

Highlights of Chapter 5 – Patenting Activity in São Paulo State

- Brazil ranked 28th among applicants for patents from the United States Patent & Trademark Office (USPTO) in 1974, rising to 25th in 1982 (its best in the period analysed), falling to 27th in 1990 and again slipping to 29th in 1998, where it remained in 2006. Thus over a 32-year period Brazil failed to improve its position in the rank order of USPTO patent applicants.
- The number of patent applications with the first-named inventor residing in Brazil filed with USPTO was 44 in 1974 and 341 in 2006. This eightfold growth in patent applications was not sufficient to raise Brazil from the uncomfortable vicinity of 30th place. It should be noted that the total number of patent applications filed with USPTO increased fourfold in the period 1974-2006.
- The developing countries that have significantly increased their patent filings include Taiwan, South Korea, China, India and Malaysia. Except for Taiwan, all these countries were behind Brazil in 1974 and ahead in 2006. What differentiates these countries is the timing of their ascent. South Korea and Taiwan ascended in the 1970s and 1980s, and China and India in the 1990s, while Malaysia entered the group of top 30 patentee countries in 2006.
- South Africa and Mexico, suitable for comparison because their technology, level of development and income concentration resemble Brazil's, performed more unevenly, although they were ahead of Brazil in 1974 and behind it 2006.
- With regard to patent applications filed with Brazil's National Industrial Property Institute (INPI), the top four subdomains, which have remained the same since 1980, are "consumer goods", "handling & printing", "civil engineering & building", and "transport".
- The rank order for patent applications originating in São Paulo State in the period 1980-89 was slightly different, with "electrical components" featuring among the top four and "transport" appearing lower down the list.
- São Paulo State led the rank order for INPI patent applications throughout the period 1980-2005, with filings by first-named inventors resident in the state accounting for 49.5% of applications in which a state was identified.
- São Paulo State's share of total filings in which a state is identified has steadily declined: it was 60.3% in the period 1980-89 and 46.5% in the period 2000-05. These findings are consistent with USPTO statistics, which show São Paulo State accounting for 52.5% of filings between 1980 and 2006 on average, while its share fell from 53.3% in 1980-89 to 50.6% in 2000-05.
- The top six states in terms of patenting, which remained the same in all three subperiods, are São Paulo, Rio Grande do Sul, Rio de Janeiro, Minas Gerais, Paraná and Santa Catarina.
- This concentration diminished slightly over the period, however: the top six states accounted for 94.9% of total filings in which a state was identified in 1980-89 and 89.1% in 2000-05.
- Rio de Janeiro State ranked second in 1980-89 and fifth in 2000-05. Rio Grande do Sul moved in the opposite direction, ranking fourth in 1980-89 and second in 2000-05. Paraná rose from fifth to third place and Minas Gerais dropped one place from third to fourth between 1980-89 and 2000-05. In sum, the most important change in the rank order of states was an improvement by Southern states to the detriment of Rio de Janeiro and Minas Gerais.
- Petrobras ranked first among corporate patentees in the period 1980-2005. This leadership is confirmed by USPTO statistics.
- INPI statistics show the significance of companies and institutions in São Paulo State, in which ten of the top 20 INPI patentees are based.
- Universities and research institutions account for a substantial proportion of patent filings, with six featuring among the leaders in Brazil and five among the leaders in São Paulo State. Unicamp was the foremost patentee in São Paulo State and the second-ranking patentee in Brazil in the third subperiod.
- Between 2000 and 2005, nine education and research institutions featured among the top 20 patentees in Brazil. During this period Unicamp became the leading patentee in Brazil, overtaking Petrobras in 2002 and 2003.
- Steel companies descended the rank order while manufacturers of farm implements ascended (including Semeato S.A. Indústria e Comércio, Máquinas Agrícolas Jacto S.A., Marchesan Implementos and Máquinas Agrícolas Tatu S.A.).
- Patents filed by non-residents accounted for 64.2% of total INPI filings in the period 1980-2005.
- Patent filings by universities and research institutions increased, accounting for 10% of filings by resident corporate entities in the period 2000-05.
- In the U.S., academic patents totalled 2,725 in 2005, or 3.57% of total resident filings. The only education and research institution among the top 20 corporate patentees was the University of California, with 333 patents (USPTO, 2008). In Brazil, nine institutions engaged in education and research activities ranked among the top 20 (Unicamp, FAPESP, UFMG, UFRJ, CNPq, Embrapa, USP, CDTN and Unesp).
- Patenting by universities rose sharply in the 1990s and thereafter, while patenting by other institutions practically flatlined overall.
- The presence of CNPq, FAPESP and Fapemig among the leaders reflects the care taken by funding agencies to protect intellectual property deriving from the research they support.
- For both Brazil and São Paulo State, it is worth noting that the subdomain "pharmaceuticals & cosmetics" ranks second and "medical engineering" fourth, while "biotechnology" ranks eighth in Brazil and fifth in São Paulo State. Technological specialisation by universities and research institutions clearly differs from overall specialisation in Brazil. This difference suggests that education and research institutions have a role to play in renewing the nation's technological base.