1.8	1.3	0.7	0.5	2.3	1.4	1.2
Textiles, apparel, leather, footwear	0.5	0.6	1.3	0.8	0.5	1.1	1.0	2.5	0.3	3.1	0.3	0.9

Source: IBGE, PINTEC 2005; OECD (2006); OECDStat (2007).

(1) Or latest available year.

Detailed Table 7.23
Structure of intramural R&D spending by innovative manufacturing firms in selected sectors – Brazil & São Paulo State, 2005

CNAE 1.0 sector	Structure of intramural R&D spending by industrial firms (% total spending by manufacturers)			
	Brazil		São Paulo State	
	Current prices (R$ 1,000)	%	Current prices (R$ 1,000)	%
Manufacturing	**7,035,353**	**100.0**	**4,107,300**	**100.0**
Automotive vehicles	1,692,553	24.1	1,308,639	31.9
Aircraft	689,371	9.8	688,938	16.8
Chemicals (except pharmaceuticals)	683,913	9.7	459,355	11.2
Electrical appliances & materials	394,838	5.6	283,315	6.9
Electronic material, communications equipment	411,352	5.9	254,207	6.2
Plant & equipment	371,052	5.3	220,560	5.4
Food, beverages	293,551	4.2	118,863	2.9
Pharmaceuticals	180,462	2.6	111,135	2.7
Rubber, plastic	194,573	2.8	109,312	2.7
Precision instruments	170,331	2.4	103,343	2.5
Non-metallic mineral products	112,414	1.6	67,842	1.7
Pulp, paper	85,365	1.2	65,647	1.6
IT equipment, office machines	153,381	2.2	65,400	1.6
Furniture, sundry industries	86,903	1.2	59,541	1.5
Basic metallurgy	177,406	2.5	50,590	1.2
Metal products	87,184	1.2	42,017	1.0
Leather, footwear	66,597	1.0	22,417	0.6
Textile products	55,601	0.8	19,990	0.5
Other transport equipment (except aircraft)	84,800	1.2	16,168	0.4
Wood products	19,785	0.3	15,251	0.4
Publishing, printing	18,769	0.3	12,674	0.3
Coke, refined petroleum products, ethanol	949,922	13.5	6,830	0.2
Apparel	34,436	0.5	5,266	0.1
Tobacco	20,792	0.3	–	–

Source: IBGE. PINTEC 2005.

Detailed Table 7.24
Intensity of extramural R&D in manufacturing, mining and selected segments of the service sector as % of value added – Brazil & São Paulo State, 2005

Selected segments of industrial & service sectors	Intensity of extramural R&D (1)	
	Brazil	São Paulo State
Total services	**0.4**	**0.2**
Telecommunications services	0.5	0.2
IT activities & related services	0.2	0.1
Manufacturing	**0.2**	**0.3**
Electronic material, communications equipment	1.9	2.7
Tobacco	0.1	2.5
Aircraft	1.4	1.5
Pharmaceuticals	1.0	1.3
IT equipment	1.2	0.6
Automotive vehicles	0.5	0.4
Furniture, sundry industries	0.1	0.3
Precision instruments	0.2	0.2
Rubber, plastic	0.1	0.2
Coke, refined petroleum products, ethanol	0.2	0.2
Electrical appliances & materials	0.2	0.1
Chemicals (except pharmaceuticals)	0.1	0.1
Plant & equipment	0.1	0.1
Pulp & paper	0.0	0.1
Textile products	0.0	0.0
Basic metallurgy	0.0	0.0
Apparel	0.0	0.0
Non-metallic mineral products	0.1	0.0
Metal products	0.0	0.0
Leather, footwear	0.1	0.0
Food, beverages	0.0	0.0
Publishing, printing	0.0	0.0
Wood products	0.0	0.0
Other transport material (except aircraft)	0.2	0.0
Recycling	-	-
Mining	**0.1**	**0.0**

Source: IBGE. PINTEC 2005.

(1) Spending on extramural R&D as a percentage of net sales in reference year for PINTEC.

Detailed Table 7.25
Spending on intramural and extramural R&D in manufacturing, mining and selected segments of the service sector by source of funding – São Paulo State, 2005

Sector	Spending on intramural & extramural R&D by funding source (%)		
	Own funds	Private	Public
Selected services			
Telecommunications services	100.0	0	0
IT activities & related services	94.6	4.6	0.8
Manufacturing	**96.2**	**1.1**	**2.8**
Other transport equipment (except aircraft)	100.0	0	0
Basic metallurgy	100.0	0	0
Wood products	100.0	0	0
Textile products	100.0	0	0
Tobacco	100.0	0	0
Pulp, paper	100.0	0	0
Leather, footwear	99.9	0	0.1
IT equipment	99.8	0	0.2
Electrical appliances & materials	99.1	0.4	0.5
Electronic material, communications equipment	99.1	0.4	0.5
Aircraft	98.2	0.3	1.5
Precision instruments	98.1	0.3	1.5
Food, beverages	98.0	0.5	1.5
Non-metallic mineral products	97.8	0.4	1.8
Automotive vehicles	95.6	2.2	2.2
Coke, refined petroleum products, ethanol	95.5	0.0	4.5
Pharmaceuticals	95.5	1.0	3.6
Plant & equipment	94.7	0.5	4.8
Chemicals (except pharmaceuticals)	93.4	0.0	6.5
Furniture, sundry industries	90.0	0.0	10.0
Rubber, plastic	89.5	0.0	10.5
Publishing, printing	85.8	14.2	0.0
Metal products	79.8	9.3	10.9
Apparel	68.0	32.0	0.0
Recycling	0	0	0
Mining	**84.1**	**10.8**	**5.1**

Source: IBGE. PINTEC 2005.

Detailed Table 7.26
Innovative firms in manufacturing that received government support by type of program – Brazil & São Paulo State, 2003-2005

Type of program	Innovative industrial firms receiving government support (%))	
	Brazil	São Paulo State
R&D, investment in plant & equipment	12.4	12.6
Other	5.4	4.0
Venture capital	1.3	1.8
Law 10176 (Lei de Informática)	1.1	1.4
Research projects in partnership with universities & research institutions	1.2	1.2
R&D, technological innovation	0.7	0.6
Grants	0.2	0.3

Source: IBGE. PINTEC 2005.