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*Public Policy
and
Private Initiative
Railway Building in São Paulo
1860–1889*

Colin M Lewis

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and
Private Initiative**

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Public Policy and Private Initiative: Railway Building in São Paulo 1860-1889

Introduction

This study informs several inter-related currents in the literature about the history of Brazilian development. Much recent writing, concerned primarily with structural change in the post-Second World War period, has focused on the role of state capital, private national capital and foreign capital. Extending the earlier work of F. H. Cardoso and E. Faletto on dependency and development, P. Evans has examined collaboration and conflict among these three actors in an attempt both to define more exactly the process of dependent development and to assess the relative importance of each.¹ Concerned mainly with the manufacturing sector, Evans asserted that there has been a tendency for state and foreign corporate capital to predominate at the expense of local private capital, notwithstanding an earlier symbiosis between state and private national capital or between transnational companies (TNCs) and local firms. Notably in the last few decades, an increasing homogeneity in the comportment of large-scale state corporations and TNCs has denied operational space to the traditional, national entrepreneuriate which was associated with the historic process of industrialisation in more advanced economies. While Evans and others have written largely about the twentieth century, some historians working in Brazil - the 'Campinas school' - have added greater historical depth to Evans's approach by combining his analysis with an earlier hypothesis developed by A. Gerschenkron, namely the concept of 'late industrialisation'.² Examining the history of industrialisation in nineteenth century Europe, Gerschenkron posits that institutions - such as banks - played a larger role in promoting industrial expansion in late industrialising economies than in those that industrialised earlier. He also argues that in the most backward economies, the state, rather than private institutions, is likely to be the key institution. These traditions - represented by Evans and Gerschenkron - have been combined by the Campinas school to yield the theory of *very* late industrialisation, arguably most clearly articulated by J. M. Cardoso de Mello.³

From the writing of authors associated with, or critical of, the Campinas school has emerged a growing body of research concerned to identify an early developmentalist tradition on the part of the Brazilian state (or to account for the lack or the failure of such a tradition) and a search for an authentic national industrial bourgeoisie capable of sustaining a process of development less directly dependent on government. Authors like Fritsch and Topik, echoing earlier studies such as those by Peláez, have challenged conventional arguments

that depict the administrations of the Old Republic, 1889-1930, as essentially non-interventionist. While differing in their assessments of the efficacy of and limits upon state action, they have hinted at continuity with earlier, pre-1889 *dirigiste* traditions. More directly a product of debate within the Campinas school is the work of Cano, Z. M. Cardoso de Mello and, possibly, de Saes.⁴ These authors have considered aspects of entrepreneurial formation and capital accumulation in São Paulo which contribute to a further evaluation of the action of the nineteenth century state.

Renewed interest in the nineteenth century state compels an examination of government railway policy, an area where early developmentalist aspirations may be observed. There is a large bibliography on the railway history of Brazil but little – apart from pamphlets published during the period – explicitly about national government railway strategy. Even less has been written about provincial or state government policy. This is a critical gap in the literature, given that the shape of the railway network was largely established under the auspices of the relatively centralised system of administration that prevailed during the Empire and particularly from c. 1850 to 1889.⁵ Railways – financing construction, promoting incorporation and supervising operations – represented an area of early government activity in Brazil and throughout the continent.

In considering a specific case-study, the *paulista* railway industry, this essay draws upon these recent contributions to the economic historiography of Brazil. The principal themes explored here will extend the general framework elaborated around the Campinas school by examining relations between government and national and foreign companies in the railways sector, by considering the distinct expectations and strategies of domestic and overseas capital and by assessing the structure of investment in the industry. The essay advances the discussion in two directions. First, by paying particular attention to the role of the local state. Secondly, by attempting a systematic analysis of the relative participation of local and foreign capital in the railways of São Paulo.

São Paulo has a unique place in Latin American railway history. It was the only region of the continent where a large initial presence in the sector was sustained beyond the formative phase of railway development. Elsewhere in Brazil the situation was quite different, conforming to a pattern that was virtually continent-wide. The process of financing railways in most areas can be divided into a sequence of fairly precise phases. In the first instance ‘local’ capital was dominant. Investment came overwhelmingly from the export sector and the state. Landowners, merchants and government underwrote the construction of the first lines in virtually every country. Traders and agriculturalists did so with profits accumulated through the production and

commercialisation of commodities in the world market. Governments acquired funds from taxation and overseas borrowing. A second phase, usually co-terminus with the completion of the first wave of construction, was characterised by the dilution of domestic investment. Following the franchising of the first companies, pressures for additional building emerged from various quarters – provinces and sectors that had not benefited during the original round of construction – and from within the state itself. In most countries, starter lines demonstrated a substantial saving in costs over traditional means of communication provoking a demand for additional construction. Governments, in addition, became increasingly convinced of the strategic importance of railways. However, in most cases much of the second wave of construction was financed by direct foreign investment and/or a larger state presence rather than by increased domestic private provision. It is a matter of debate whether this was due to factors such as the inherently ‘mercantile’ mentality of early local shareholders, lack of domestic entrepreneurial competence given the scale of financial, technical and organisational effort required to sustain a massive public works programme, a conscious preference for investment in other activities or the growing integration of international capital markets. Other characteristics of this second phase – besides a dilution of local financial control – are probably pertinent, namely, greater sophistication of railway legislation and regulatory agencies, greater state access to external borrowing and the crystallisation of a positivist tradition. The third phase of the financial history of Latin American railway development was associated with the withdrawal of local private capital (and sometimes also state investment). Withdrawal was triggered by different events in particular cases but was usually cyclically determined. In some instances, domestic capitalists realised their investment at the peak of the trade cycle, selling to foreign consortia at moments of excess liquidity in the international system. In others, local companies that had raised part of their funds overseas (invariably in the form of debentures) fell into foreign hands during the trough of a depression when external mortgage bondholders foreclosed in cases of non-payment of interest. A similar fate often befell state lines financed by borrowing abroad or upon which the public debt was secured. São Paulo was exceptional in that the presence of local capital in the railway industry endured and increased throughout the nineteenth and early twentieth centuries, often in the face of the same circumstances that facilitated external penetration in other economies. An analysis of the factors that triggered and sustained investment in railways sheds light on *paulista* entrepreneurial capacity and performance.

Various documents and printed reports generated by the provincial administration of São Paulo and railway company annual reports constitute the principal sources of this working paper. These are complemented by similar official material produced by the central government at Rio de Janeiro.

Statements submitted by provincial presidents (governors) to the legislative assembly are an under-worked source: they contain a wealth of descriptive information about economic and political conditions. Similarly neglected are reports of debates in the provincial legislature. Legislative debates and Presidential Reports contain valuable details about the developmental 'project' of the period and, in the particular case of railways, point to distinct local and sectional aspirations. Annual reports presented by directors to meetings of shareholders and accounts of those meeting provide insights into the position of individual companies and into what may be described as 'corporate strategy'. These reports also contain much statistical material about railway operations and finance. Additional financial information was obtained from the provincial government agency and national inspectorate responsible for verifying share calls and capital investment and for determining the extent of government liabilities to companies under the terms of profit guarantee arrangements. Provincial and national archives also provided material about official railway policy. Some documents were available in printed form, reproduced either in company annual reports or in the yearly submissions of the relevant ministry to the national parliament. Some parallel series of British documents and reports were also consulted.

The paper opens with a general description of Brazilian railway strategy. This is followed by an appraisal of the local dimension, various aspects of company policy and performance and the connection between railways and the coffee sector. The penultimate section discusses *paulista* business culture and considers the absolute and relative weight of local capital invested in railways. The appendix sets out this data and the methodology employed in its elaboration.

A National Strategy for Railways

Several factors influenced the evolution of railway policy in Rio de Janeiro. General, if ill-informed, economic aspiration applied throughout but political or strategic considerations were often to the fore. These naïve expectations were invariably tempered by lack of finance, exacerbated by technical difficulties involved in railway building through the coastal escarpment. Tropical storms frequently destroyed partially completed construction work and large scale expenditure was required on tunnels, viaducts and rack sections. The contractor of the San Paulo (Brazilian) Railway Company Limited had to push the road bed from sea level to 2,625 feet in a rise of seven miles. Technical problems presented railway engineers in Brazil with enormous difficulties which involved massive expenditure on both construction and maintenance. But equally hazardous were the exaggerated expectations of government about the

availability of finance and the profitability of railway operations.

Three principal considerations influenced early programmes devised by the Imperial Government, namely, economic expansion, national integration and regional regeneration. Excessively optimistic, certainly during the period under consideration, the realisation of these objectives was frustrated by the size of the country and the consequent scale of construction necessary to translate policy into achievement. Policy implementation was also frustrated by an imperfect knowledge of the topography of up-country districts and false assumptions respecting the traffic-generating potential of many zones. The former often necessitated a succession of costly exploratory missions and frequent route changes; the latter made for an uneven momentum of building, failure to complete projects within stipulated times, shoddy construction, breaks of gauge and the generally poor financial performance of many companies. Procrastination by public officials responsible for the verification and inspection of railway projects was enhanced by the special pleading of individuals or sectional interest who seized upon modifications to original routes for technical or topographical reasons in order to press for further route amendments that yielded particular profit. Whether technical or political in origin, delays and the reformation of concessions increased costs, discouraged would be investors – domestic and foreign – and in part explained the growing presence of the public sector as private interest faded. Nevertheless, despite such setbacks, these three principal over-lapping objectives established the parameters of national railway policy and continued to influence central government approaches to railway affairs even after the declaration of the Republic in 1889. To what extent were these objectives realised?

Statements about the economic consequences of railway building and operation during the mid-nineteenth century rarely ventured beyond the general. As a substitute for mule trains, which handled the bulk of the commerce of the interior, railways were expected to provide a cheaper service and through speedier, more efficient handling of merchandise, were assumed to reduce losses due to spoilage or spillage of cargo. Lower freights would also permit the expansion of coffee cultivation above Rio, enabling *fazendeiros* to shift production from exhausted lands in the coastal foothills. Vague, universalist expectations that railways would stimulate agriculture, commerce and industry, and which dominate official publications of the period, have always been viewed with scepticism by historians. Traditional interpretations consistently emphasise the linkages between export-agriculture and early railway construction in Brazil, stressing the contributions of coffee producers to the flotation of the first major company, the Estrada de Ferro Dom Pedro II. National capital was attracted to this enterprise with the abolition of the trans-Atlantic slave trade, purchases of slaves having previously represented the

principal investment of coffee producers after real estate. New writing, however, offers a somewhat more complex assessment, indicating the dominance of merchants, banks and the state itself amongst the EFDPII's shareholders.⁶ Recent scholarship also posits that railways facilitated not only the movement of the coffee frontier to the interior but that improvements in transport permitted the settlement of European immigrants who would raise cash crops for the local market upon land vacated by coffee. Previously the expansion of coffee cultivation at the expense of land devoted to basic food staples had occasioned a rise in the cost of living in urban areas provoking social unrest and government unease.⁷ Early railway projects embraced a diversity of economic objectives, the primacy of which may have changed over time.

There is little evidence that railways directly stimulated heavy industry in Brazil during this period, notwithstanding a marked contribution to activity in the field of civil engineering and sanguine assumptions about the future for domestic iron and steel production. Brazilian policy makers were aware of circumstances overseas and perceived opportunities for the growth of iron production in the expansion of the railway industry. By the 1870s, when the Imperial Government began to assume a larger direct presence in railway management, there was an investigation of the possibility of shifting purchases of materials and equipment towards domestic producers, away from imports. Currency depreciation, recessions in the domestic iron industry following the end of the war with Paraguay in 1870, lobbying by the recently formed Associação Industrial and resuscitation of the debate about the relative advantages of protection versus free trade may account for this initiative.⁸ The outcome was disappointing. Domestic output was high-cost due to the isolation of iron foundries, sited close to raw material supplies, and to the scale of production. Most firms were small, employing archaic technology and smelted with charcoal. The chemical properties of local materials were also not entirely suited to the manufacture of railway iron.⁹ The immediate potential for domestic supply was further constrained by the railway companies' substitution of steel for iron rails at this juncture. The switch to steel rails (iron track was usually re-laid on less densely trafficked branch lines) reduced demand for a product that could have been – and was experimentally – manufactured domestically for another that required substantial investment in new technology at the foundries. The rapid fall in the price of railway equipment and material in the world market after the mid-1870s hardly encouraged Brazilian railways to favour national products over imports. Locational factors, the physical properties of local raw materials, the structure of the domestic industry and the onset of the 'Great Depression' which dramatically reduced the cost of imports, coupled with a widening technology gap, frustrated the development of a railway supply industry in Brazil.

The impact of railways upon commerce and the rural economy, more especially export agriculture in the coffee zone, was direct and conformed to contemporary expectations. Railways rapidly displaced traditional forms of transport, muleteers transferred their business to up-country districts serving zones devoid of rails or more usually linking the hinterland to railhead. The importance of the relocation of traditional means of transport to the interior as a mechanism securing the initial success of the early railway companies has probably been under-estimated in the literature. First, new opportunities up-country for muleteers probably deflected some of their antagonism towards railways. Secondly, muleteers extended the catchment area of the railways and generated new business which filtered through to interior rail towns thereby sustaining the steady expansion of rail freight. Muletrains came to complement railways and may have stimulated economic activity in up-country districts in advance of railway extension. Thus, railways facilitated the steady expansion of coffee cultivation first along the Paraíba Valley and later in the *planato*. Between the late 1850s and late 1860s when Brazil's coffee exports fluctuated around an average of 163,560,475 kilos, the EFDPII in 1869 carried 94,231,838 kilos out of a total of 147,258,271 kilos shipped by rail.¹⁰ Subsequently *paulista* railways carried an enormous tonnage of coffee and, though heavily dependent upon coffee traffic, also stimulated by the application of cheap tariffs the production of a range of agricultural commodities which were consumed in the expanding towns of the coffee zone.¹¹

Aspirations of national integration were more explicitly articulated in early railway projects than vague expectations that construction would somehow promote commercial activity. That railways would unite the Empire was a cardinal tenet of transport policy which underpinned global transport strategy and found direct expression at the level of individual projects. A grand design for the improvement of communications was formulated as early as 1835. Decree 100 of that year authorised the franchising of one or more companies to construct a railway from the city of Rio de Janeiro to the provinces of Minas Gerais (the centre of which lay some 500 kilometres from the capital), to Rio Grande do Sul, approximately 4,500 kilometres south, and to Bahia, another coastal province situated some 5,500 kilometres north of Rio de Janeiro.¹² This grandiose scheme was later modified to provide a marginally less impracticable arrangement based upon an integrated system of railways and river navigation. Lines were to be pushed across the coastal plain, through the escarpment to connect with tributaries of the river São Francisco which would give access to the interior and facilitate communications amongst populated regions. Somewhat dismissive of the potential of coastal navigation, this strategy continued to dominate what might be termed imperial railway planning for much of the nineteenth century.

Several companies incorporated during the 1850s were clearly conceived in terms of the grand design. The inauspicious Bahia and São Francisco Railway Company Limited, and the even more ostentatiously titled Recife and São Francisco Pernambuco Railway Company Limited, both registered in London, bear the stamp of this strategy. The definitive concessions of the EFDPII issued in 1855 explicitly stated that the company was to construct to Minas Gerais. A parallel concession issued by the government of the province of Rio de Janeiro encouraged the company to build to the frontiers with Minas and São Paulo.¹³ These lines, along with the San Paulo (Brazilian) Railway Company Limited floated in the 1860s, were regarded as the bases of a national network. The companies enjoyed substantial government assistance – profit guarantees, loans and state purchases of shares when the money market was slack or private investors proved unwilling to subscribe to rights issues. There was also intense pressure from the Imperial Government during the 1860s and 1870s for these enterprises to pursue active building programmes. Inducements were offered to railway concessionaires to advance the inauguration of original lines, to extend main lines and to open branches. This stress on national integration as a cardinal objective of early railway policy is also reflected in the requirement imposed on all companies that they should conform to the same 5'3" (1.60m) gauge.

Throughout the 1870s and 1880s a plethora of new concessions were designed to drive railheads into the interior, to connect regionally isolated networks and to promote the profitability of guaranteed charter companies. The Imperial Government deemed '... the completion of the works of such importance ...' that it was prepared to concede to the contractors of the San Paulo Railway a bounty of £50,000 *per annum* for each year that construction was finished ahead of schedule.¹⁴ And, well before the opening of the original SPR line, a survey of possible extensions was commissioned by Rio which ultimately served as the basic structure plan for major trunk routes in the interior of the province of São Paulo.¹⁵ When the Bahia and Pernambuco railway companies proved impervious to official exhortations to extend their respective main lines, an exasperated government assumed this charge. Private shareholders in the EFDPII had already been bought out when the original company displayed its inability to support an active programme of extensions.

Official strategy was premised upon two inter-related objectives – (i) the formation of a national trunk railway connecting all major coastal provinces to the capital city and (ii) a series of pioneer lines designed to open up, and to secure central control of, the interior. Responsive to sectional economic interests and tempered by commercial considerations, the underlying thrust of the construction programme was essentially strategic. To this end subventions, bounties and all manner of financial inducements were offered to impresarios

prepared to construct and operate railways. Foreign and domestic stockholders were cultivated and variously induced to develop concessions. Established companies were cajoled to conform with the grand strategy. And, in the final instance, if private capital was unwilling to construct, government would perform the act. An emphasis upon the strategic in imperial railway policy is hardly difficult to explain. The two decades between the promulgation of Brazil's first general railway concession in the 1830s and the successful incorporations of the 1850s, years that witnessed many abortive railway schemes, were a period of recrudescent secessionism when a number of outlying provinces displayed an intermittent attachment to republicanism and a desire for independence. A large drain on the Imperial Treasury, major revolts in Pernambuco and a weary campaign against localism in Rio Grande do Sul were but the more obvious manifestations of the potential for disintegration, and over-shadowed numerous minor revolts and disturbances. The need for vigilance against localism, and for defence of national unity continued to exercise the official mind throughout the third quarter of the nineteenth century, the heyday of the Empire and a period of remarkable economic expansion and political consensus. As in many slave societies, political turmoil was invariably viewed as likely to engender revolt on the plantations. Railways would secure not only the political integrity of the Empire, they would ensure stability and social order.

The importance of the political in national railway strategy was probably heightened by the Paraguayan War and Brazil's territorial acquisitions following the defeat of Paraguay in 1870. Administrations at Rio were always sensitive to political events in the River Plate region and any process which appeared to threaten Brazilian ascendancy in Uruguay, an important outlet for the rural produce of distant, volatile and increasingly dynamic southern provinces. Montevideo provided facilities for the Brazilian naval squadron and afforded the most effective means of communicating with the inland province of Matto Grosso. The Paraguayan invasion of Matto Grosso, incursions into Rio Grande and logistical difficulties encountered during the war revealed the need for construction in the south.¹⁶ If the Paraguayan War had a direct impact upon national railway strategy it was in an enhancement of strategic considerations and a relative shift in the geographical distribution of new concessions away from the north-east and central coastal areas towards the south. In the 1870s the projection of lines 'to reach' Mato Grosso and Goiás assumed a dimension comparable to that of 1850s schemes to construct 'towards' Minas or the São Francisco.

Such considerations outlived the Empire. To the chagrin of *paulista* interests, one of the first acts of the railway administration of the republic was the expropriation of the São Paulo-Rio de Janeiro Company. Registered in the city

of São Paulo, the concern had been franchised by the province and financed by local capital. The company operated a metre gauge service to the frontier with the province of Rio de Janeiro where it connected with the national entity, the broad gauge EFDPII, soon to be renamed the Central Brazil Railway. Having obtained control of the *paulista* company, the national government proceeded to re-gauge the line thereby ensuring easier access to the province.¹⁷ Broad gauge connection with the São Paulo system was also perceived as a means of drawing to the federal capital part of the rapidly expanding trade of Santos. A decision influenced as much by fiscal and financial as by strategic considerations. At the time of the declaration of the republic Santos was poised to become the principal coffee port of Brazil. Declining coffee production in Rio, due to soil exhaustion, coupled with the rapid movement of the coffee frontier in São Paulo threatened to displace the pre-eminent role of Rio and undermine the profitability of that province's railways. The result was competition between railway networks focused upon the two ports for the carrying trade of up-country provinces, and attempts by Rio to syphon off coffee traffic from the 'north' of São Paulo. The coffee trade influenced not only the commercial viability of individual railways but had an impact, too, upon government finances.

A combination of the commercial and the political may also be observed in policies devised to promote regional economic activity or to regenerate once prosperous but now stagnant provinces. If Brazil's early railway legislation grandly envisaged trunk lines emanating from the capital to distant northern and southern provinces, it is instructive that of the four companies that commenced operations in the 1850s, two were located in the sugar zone. Moreover, these same companies were two of the three London-registered Brazilian railways to benefit from gold guarantees. The Bahia line, located in the colonial sugar zone, and the Pernambuco company, operating in a region where cane cultivation was relatively new, were central to government strategy aimed at resolving the crisis in the sugar sector.¹⁸ Imperial railway policy, not least in terms of establishing a geographical balance in the allocation of concessions, was in part determined to placate powerful regional interests. If the over-ambitious 1835 project proposed overland construction to the north-east, lines actually built in the 1850s and 1860s were presented as cost-reducing innovations. These companies, subsequent state railway building and government guarantees on private capital invested in new railway companies and central sugar mills were devised to defend the place of Brazilian sugar in the world market.¹⁹

By the 1870s the Imperial Government was acutely aware of the nature of the crisis in the sugar economy. A buoyant coffee sector had sucked slave labour from depressed sugar plantations which were already facing competition

from Caribbean cane producers, in European markets where cane sugar was being displaced by home grown beet sugar. Hitherto Brazil had relied upon currency depreciation to undercut competitors. During the third quarter of the nineteenth century this option was impaired by the absorption of more efficient cane refining techniques elsewhere and by exchange stability (if not appreciation) resulting from the rapid growth of coffee exports. Given the over-representation of northern provinces in the Empire, it is hardly surprising that the central government acted to support the most important activity in the region. Various attempts to revitalise the regional economy culminated in 1873 in the revision of the general statute which regulated the awarding of railway concessions, and, two years later, in enabling legislation which provided for profit guarantees on investment in central sugar mills.²⁰ The September 1873 railway act was the first major modification in twenty years and was framed to create an institutional environment conducive to the incorporation of private companies, especially concerns licensed by provincial administrations. If the following years witness a flurry of applications for guarantees for sugar railways and sugar mills, successful companies were few.

Proposals of the 1870s to sustain the sugar sector echoed the euphoria of two decades earlier associated with the flotation of the Bahia and Pernambuco Companies which had attracted similar expectations and indeed the EFDPII, depicted as the catalyst of *mineiro* regeneration. Franchised as the line to Minas Geras and São Paulo in 1852, it was argued that the EFDPII would reactivate the mining sector in Minas and stimulate economic activity in the province generally through a reduction in transport costs. Lower freights would facilitate the shipment of ores and widen the market for metal products. More efficient, lower cost transport would also promote diversification into cash-crop agriculture, a process that should further reduce production costs in other sectors.²¹ In the province of Minas Gerais, railways would encourage intra-sectoral growth and inter-sectoral integration.

The public image of imperial railway policy was characterised by the large view of the locomotive and the iron road as innovations likely to modernise the Brazilian polity and economy. Backward and forward linkages would sustain existing agricultural and commercial activities and hasten an industrial transformation. Of equal if not greater utility, railways would secure the integrity of the state, consolidating communications between distant provinces. They offered the first effective means since the establishment of Portuguese authority in Brazil of opening up the interior. Present in the preamble to initial railway concessions, these sentiments reached their apogee in the reformulation of railway legislation in the early 1870s, and found expression in the annual reports presented to Parliament by the Minister for Agriculture, Commerce and Public Works.²² Railways were an influence for economic and social

improvement: the industrial age began with the railways. Only railways could fully meet the requirements of commerce and agriculture: they were a force for national unity and greatness. Consequently, aware that a small population and the weight of technical and commercial problems would initially inhibit private capital, the Imperial state was prepared to assume the onerous financial burden required to give effect to a project for national development based on railways.

The elegance and regularity with which successive ministers pleaded the railway case before parliament was probably founded upon cruder calculations, notwithstanding the plausibility of the grand design. When considering applications for railway concessions during the 1830s and 1840s, uppermost amongst policy considerations was not the question of the nature of financial support required from the public purse by struggling companies, rather government assumed that railways would contribute directly to the exchequer. An early request for the grant of a concession in perpetuity was met with the opinion that after a specified period, railways should revert to the state.²³ It was also considered that the companies might contribute a portion of their receipts to the treasury. The expectation that railways in Brazil were inherently profitable was current for much of the imperial period, despite the depressing evidence of companies' insatiable appetite for government guarantee payments. This may account for the tenacity with which the imperial administration claimed a right to participate in the net profits of the San Paulo Railway. Like other guaranteed lines, the SPR was obliged to reimburse the government when net receipts exceeded a specified limit. In the San Paulo case net earnings above 8% were to be divided equally between the company and the government. Having received a total of £518,443/15/10 from the Imperial Treasury by way of guarantee payments between inauguration and 1873, thereafter repayments commenced as income exceeded the 7% return on investment guaranteed the company under the terms of its concession. By 1887 the guarantee debt had been extinguished. In that year £55,042/5/11 passed to the government.²⁴ Some £132,907/13/1 was due to the government in 1888 and £211,217/9/7 in 1889.²⁵

It is hardly surprising that the company wished to cancel the guarantee clauses of its concessions which stipulated that a portion of net receipts should be set aside for the exchequer. Nor was it remarkable that the government should decline to enter into guarantee abrogation negotiations with the railway. While by this time the allocation of 'excess profits' to guarantee repayment was well established elsewhere, the Imperial Government held that it participated as of right in net earnings above 8%. Sums received from the SPR under this head did not imply guarantee repayment. Ambiguity in the railway's concessions admitted this possibility, though earlier administrations had tended to accept these sums as guarantee repayment. Possibly Rio regarded its income

from the San Paulo as a tax upon a prosperous province and one levied in a form least likely to draw *paulista* disapprobation directly upon the central government at a critical political juncture of mounting tension which found expression in São Paulo in pressure for states' rights and republicanism. Officials at the Ministry of Agriculture, Commerce and Public Works may have regarded payments by the SPR narrowly in terms of the general railway guarantee environment. In this context 'repayment' income from a prosperous coffee line must be set against the continuing dependence of other railways upon government guarantee payments and an inexorable pressure emanating from all quarters for state assistance to promote railways. By 1888 the total annual guarantee liability of the central government was 11.451:157\$299 paper.²⁶ Twenty years earlier this figure had stood at a little more than 3.000:000\$000. By the end of the Empire the state was also responsible for an operating deficit on seven of ten government-owned lines nominally capitalised at over 80.000:000\$000. Notwithstanding the enormous expansion of the state railway sector, there was at this time little criticism of feather bedding, a charge which would later be levied at the administration of the Central Railway in particular.²⁷ Technocrats at the Ministry probably viewed state participation in the operating revenue of profitable, established guaranteed companies as a mechanism permitting the cross-subsidisation of new lines running a deficit.

Thus the grand design of imperial railway strategy endured until the late 1880s, its principal aims associated with laudable, if rarely realised, goals of national integration and progress. Occasionally such aspirations found expression in mundane expedients.

Paulista Railway Policy: Provincial Ambitions and the National Interest

The São Paulo railway network was inaugurated on 24 November 1860 when construction work started at Santos to build the line to Jundiaí, located 86 miles away above the coastal escarpment. On 16 February 1867 the San Paulo Railway was provisionally opened throughout. Santos was the principal port of the province and Jundiaí a medium-sized industrial and commercial town at the edge of the coffee zone, the centre of which lay farther to the west. This railway, similar to many lines subsequently constructed in the province, was built to cater for the coffee trade. Long before the first companies were floated, pressure was mounting for the improvement of communications in the province. Poor roads and the deplorable condition of tracks in the Serra do Mar where torrential rains frequently carried away large sections of the road bed occasioned repeated protests. Throughout the 1850s *fazendeiros* pressed for, and devised, various schemes to improve communications and ensure the better

maintenance of highways and bridges. The provincial administration recognised that the condition of public roads was a prime concern of government given the great distances involved in moving rural products to ports. To this end a large part of the provincial budget was already allocated to road building although it was acknowledged that the situation could be improved. There was, too, concern about the haphazard nature of road building in addition to unease about the inadequacy of the provincial construction programme and makeshift maintenance provision. But, reflecting the inability of muletrains to cope with growing coffee output, planters were above all exercised by the lack of highways suitable for wheeled vehicles. To this end the franchising of turnpike companies was considered, the most ambitious of which envisaged a spinal trunk route from Santos to Rio Claro via São Paulo, Jundiai and Campinas with branches to the north and south-east.²⁸

The nature of these complaints, concerns and projects confirms an existing demand for railways. Indeed, railways franchised by the province in the late 1860s and during the 1870s conformed to a pattern of road improvement and construction schemes current in the 1850s. It was, therefore, not surprising that by 1869 the San Paulo was handling over 40,000 metric tons of coffee and a total freight traffic almost twice that size. Within a year of its inauguration the company enjoyed a traffic density which compared favourably with that of longer established lines, as the table below shows:

Freight Traffic of Select Brazilian Railway Companies 1869
(tons/mile)

EFDP II	1,148.9
San Paulo Railway	904.4
Pernambuco Railway	769.9
Bahia Railway	148.9

Source: Calculated from Ministry of Agriculture, Commerce and Public Works *Relatório apresentado a assembléa geral legislativa na segunda sessão da décima-quarta legislatura* (Rio de Janeiro, 1870), pp. 94, 95.

That the San Paulo should handle such a volume of freight so soon after the opening of the line to Jundiai is testimony to the advances already made by coffee growing in the province and explains also the shrill protests of *fazendeiros* during the 1850s. By 1869 the other companies listed above had been operational for approximately ten years, having completed their original

sections by or before 1860. And it was the coffee trade above Jundiai that drew investment to other companies, firstly for the line to Campinas and later for railways beyond Campinas to Rio Claro and Moji Mirim. While there was some dispute about the existing volume of commerce of these zones, most public debates which preceded the formation of new companies featured accounts of actual, rather than potential, traffic. By the late 1860s trade between

Jundiai and Campinas was reckoned to be in excess of 20,000 tonnes a year, some 10,000 tonnes of which originated above Campinas.²⁹ These estimates appear to have been reasonably accurate. Following up-country railway construction in the 1870s, coffee exports from Santos rose from an annual average of 22,300 tonnes for the triennium 1866-68 to an average of 35,400 tonnes during 1869-71, to 35,900 tonnes in 1872-74 and to 44,300 tonnes in 1875-77.³⁰

All the companies registered in the province of São Paulo were not immediately profitable, indeed some concerns became permanent liabilities on the provincial exchequer, giving the lie to spurious calculations about traffic potential and promoters' hyperbole about the security and profitability of investment in railway companies. Later, unprofitable lines such as the Companhia Sorocabana da Estrada de Ferro were to be justified upon the grounds of public utility rather than economic viability. Nevertheless a sufficient number of the original railways, specifically those constructed in the western coffee region, realised several objectives. These companies, as the above data demonstrate, served an expanding export agriculture. They yielded substantial dividends, a prosperity that was secured by the increase in coffee traffic generated by the steady extension of the agricultural frontier provoked by significant savings in transport costs. On the evidence of San Paulo operating data in 1867, it was estimated that lines in the coffee zone could handle traffic for less than one third of the charges levied by muleteers.³¹ Aware of these possibilities, *paulistas* required little inducement to subscribe to the national plan for railways. Indeed *fazendeiros* had waited nervously for the completion of the SPR from Santos. Their anxiety to procure modern means of communications had been heightened by the early financial and technical problems which had beset the company and a sense that their province was being overtaken by Rio de Janeiro and the north-east, areas in which railway construction had been inaugurated in the 1850s.

For the dominant agricultural and commercial oligarchy in São Paulo railways were both an economic and a commercial success. Reference to the grand design for national integration and vague aspirations of commercial and industrial progress were hardly necessary to convince *paulistas* of the utility of

railways when tangible gains were already to hand. National strategy assumed less grandiose, more specific, objectives in São Paulo. Whereas the Imperial Government in Rio de Janeiro referred to unity and regeneration, *paulistas* observed opportunities to 'capture' the carrying trade of other provinces and potential for sub-regional specialisation, thereby permitting more efficient coffee production. Similarly, while Rio oscillated between emphases upon the strategic or the developmental when considering pioneer lines to the interior, coffee growers' prime concern was that railways should reduce transport costs, either as a function of technical innovation or due to railway companies' ability to attract state subsidies.

De Saes has argued that investment in transport had always been regarded as an integral component of rural based enterprise in São Paulo. This contrasted with the position in established coffee producing zones around Rio de Janeiro where greater specialisation was the norm. *Fazendeiros* in the region around the capital invested almost exclusively in coffee production (that is in slaves and land) while merchants and muleteers financed the transport and commercialisation of rural commodities. *Paulista* planters, on the other hand, tended to operate their own mule trains. Hence for the *fazendeiros* of São Paulo, investment in railways represented little more than an innovative refinement of established patterns of doing business. Operating their own mules, São Paulo planters probably enjoyed a greater degree of independence and wielded more effective bargaining power *vis à vis* merchants than did their counterparts in Rio.³² In a similar vein Odilon Nogueira de Matos has drawn attention to the successful 'capture' and development of neighbouring regions of Minas Gerais, Paraná, Mato Grosso and Goiás by the São Paulo network.³³ Several factors account for the penetration of *paulista* rails into these areas. Construction into northern Paraná and southern Minas, although barely accomplished by the close of the period under study, resulted from the inexorable spread of coffee cultivation. Topographically these zones were part of the coffee belt. Just as during the 1870s railways thrust into the *terra roxa* around Campinas, by the end of the 1880s railheads approached the frontier with Minas and around the turn of the century were poised to enter Paraná. Lines were drawn on by the quest for new coffee lands and the knowledge that volume coffee freight meant railway profits. Central government subventions to push branch and trunk lines into neighbouring provinces were another factor sustaining construction. Coffee income in the 1870s and 1880s provided the principal logic for continued railway building during the early twentieth century. Moreover, once established, the pace of railway construction developed its own momentum, sustained by the pro-railway lobby, popular expectations and competition between companies and municipalities.

In the first instance rivalry among established towns in the coffee zone and

elsewhere sustained building. Later competition between companies and a desire to pre-empt other lines from entering potentially rich agricultural regions induced a continued, if uneven, pace of construction. As related above, long before the SPR opened its line to Jundiaí, *fazendeiros* from Campinas pressed the company to exercise its option to extend westward. When the SPR declined, local coffee producers floated their own line, the Companhia Paulista da Estrada de Ferro, to accomplish this task and in so doing established a precedent for agriculturalists elsewhere in the province. Indeed, even before the Paulista's contractor began work on the roadbed from Jundiaí to Campinas, residents of Rio Claro petitioned the provincial government to ensure that the railway would be pushed into their locality.³⁴ Owners of coffee estates above Rio Claro were similarly anxious that construction should continue apace. When the Paulista declined to implement a guaranteed concession it held for this area, preferring instead to prevent the Mojiana encroaching upon what it regarded as more lucrative territory, residents of Araraquara and São Carlos do Pinhal sought and obtained a competitive franchise and incorporated the Companhia da Estrada de Ferro Rio Claro. While this move may initially have been intended to force the hand of the Paulista, the latter's continuing obduracy provoked the construction of the Rio Claro, an unguaranteed company which thus came to represent a natural prolongation of the CP.³⁵

Some towns were anxious not to be by-passed by railways, others were fearful that lengthy delays in the construction programme might result in a re-siting of commercial flows towards railheads. Yet others sought to consolidate further established roles as regional centres for distribution and trade. When the inhabitants of Itu proposed that a narrow gauge railway be built to Jundiaí, to connect with the SPR, and declined to construct a branch line to Sorocaba, a long-standing rival staging post for traffic flowing to the south of Brazil and to the interior of the province, *sorocabana* protests were loud and influential. Deploring projects emanating from Itu, residents of Sorocaba floated their own company, obtained a concession for a direct line to the provincial capital and in due course proposed that Itu should be served by a branch of their own company.³⁶ Earlier the Municipal Council of Rio Claro had been alarmed to learn that a scheme for a new network of roads, focused on the San Paulo at Jundiaí, envisaged by-passing their town.³⁷ As the example of the EFP demonstrated to the SPR, and of the EF Rio Claro to the Paulista, if existing companies declined to placate offended municipal sensibilities and construct branches or extensions, aggrieved towns were quite capable of floating local railway companies. Most *fazendeiros* were anxious to secure a direct line to Santos. Conflicting claims by coffee growers in different districts were thus likely to delay official sanction of railway routes or result in the franchising of competitive lines.³⁸

Conflicting claims by various localities accordingly influenced the pattern and momentum of construction during the decade or so after 1866; competition between neighbouring companies was a major influence upon provincial railway strategy thereafter. One was in part a function of the other. A common feature of railway concessions awarded at this time was an undertaking by the franchising authority not to sanction competing concessions for a specified period in a designated area – usually 30 kms – along the route to be taken by a company. This area, known as the zone of privilege, became almost immediately a matter of dispute between railways and later provoked controversy when branch lines were constructed. In 1871 the Companhia da Estrada De Ferro Ituana proposed to the Paulista that in the interests of economy the two lines make a joint approach to the Judiai station of the SPR. The broad gauge CP would lay a third rail to accommodate the metre-gauge Ituana.³⁹ To the chagrin of the Paulista the CI subsequently proceeded to open stations in its privileged zone, syphoning traffic which the CP considered should have travelled by road to one of its depots. The dispute was only resolved when the Ituana agreed to surrender to the CP 10% of the revenue earned at stations located within 31 kms of the Paulista mainline.⁴⁰ The episode reveals a lack of forethought in the framing of concessions (subsequently rectified). Perhaps the jealousy with which early companies regarded all potential traffic originating in their respective zones of privilege also demonstrates unease about immediate profitability. Certainly there was a tendency to regard these zones as absolute and to discourage a flow of commerce out of the designated area towards other lines. This flow was to be prevented not so much by a reduction in tariffs as the issue of injunctions to prevent other companies receiving such freight.

Assiduous defence of zones of privilege heightened rivalries and influenced the pace of construction in areas regarded as natural extensions of early trunk routes. Immediate commercial considerations were not always uppermost when a company's desire to exclude competing rails dovetailed with the ambitions of coffee-producers in a given region to secure direct access to the broad-gauge line to Santos. Conflict between the Sorocabana and Ituana illustrates the dangers and problems inherent in the situation. At best operating on the margin of coffee country, the principal agricultural commodities produced in the area served by these lines were sugar and cotton. Neither crop encountered particularly favourable market conditions by the 1870s. Thus the two companies became locked into a zero sum game, constructing extensions in an attempt to secure increased traffic for unprofitable main lines and in order to exclude the other from what were regarded as potentially profitable districts. The result was long-term conflict over zones of privilege, and dispute as to the direction of 'natural' extensions appropriate to each line. A scramble for extension concessions ensued characterised by delays, route changes and a

succession of petitions and counter petitions to the provincial government for franchises or the suppression of awards to the rival company.⁴¹ Confronted by companies pressing for licences to construct and the clamour of landowners for improved communications, provincial government response was often an ill-considered sanctioning of rival schemes. Few promoters hesitated in pressing ahead with such projects when concessions carried a government profit guarantee. Subsequently, however, provincial railway policy was criticised for the profligate approval of schemes that constituted a permanent burden upon the public purse. A related charge, well rehearsed in the provincial legislature and in the press, was that a lack of vigilance on the part of public officials, or an imperfect knowledge of details of railway operation, or indeed the topography of the country, had resulted in the construction of a haphazard railway network congenitally unprofitable and ill-suited to provincial requirements.⁴²

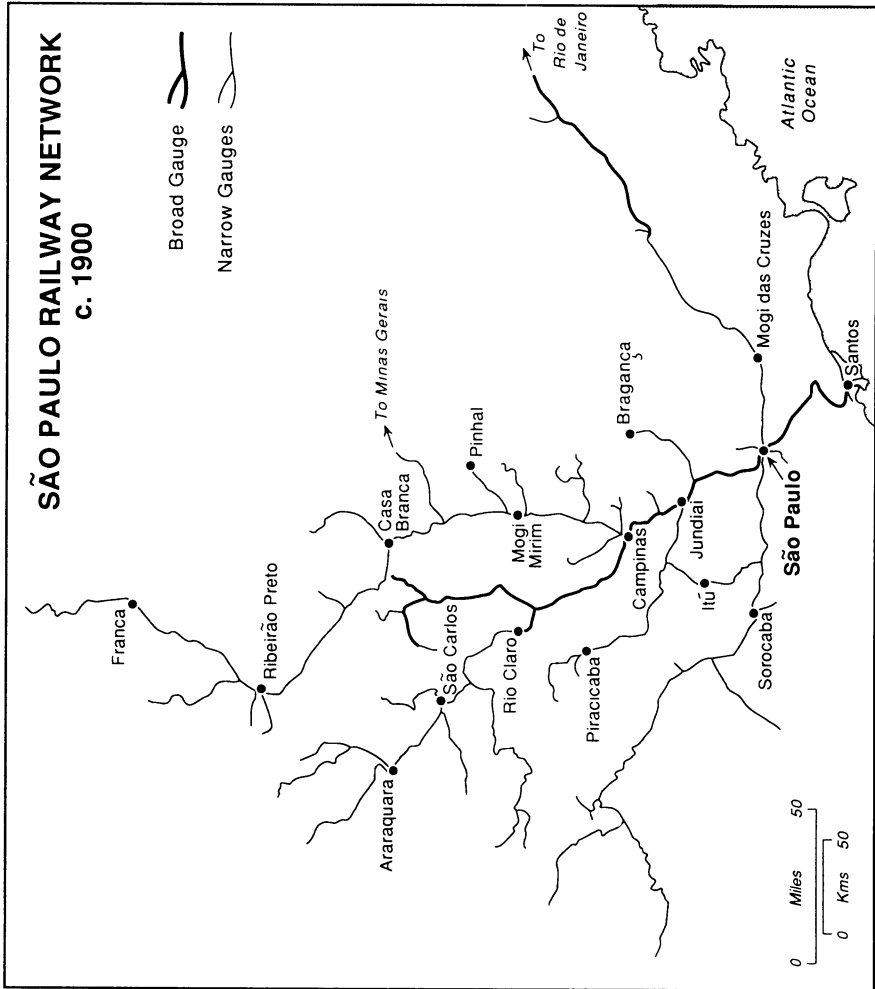
Notwithstanding the special pleading of regional interests, political bickering among different factions and the undoubted influence exerted upon provincial administrations by coffee growers, it would be facile to argue that unprofitable railway building was simply a function of a weak state apparatus unable to arbitrate between the competing claims of different groups. Peculiar circumstances apart, such as the boom in cotton prices that occurred during the US Civil War, *paulistas* recognised that only in the new coffee zone were railways likely to prove financially viable – a situation confirmed by the alacrity with which *fazendeiros* subscribed to lines operating in coffee counties in contrast to the difficulty experienced by companies operating elsewhere in placing shares. However, there were pressing reasons why the province aspired to a more extensive network and why landowners were anxious to socialise construction costs, shifting on to the Treasury the burden of unprofitable construction. By the early 1870s planters were exercised by the prospect of an imminent labour crisis.⁴³ The spectre of labour scarcity crystallised in discussion preceding the passage of the Law of Free Birth in 1871 which, in declaring free all children henceforth born to slave mothers, was viewed as a means of circumventing mounting abolitionist pressure and stabilising labour supply in the countryside. The immediate origins of this crisis lay in the rapid expansion of coffee production in São Paulo, a function of the steady westward movement of the agricultural frontier permitted by railway construction. In the first instance railways eased the ‘labour problem’ in São Paulo, permitting a redeployment of capital and labour towards production. In the long-run, however, the growth of coffee cultivation in new areas made accessible by railways provoked an exponential growth in the demand for labour.⁴⁴ At the heart of the situation lay the intractable problem of slavery. Effective abolition of trans-Atlantic slavery almost a generation earlier denied planters a traditional means of augmenting labour supply. Natural increase in the slave population

was precluded by the dominance of males (who outnumbered females by a ratio of five to four in São Paulo and Rio de Janeiro in 1873) and harsh conditions prevailing. Relocating slaves from urban to rural activities and from depressed, drought-struck northeastern sugar provinces to São Paulo were but temporary expedients given a steady decline in the slave population. The legacy of a system of forced labour was manifest in the ill-treatment of immigrants which further frustrated a flow of free labour from abroad.⁴⁵

Central to the resolution of the 'crisis' in the labour market was a changed attitude to migrant workers and various assumptions regarding the role of railways. In these respects the impact of railways as a cost-reducing innovation was less significant than as a potential for regional specialisation and factor re-allocation within the province. It was recognised that in established coffee areas railways facilitated a dramatic saving in labour engaged in the transport of coffee. Before the construction of the EFDPII, approximately one-third of an estate's workforce may have been absorbed in transporting coffee to market at various times in the season.⁴⁶ Such economies were relatively less critical in new coffee counties by the 1870s. Export agriculture in these zones was a function of rail construction *per se* and provoked a scarcity of labour in other areas. Hence it is hardly surprising that nearly contemporaneous with the passage in Rio de Janeiro of the Law of Free Birth came the establishment of immigration promotion companies in São Paulo. These schemes were designed to supplement and supercede existing arrangements by the Imperial Government.⁴⁷ Ear-marking funds to subsidise attempts by *fazendeiros* to establish nuclear settlements for immigrants, the provincial government acknowledged the failure of earlier schemes to promote free migration from Europe to the coffee zone. Now the construction of railways in areas unsuited to coffee cultivation, notably in southern districts, would make land available to settlers who could raise food staples on small farms for the local market.⁴⁸ By reducing transport charges and the cost of setting up a business, railways might encourage small-scale producers to enter the market. Financing unprofitable railway building was thus an aspect of a larger programme aimed at providing the province with an effective system of transport. Endowed with a modern infrastructure and a progressive immigration policy, São Paulo would prove as attractive to European immigrants as the USA. A prosperous farming sector, yielding a surplus of basic foodstuffs, would enhance the viability of the coffee economy, permitting planters to specialise in the production of exportables, concentrating slave labour in coffee production while purchasing basic items in the market place. As an added bonus, viable rural colonies might increase rates of population growth in the province and aid the formation of a labour market. Such, by the mid-1870s, were the aspirations of *paulista* railway strategy, predicated upon the faculties for regional specialisation and market integration attributed to railways. Tangible assistance was offered to immigrants

SÃO PAULO RAILWAY NETWORK c. 1900

Broad Gauge
Narrow Gauges



by the EF Paulista in 1882. The company provided free passage to coffee areas. Provincial legislation of 1884 and 1885 required all companies to carry immigrants and their effects free of charge.⁴⁹

Provincial aspirations dovetailed with national strategic considerations. Local interests applauded central government policy which conferred upon the EF Sorocabana the task of establishing trunk communications with southern Brazil or admitted that the Mojiana or Paulista were poised to open up the interior of the country.⁵⁰ Aware of the long-term benefits of a large sub-national system focused upon São Paulo, *fazendeiros* were most appreciative of Imperial Government assistance to complete the provincial network in the south and to a lesser extent towards the north-west.⁵¹ Following initial enthusiasm and the flotation of several lines in rapid succession, the late 1870s witnessed a slackening in the pace of construction. All companies experienced difficulty in raising finance. For some, notably the non-coffee concerns, the problem was acute. By December 1874 the Sorocabana had exhausted its original capital. Nominal capital expenditure on the main line stood at 5.410:837\$077, substantially above the authorised expenditure of 4.000:000\$000 which carried a provincial 7% guarantee.⁵² And branch lines had not yet been completed. The EF Ituana was hardly in a better position. Although expenditure on the main line fell within the maximum to which a provincial 7% profit guarantee applied, the business was under-capitalised and the line poorly constructed, as revealed by a succession of accidents and derailments that plagued the company during its first months. Government inspectors required the company to improve locomotives and rolling stock, regrade, reblast and retrack sections of the permanent way and generally improve facilities.⁵³ Remedying these defects entailed substantial additional capital expenditure while operating costs soared, due to poor construction, eroding profits and discouraging shareholders from subscribing to new issues.

Given the tightness of local money markets, weaker lines pursued several solutions. Transfer to the state was contemplated, as was raising additional finance abroad. But procuring additional profit guarantee was the preferred solution. Indeed an extension of government guarantee cover was essential if further funds were to be obtained at home or abroad. Here at least was a correspondence of interest amongst potential national investors in railways, *fazendeiros*, the provincial administration and also the central government. Influenced by the precarious position of the Sorocabana and lobbied by local agriculturalists anxious that the company should complete branch line construction, the Imperial Government was compelled to support the enterprise and, indirectly, the hard-pressed provincial treasury. Under the terms of Decree 5738, issued on 26th December 1874, the central government agreed to augment and finance the original provincial guarantee and to extend additional

cover to complete construction of a strategic branch to Ipanema where an iron foundry was located. Subsequently, by a retroactive award, the province recognised the augmentation of guaranteed capital on the mainline and feeder spurs, though declined to cover the Ipanema branch.⁵⁴

All companies warmed to the prospect of central government financial support which, whatever its long-term objectives, might resolve immediate embarrassment or provide a means of securing a company's position *vis à vis* that of a rival through strategic trunk line building. Provincial railways responded with alacrity to a request from Rio de Janeiro for suggestions upon the most effective means of establishing communications with Mato Grosso, seeking sponsorship for their respective projects.⁵⁵ Interest faded when the Imperial Government indicated that the only financial inducements likely to be attached to the concession were a mileage subvention to assist construction and free land for the right of way.⁵⁶ But, as the Mojiana later discovered, by constructing across the São Paulo provincial frontier it was still possible to acquire guarantees from other provinces. And, as provided by the Railway Law of October 1882 (the last major piece of railway legislation enacted during the Empire), if inter-provincial lines were deemed to be of national utility, the guarantee would be underwritten by the central government.⁵⁷

Yet the long-term benefits to São Paulo resulting from national strategy were substantial. The ratios of provincial to national railway miles and surface area were 1:5 and 1:34 respectively by the fall of the Empire. Not only was the province endowed with a disproportionate share of the national railway network, the São Paulo system was more effectively integrated and enjoyed strategic trunk communications with neighbouring provinces thanks to the Imperial Government's desire to open up the interior. An extensive sub-national system was by this stage focused on the broad-gauge line running out of Santos into the heart of the coffee district. Metre gauge arteries ran northward into Rio de Janeiro and Minas, and railheads, were forging southwards to Paraná and Santa Catarina. The realisation of ambitious projects for through rail communications to Rio Grande do Sul and links with Goiás and Mato Grosso still lay many decades in the future. But this expanding system served the dual purpose of placing a future agricultural zone at the disposal of the city of São Paulo and, more critically, centralising coffee exports upon the port of Santos. There can be little doubt that inter-provincial commerce and the routing of up-country coffee exports over *paulista* rails produced additional profits for investors in the São Paulo railway system. This increased volume of freight and the income that it generated may have reduced claims for guarantee support that would otherwise have fallen on the provincial treasury and could also have resulted in lower charges for local users.

By the turn of the century São Paulo was one of the fastest growing cities in Brazil, its expansion promoted by coffee, the consolidation of manufacturing activities and its role as a regional commercial centre. In this respect the *paulista* rail network sponsored a degree of agricultural and commercial specialisation far greater than that anticipated in the 1870s. The coffee zone could now draw upon basic food supplies beyond the confines of the province. Research on the Paulista and Mojiana indicates that in relative terms the importance of coffee freight peaked during the early 1880s. Thereafter, notwithstanding the enormous growth of coffee traffic, other commodities gradually undermined the earlier primacy of exports in goods traffic.⁵⁸ Those companies, like the Sorocabana, which had never handled large quantities of coffee, began to carry a range of agricultural products – foodstuffs and industrial raw materials – destined for the expanding urban centres of the *planato*. By the early twentieth century the state of São Paulo claimed to possess an industrial capacity second only to that of Rio de Janeiro. Some 924 industrial enterprises, employing 32,979 workers, were registered in 1909. These firms and the state's total population, then approaching two and three-quarter million, had long represented a dynamic local market provisioned by the railway network.⁵⁹

Crucially, railway building to, and beyond, the frontiers of the province/state secured the dominance of Santos as the premier coffee port in Brazil. A vital consideration during the period under review, it was to become an enduring consequence of provincial/national railway policy that the *paulista* network should continue to handle the bulk of the country's coffee trade even when other states began to plant coffee bushes. By establishing trunk routes into southern Minas and harmonising river and rail communications in the far west of the province during this period, and by constructing into northern Paraná, the frontier development policy of the provincial railway industry guaranteed that coffee would continue to be commercialised by interests located in São Paulo and that the subsequent increase in the export tax base would benefit the provincial exchequer. This move enhanced the role of *paulistas* in national decision-making and in the determination of coffee policy.⁶⁰

There were also more specific, more immediate gains. Firstly, command of coffee traffic strengthened the financial position of *paulista* companies; second, fiscal gains accrued to the provincial administration. These positive returns underscored lasting benefits to be derived from imaginative strategic construction. While railing against the San Paulo, complaining both about that company's profitability and its refusal to construct further into the coffee zone, *fazendeiros* were schooled to appreciate quasi-monopoly properties enjoyed by public utilities and already viewed the Paulista as consolidating the hold of broad gauge rails upon up-country districts whether served directly or

developed by metre gauge lines. Equally compelling were the contrasting fortunes of, on the one hand the Ituana and Sorocabana, and on the other the Mojiana and Paulista. The lesson learnt from these lines was that operating profits depended upon control of coffee traffic. Although coffee cargoes might decline in relative importance, volume growth sustained the absolute importance of this commodity. Moreover, other items usually paid lower freights than coffee and coffee represented long-haul traffic. Thus it is hardly surprising that after 1889 the cardinal tenets of state railway strategy were (i) somewhat desultory attempts to break the stranglehold of the SPR by constructing metre gauge access to Santos from the coffee zone, and (ii) the coordination of all subsequent building, not least that franchised or directly undertaken by the central government, in the south-west and north to ensure a focus upon existing trunk lines.

Viable railways, functioning in coffee-producing zones or placed to commandeer traffic from up-country districts, clearly eased the guarantee burden borne by the province. Within four years of operation the Paulista began to repay previous advances received from the province in order to make up the difference between net earnings and the rate of profit originally guaranteed. Between 1870 and 1873 the CP was paid by the province a total of 386:285\$985. Repayments by the company during 1874 amounted to 25:628\$609. In 1882 this debt was extinguished with the repayment of a final instalment of 130:897\$473.⁶¹ The Mojiana followed a similar course between 1878 and 1886.⁶² With the Paulista embarked upon guarantee debt repayment, the province considered that the most difficult phase of promoting local railways was over. Observing that between 1870 and 1876 some 2,364:218\$858 had been made available to guaranteed lines, and that sanctioning further guaranteed concessions would compromise provincial finances, the São Paulo administration noted that indirect assistance was already available. Corporate earning potential was enhanced by highway improvement that secured a flow of traffic to stations. And the general level of economic activity in areas served by railways was increased by a programme of rural colonisation and immigration. The province also offered support to companies that needed to attract labour.⁶³ With the Mojiana poised to commence guarantee repayments, the province wondered whether direct support was any longer necessary now that railway companies were of proven utility and profitability.⁶⁴

Such sanguine prognostications were premature and engendered more by the parlous state of provincial taxes than the likelihood of a general cessation of dependence on guarantee payments by all companies. While the financial success of some companies and guarantee repayment by others was vaunted as both the achievement of, and the justification for the system, it is instructive that by the end of the 1870s provincial administrations were much more frugal

in sanctioning guaranteed lines. Nevertheless, the viability of companies in the coffee zone permitted the concentration of scarce finances upon railway enterprises operating elsewhere. If São Paulo was disinclined to finance new guarantees, the province was prepared to sponsor railway constructions in the south and south-west, ultimately assuming responsibility for the Sorocabana and Ituana when private initiative was exhausted. Thus the long-term viability of coffee lines, sustained by extra-provincial traffic, permitted in later years a more generous subsidy of railways functioning in other districts. In effect, a programme of cross-subsidisation was possible.

Finally, there were direct fiscal gains accruing to the province from control of the coffee trade. During the Empire sources of revenue available to the provinces were limited. The most common, though of declining value given increased competition in world markets, was the taxation of exports. Goods destined for overseas markets were taxed not at the point of production but at the dockside. Before the 1860s the principal exports of the province had consisted of tobacco and sugar. Raw cotton production and exports had increased dramatically during the US civil war. When Brazilian cotton faced competition in international markets, agriculturalists clamoured successfully for a reduction in, and later the abolition of, provincial export duties. Thus coffee remained the most taxable of São Paulo's rural exports, by the end of the 1870s providing virtually the only source of income under this head.⁶⁵ Although, with the decline in coffee prices in the following years *fazendeiros* also pressed for the removal of export taxes on coffee, the province was anxious to channel as much coffee traffic as possible through Santos. Before rails were laid in the north of the province, it was generally assumed that the focus of the sub-provincial economy upon Rio de Janeiro was detrimental to both the region and the province.⁶⁶ Little wonder provincial interests were appalled by the nationalisation of the São Paulo-Rio de Janeiro Railway, its incorporation within the Central system and conversion to broad gauge, a move that was interpreted as a ploy to divert trade from Santos to Rio de Janeiro.⁶⁷

In the main, national railway strategy complemented and furthered provincial aspirations, yielding for São Paulo by 1889 a network of communications attuned to the requirements of a moving coffee frontier. Connections with Minas and Rio were established by the fall of the Empire. If large tracts of territory in the west of the province were devoid of rails, a system of trunk lines had already penetrated the major river valleys along which railhead would forge into virgin territory ideally suited to coffee growing. By this stage the general direction of main line services to the south had also been fixed. In short, the provincial network was poised to emerge as a sub-national rail system which, despite inconvenience occasioned by breaks of gauge and diverse corporate management, enhanced São Paulo's primacy as a coffee producer

within Brazil. Whether or not the province's coffee ascendancy was a special objective of central government railway policy, there can be little doubt as to the general gains resulting from improved means of transport nor of *paulista* pretensions in this direction.

Provincial Perceptions of Central Government Policy

A transient coincidence of aspirations, a degree of correspondence in terms of national and provincial government objectives and real practical achievement in São Paulo did not result in a harmonious relationship between *paulista fazendeiros* and Rio de Janeiro. On the contrary, serious conflicts of interest were manifest soon after the inauguration of the San Paulo Railway and multiplied as pressure for additional construction mounted. Antagonism was fuelled by disputes over jurisdiction and the specifics of railway operation.

Issues of jurisdiction and questions of competence were inherent in the formulation of early railway projects, problems that were exacerbated by technical and financial difficulties associated with railway building in Brazil. Provinces were competent to franchise and regulate entities that functioned within their boundaries. The central government could also award concessions to companies that would operate exclusively within the confines of a single province. Provincially franchised lines had, however, to conform with the general requirements of national railway legislation while all limited companies had first to obtain authorisation from the Council of State in Rio de Janeiro. For much of the period, regulations regarding limited liability were extremely restrictive. All railway companies – whether franchised in the province or functioning under the terms of a national concession – were thus required to submit their memoranda and articles of association to the Council for approval. In addition, it became the practice to send to Rio details of any railway schemes devised within the province. The Ministry of Agriculture, Commerce and Public Works was asked to comment upon various aspects of provincial railway concessions, not least projected, routes in order to resolve matters of competence and prevent competition between provincial and national schemes. Given the highly centralised and bureaucratised administrative apparatus of the Empire, this practice was hardly surprising. Indeed the very novelty of railways and the potential financial burden explicit in guaranteeing construction encouraged caution on the part of impecunious provincial administrations. Nevertheless, the need to seek authorisation from Rio for certain aspects of public works projects and institutional ossification at the centre towards the end of the Empire yielded ample opportunities for conflict.

After the 1870s, in part fuelled by expanding provincial revenues associated

with coffee prosperity, *paulistas* began to fret at what was regarded as excessive supervision of the provincial economy by Rio de Janeiro. Subsumed in a general debate about the dangers of centralisation,⁶⁸ these fears surfaced in protests against attempts to milk the province and in complaints at the check on provincial initiative represented by a lethargic imperial bureaucracy. These concerns were epitomised in local responses to the expropriation of the SP-RJ railway detailed above and in earlier accounts which contrasted the efficiency of that privately-owned company with the performance of the EFDPII.⁶⁹ Specifically, provincials complained at delays involved in obtaining approval from the central government for projects regarded as of vital local interest. When the number of schemes submitted to Rio had been limited, either due to scarcity of provincial funds or lack of familiarity with railways, friction was limited. As the volume of submissions grew and familiarity with project formulation increased, attendance upon central government decision became more irksome. Extension building compounded the problem. Expanding networks implied increasing a company's capital base which meant modifying memoranda of association, permission for which had again to be sought from the Council of State. And if a company proposed to finance new construction by borrowing abroad, specific sanction was necessary from the Ministry. Extensions sometimes brought companies into conflict with each other and occasioned yet another instance of reference to Rio de Janeiro.⁷⁰ Months might pass before an answer could be obtained to even minor financial questions. And it was little consolation to an aggrieved company when, after national officials in São Paulo had insisted that only Rio could resolve a dispute, the appropriate Minister adjudged the point at issue to fall within the purview of the province.⁷¹ Complaints and frustrations accordingly intensified during the mid 1880s when a hardening of the bureaucratic arteries appears to have set in. Negotiations for the abrogation of the San Paulo guarantee, which opened in 1887 and were still unresolved at the declaration of the republic, may have been complex, but were not unrepresentative of the tortuous pace of company-central government dealings at that period.

If companies bemoaned time taken by administrations at Rio to decide upon specific matters essential to medium term management strategy, and were apprehensive at the consequences for commercial decision-making of the need to refer an expanding range of questions to central government, general aspects of national policy disturbed a broader spectrum of the provincial oligarchy. Attempts by the Imperial Government to ensure a suitable geographic spread of railways in order both to satisfy general aspirations for national integration and demonstrably to placate various sectional interests were often misconstrued in the province. *Paulista fazendeiros* observed that notwithstanding early provision for companies in the north-east, centre and south of the country, railways were successfully floated in Pernambuco, Bahia and Rio de Janeiro

while projects to construct out of Santos floundered. Contrasting approaches in the 1860s to the technical, and related financial, difficulties of the EFDPII and San Paulo Railway were also noted. The central government had subscribed a portion of Dom Pedro II equity capital and responded promptly to that company's subsequent financial embarrassment. When the market response to initial share placements and subsequent calls for capital had proved sluggish, loans had been under-written by the Imperial Government and foreign funds directly procured for the company. When shareholders balked at the task of financing construction through the coastal escarpment into the upper Paraíba Valley the central government responded to Rio coffee producers' clamour for further railway building by buying out private investors and funding extensions from the Exchequer. The high cost of constructing beyond the narrow coastal plain behind Santos, which was recognised as the critical factor inhibiting the incorporation of the SPR, met with little further support from the Imperial Government other than a willingness to guarantee 5% on an admittedly large capital base.

Most early Brazilian projects carried a central government profit guarantee of 5%, supplemented by 2% from the provinces. By the 1850s, 7% was the standard guarantee for Latin American railways. This was the rate offered by the province of São Paulo on its own account after 1866, having realised as early as 1862 that the Imperial Government could not be expected to underwrite further guaranteed construction in the area.⁷² A view emerged that provincial projects were under-funded by Rio de Janeiro. Legislators complained that only São Paulo actually paid the 2% supplementary guarantee. When the provinces of Bahia and Pernambuco defaulted on these obligations, the central Ministry of Finance assumed full responsibility for the 7% due to Bahia and Pernambuco shareholders.⁷³ General resentment at what was perceived as ineffective support for *paulista* lines was heightened by a parsimonious initial response from the Imperial Government to persistent specific pleas for assistance on behalf of the Sorocabana. Administrations at Rio probably guessed that São Paulo was capable of financing construction without further access to central funds, an assessment confirmed by the *paulista* railway boom during the 1870s. Other provinces were more deserving of direct state aid. The force with which these grievances were held in São Paulo may be questioned. *Fazendeiros* would undoubtedly have welcomed extra funds but were equivocal about the price to be paid for central government involvement in lines functioning in the province. There is evidence that the coffee sector would have appreciated direct dealings with the SPR and that there were efforts to exclude private Rio money from the project.⁷⁴ Latent hostility to central authority may also be found in the formation of the SP-RJ railway and expressions of alarm as the EFDPII railhead approached and crossed the provincial frontier.

Later, national government sponsorship of construction was viewed as far from costless, no matter how vociferously demands for national construction were enunciated or how assiduously local companies sought to bend Rio de Janeiro's programme of strategic trunk lines to corporate requirements. *Paulistas* wanted central government support, but on their own terms. The quest for national trunk line franchises was tempered by a recognition that national policy might hold adverse financial implications for the province. One company's gain could involve an extra charge upon the *paulista* exchequer if another line lost traffic and revenue. Various local interests deprecated ill-considered national concessions that, no matter how lucrative for an individual company, threatened lines holding a provincial guarantee. Potential for inter-government conflict which might disturb the delicate relationship between province and centre was inherent in any arrangement involving over-lapping jurisdiction. The allocation of railways concessions, however, threatened to disrupt more than easy intercourse between Rio de Janeiro and São Paulo or to exacerbate further inter-company relations already riven by controversy about zones of privilege and regions suitable for 'natural' extension. The scramble for central government subsidies by individual companies exaggerated fissures within the provincial railway lobby and contributed to a general re-appraisal of *paulista* perceptions of railway economics.

Conflicts of governmental competence had emerged as early as 1870 with the formation of the Companhia Paulista extension concession. An option to construct between Campinas and Rio Claro had been granted to the San Paulo Railway under the terms of that company's concession with the Imperial Government, which provided for the line from Santos to Rio Claro to be built in several stages. *Fazendeiros* were frustrated at the slow pace of negotiations between the SPR and the central government and were alarmed at what was regarded as the government's unwillingness to exert sufficient pressure upon the London company to abandon its option. Therefore they obtained from the provincial legislature a duplicate concession for a line to Rio Claro. The delay in resolving this controversy was prejudicial to the interests of the Companhia Paulista which had already built from Jundiai to Campinas and was anxious to extend on to Rio Claro. Delay was also inconvenient to planters who had entered coffee production. The upshot was a flurry of communications and resolutions between Rio and São Paulo, each administration claiming authority to franchise a line out of Campinas. Ultimately, the SPR renounced its right to build (though after much agonising) and the Imperial Government promised to respect local opinions.⁷⁵

Disputes regarding conflicts of jurisdiction subsequently faded during the ensuing boom when the provincial administration exclusively franchised lines

in São Paulo, if after due reference to Rio de Janeiro. Tension returned during the late 1870s, exacerbated by tightness in money markets and the very different conditions in the railway industry at the end of the decade. It was this combination of circumstances which provoked a reappraisal of provincial railway strategy and disturbed the prevailing consensus within the pro-railway lobby. Financial stringency caught many companies at a critical point in their respective programmes of expansion. These circumstances made provincial lines more responsive to national strategy and occasioned a review of the most appropriate methods of financing social overhead projects. Competition by *paulista* railways to secure imperial franchises again emerged as an issue dividing Rio and São Paulo, revealing sharp differences between provincial expectations as to the function of railways and national strategic interests. National programmes that undermined the profitability of provincially supported lines were of particular concern.⁷⁶

General discussion about future provincial railway policy commanded the attention of *fazendeiros*. The principal issue at this juncture was the setting of rail freights. The debate was potentially most damaging in terms of *paulista* perceptions of interference by Rio which was likely to be detrimental to regional economic well-being. Railway tariffs were an unending source of controversy dividing various groups. Resulting from an increasing sophistication that came with the greater maturity of the local capital market, *fazendeiros* financing railway construction as ancillary to agriculture took a different position on the tariff to that of shareholders who regarded railways largely as a field for profitable investment.⁷⁷ Much discussion about railway financing and the nature of guarantee support for individual companies related directly to freight rates even if cast within the context of developmental versus commercial enterprises. Was the guarantee system to be employed to subsidise public utilities supplying low-cost services to consumers, utilities that levied rates which did not recover operating expenses? (This issue is addressed further in the following section.) It was gradually established during the 1850s and 1860s that a return of 7% was an acceptable remuneration on railway investment. Profit guarantees were set at this level and if guaranteed lines were permitted to earn a point or two above that figure, higher profits would result in state intervention to reduce tariffs under the terms of a company's concession. Non-guaranteed lines were empowered to apply charges sufficient to yield 7%. A prospect of regular dividends at this level was clearly sufficient to attract foreign investors and was at this stage apparently enough to satisfy domestic capitalists. In 1873 and 1874, when the Paulista was making repeated calls on Rio Claro extension shares, original shareholders were receiving a real income of approximately 10% (only 170\$00 of the 200\$000 having been called). But as Paulista equity was changing hands at between 210\$000 and 230\$000, the return on market valuation was almost exactly 7%.⁷⁸

Consensus on acceptable levels of corporate profitability was not easily translatable into freights for specific commodities, certainly not during the early years of railway operations when the volume of potential traffic could only be estimated. Against this background, controversy about tariffs was inevitable. Perhaps it was also inevitable that planters who controlled mainly up-country lines authorised by the province should direct most of their antagonism towards the British-owned San Paulo Railway franchised by the Imperial Government. Odium was heaped upon the central government. Rio was accused of conniving at freight rates that constituted an impost upon the provincial economy. The centre was also castigated for failing to regulate the SPR and for being at best insensitive to provincial requirements. From the first there was criticism about the charges levied by the company. These commenced with expressions of outrage at the scheme devised to finance the bounty paid by Rio to Robert Sharpe and Sons, railway contractors, for the early completion of the Santos-Jundiai line. Planters applauded the inauguration of the railway ahead of schedule: they objected to the tariff surcharge earmarked to recover for the Imperial Government the cost of the contractor's bounty. Central government profligacy brought gain to a small clique of individuals – the contractors and capital city financiers who held the original SPR concession – and imposed a major burden upon producers.⁷⁹ The company was alarmed both by the outrage which followed the surcharge and the possible impact upon future growth of traffic. The additional tariff which raised freights 30% above the legal maximum established in the concession represented a heavy burden for the industries of the province. If the contractors' bonus was to be financed by means of a surcharge on freight rates, the company would have preferred a substantially lower charge levied over a longer period. Accordingly the SPR reduced tariffs to force the government's hand.⁸⁰

Tariffs were an unending source of friction and it was in the interest of companies to blame government for delays in downward revisions of rates when faced with demands from irate customers for cheaper transport. As the volume commodity, companies were particularly loathe to reduce coffee tariffs, on the contrary if additional funds were needed, coffee was the first item to be surcharged. Issues of debentures were often secured upon ear-marked hikes in coffee schedules. Pressure to reduce coffee freights was usually countered by the retort that lower rates on coffee jeopardised extension programmes.⁸¹ This view was not peculiar to locally financed lines. Irrespective of whether or not they were owned by local or foreign capitalists, privately financed public utilities argued that the profitability of agriculture depended on railway modernisation and extension. Good dividends and buoyant share prices were essential to the retention of the confidence of investors and thereby ensure access to funds required to underwrite new construction. Nevertheless, it is difficult to avoid the conclusion that one of the most intense campaigns to

reduce rail freights ever conducted in the province was frustrated by the Imperial Government. Substantial growth in coffee exports after the late 1870s, triggered and sustained by investment in railways, initiated a regular decline in price which by the beginning of the following decade had come to be perceived as both acute and permanent. Planters lobbied for official assistance and sought immediate relief in a reduction in rail freights which now pressed upon profit margins. By 1883 a general revision of freights based on differential tariffs declining over distance was offered by the companies as a palliative to crisis on the *fazendas* and as an alternative to across-the-board reductions. Indeed, the companies once again declared that a general lowering of tariffs would disrupt long-term extension building (upon which new coffee plantings were dependent). They also argued convincingly that provincial export taxes levied on coffee at Santos constituted as great a burden for producers as the cost of transport to the port from the heart of the coffee district. However, introduction of differential tariffs to be applied throughout the network depended upon the adhesion of the SPR over whose rails all coffee exports and much other traffic travelled. It was two years before the Imperial Government could be prevailed upon to accept a revised tariff for coffee and general merchandise on the Santos-Jundiaí line.⁸² Only then was it possible to apply throughout the province integrated differential freight schedules which granted substantial reductions on long-haul traffic. Companies operating under provincial concessions, that had unilaterally applied limited reductions on sections of their respective networks or had abandoned surcharges, were incensed at this unconscionable delay, as was the San Paulo Railway which bore the brunt of criticism at official procrastination.⁸³

Unwillingness by the state to forego what was tantamount to a transit tax featured in the final tariff revisions implemented by the British-owned company at the end of the Empire. As indicated above, Rio de Janeiro was clearly influenced by ever increasing payments made by the SPR to the legation in London. The size of sums received from the company encouraged the government to procrastinate over guarantee abrogation negotiations (upon which tariff revisions in part depended), changing its position on the interpretation of the SPR concession and technical details regulating state-company relations in order to maintain a participation in the line's profits. Claim and counter claim were made by both protagonists and a propaganda campaign waged in the local press. Company and government each publicly maintained a commitment to reduce tariffs and to withdraw a special mileage supplement levied by the railway on all freight carried across the coastal escarpment, reforms which, it was argued, were being frustrated by the opposing party. In 1889, following what was in effect a unilateral abandonment of the guarantee, the company immediately reduced tariffs upon its own responsibility.⁸⁴

By the late 1880s the SPR had become alarmed at widespread complaints emanating from many parts of the province. Falling coffee prices and increased volume of production occasioned demands for lower tariffs and protests that the railway was unable to handle extra traffic. Critics contrasted the plight of *fazendeiros* with the large sums earned by the line and hinted at an unholy conspiracy between the company and the central government to share monopoly profits extracted from hard pressed coffee growers. Criticism and protest crystallised in a project to construct an alternative route from Jundiai to Santos. Anxious to preempt such a move, the company indicated its willingness to reduce freights and retorted that various long-projected solutions to accelerate the shipment of coffee were frustrated by the need to obtain official sanction for even minor works and modifications to operating schedules.⁸⁵ Only by escaping from excessive regulation could the company hope to provide an effective service for consumers.

A succession of tariff disputes during the 1880s made for an uneasy relationship between the companies and the dominant oligarchy. These disputes indicated that investment in railways was becoming more diffuse. Railway share ownership was no longer the exclusive preserve of coffee planters. Perhaps these conflicts also signalled the slow shift of capital from agriculture to other activities. In addition, they served to concentrate attention on the nature of government regulation, particularly central government intervention in processes of commercial decision making. Conscious of their public image, it is hardly surprising that the companies should seek to deflect antagonism away from themselves. The Imperial Government was a convenient target both for companies registered abroad and for lines privately financed in the province. There was certainly a rising tide of complaint directed at Rio de Janeiro by all companies in the late 1880s. This is not to say that the central government always opposed downward revisions of freights, or had invariably adopted a distant, dilatory posture in dealings with São Paulo. On the contrary, Rio had sometimes requested a lowering of tariffs and had provided meaningful assistance to some enterprises. Yet by the end of the period studied there is evidence of bureaucratic inertia at the centre, if not of incompetence. And specific issues affecting the railways were absorbed into the larger debate about centralisation and states' rights which in São Paulo often camouflaged crude demands for direct action in areas vital to dominant agricultural and commercial interests. Railways problems coalesced with other antagonisms between the province and the centre that resulted in *paulista* pressure to modify a political system within which powerful sectional forces considered themselves to be under-represented.

Financing Provincial Railways

As has been remarked, São Paulo was exceptional in Latin American railway history on account of the large investment of local capital in the sector. What distinguishes São Paulo from other parts of the continent, and indeed the rest of Brazil, is not that local funds were drawn to railways *per se* but that direct private investment in the companies was provided from regionally and socially diverse segments of the province (though obviously largely deriving from the rural sector) and was sustained over time. Elsewhere, national entrepreneurial initiative characterised only the early phase of railway development, public sector and/or foreign funding became the norm thereafter.⁸⁶ A plausible explanation of this phenomenon, and one not without some foundation, is that in the case of São Paulo government and foreign capital was unavailable therefore local capital was compelled to assume a direct role. But this begs the fundamental question, why did not the state or the foreign investor act in the province as in other parts of Latin America.

The reluctance of the Imperial Government to allocate large sums to *paulista* railways has, in part, been explored above. Initially the need to make adequate provision for railways in several regions of the country, coupled with the view that local capital was available, constrained central government initiative. Central resources were in any case limited, particularly during the late 1860s and for much of the 1870s when the attention of Rio was riveted upon sustaining the war against Paraguay and re-establishing the country's credit overseas. It is noteworthy that during the period major revisions of railway legislation were concerned principally with the question of finance, though addressing also matters pertaining to regulation and strategy. The first general enactment, the decrees of September and October 1835, were about routes and operating conditions. Subsequent legislation was more specifically related to finance, due no doubt to the failure of any early scheme projected within the 1835 legislative framework to proceed beyond the discussion stage.

Students of Brazilian railway legislation declare decree 641 of 26 June 1852 to have been a major advance upon the general conditions for the franchising of concessions set out in decree 100 of 31 October 1835. The principal differences were measures specifically designed to resolve a set of practical difficulties that had hitherto inhibited the incorporation and financing of railway enterprises. Three inducements were offered to would-be concessionaires: duty-free importation of material and equipment, delineation of an area within which no competing railways would be franchised for a pre-determined period and a guaranteed rate of return of 5% on capital.⁸⁷ These reforms were all attractive to potential promoters and investors, but the conferment of a

guarantee was, as has been argued elsewhere, of crucial importance.⁸⁸ While this enactment did not provoke a rush for concessions, five companies were floated in accordance with the terms of decree 641; all except the San Paulo were incorporated during the 1850s. The principal defect of this innovative legislation was that it proposed 5% when 7% was becoming the recognised rate for railway guarantees. A number of provinces accordingly offered a supplementary guarantee of 2%. By the 1860s, 7% was the standard guarantee available in Brazil. Nevertheless, decree 641 did provide guarantee payments in sterling to companies registered abroad for up to ninety years. Yet progress was disappointing, the flow of private funds (domestic and foreign) into the railway sector was limited. The times were not propitious. If the end of the transatlantic slave trade and depressed prices in glutted slave markets resulting from large imports during the late 1840s freed funds for employment elsewhere, concern about the continued prosperity of agriculture induced caution at home. Abroad the outbreak of the Crimean War produced tightness in European money markets. But there were more fundamental problems, as revealed by a further round of reforms in the 1870s.

Looking back from the vantage point of 1875, it was remarked how little progress had been accomplished in the twenty years or so following the 1852 legislation. Less than 470 miles of track had been laid by companies operating under concessions issued in accordance with decree 641.⁸⁹ This poor record contrasted with experience elsewhere in Latin America and was interpreted by Brazilian officials as reflecting adversely upon existing legal and financial arrangements. Consequently a further legislative onslaught was devised in order to stimulate construction. In September 1872 the Imperial Government initiated a process designed to facilitate provincial action. Basically a re-statement of the existing capacity of provinces to award concessions for companies operating exclusively within their jurisdiction, the process was intended to grant additional freedom of action to provinces by removing doubts about provincial competence and permitted the central government to cover provincial guarantees, preferably in gold or foreign currency.⁹⁰ Once again the burden of legislative reform, encapsulated in decree 2450 of 24 September 1873, was the financing of railways. It was recognised that a fundamental liberalisation of guarantee arrangements was necessary if the 1852 decree was to fulfil initial expectations and draw private capital into the sector. New provisions included an extension of guarantees and subventions, simplified vetting processes for the granting and paying of guarantees and, critically, provided central government finance for provincial guarantees. Piecemeal amendment of 1852 guarantee legislation culminated in decree 6995 of 10 August 1878 which, following the advice of the Brazilian legation in London, fixed a special exchange rate of 27d per \$1000 for guarantee payments and extended the period of payment.⁹¹ The drift of guarantee legislation was a response to three matters of key concern to

would-be private investors, namely (i) the rate at which profits were to be underwritten, (ii) the duration of guarantee payments, and (iii) – for foreign investors – security against exchange depreciation. In all but the final item of general railway legislation devised during the Empire (decree 7959 of 29 December 1880) financial issues were paramount. Decree 7959, and companion decree 7960 of the same date, ordered and recapitulated various favours previously written into individual concessions. These final decrees established that henceforth all lines would be permitted to import materials and equipment free of duty, would receive free public land for rights of way and would be allowed to exploit natural resources in unexplored areas. In addition, all companies were obliged to maintain a legal domicile or representation in Brazil, were to make special provisions for the transport of immigrants and were to complete construction within a fixed period.⁹²

An enduring emphasis upon refining guarantee arrangements is perfectly understandable and arose from government unwillingness, or lack of ability, to undertake the direct financing of railways save *in extremis*. The early nationalisation of the EFDPII was clearly exceptional and that company's alarming appetite for funds precluded large-scale state action in other regions, at least until the 1880s. Committed to a major, near-continuous programme of extension building for the Dom Pedro II, there were no further funds to spare. Penury also prevented the province of São Paulo from investing in railways at this stage. Only during the latter years of the 1870s did government finances improve substantially, and by that stage the province was already committed to private construction. Both the province and the central government were prepared to offer tangible support to railway companies, often purchasing shares. But these mechanisms were applied in order to stimulate the interest of private capital. Hence the formulation, refinement and general application of profit guarantees.

Government action to promote individual initiative was not necessarily successful in attracting national capital. Indeed, 1852 guarantee arrangements did not occasion a massive railway boom. Moreover, the peculiar nature of railway construction behind Santos – the technical difficulties associated with the project and consequent enormous sums required – initially discouraged *paulista* capital and ensured that the San Paulo concessionaires would look to London rather than to local capital markets. *Fazendeiros* were, in any case, already investing heavily in coffee. Hence it is not surprising that the first line constructed in São Paulo was financed by British capital. By the 1860s several London-registered companies were already operating in Brazil: elsewhere in Latin America an early local presence in the field was beginning to dim. In view of the early association of Rothschilds with the project and the promise of sterling dividends at 7%, British investment in the SPR is not difficult to

explain. More difficult to resolve is the company's refusal to build beyond Jundiai, a refusal that apparently compelled *fazendeiros* to promote their own companies. As indicated above, when SPR rails approached Jundiai, a campaign was initiated to persuade the company to build on to Campinas and Rio Claro. Why did the British company not exercise its option?

Publicly the SPR announced that it would not build from Jundiai to Campinas because the concession did not carry an Imperial guarantee, because the Paraguay war had caused a fall in Brazilian government bonds and depressed London Stock Exchange valuations of all enterprises connected with Brazil and because of the depreciation of the milreis. These circumstances would discourage existing shareholders from placing further funds in the line and would at the same time prevent the company from going to the market with a debenture issue. The Board of Directors' assessment of shareholders' reactions to demands for additional capital was undoubtedly correct and the company would certainly not be prevailed upon to extend without an increase in sterling guarantee cover underwritten by the Imperial Government. Given the volatility of the exchange, little faith could be placed in the paper promises of the province.⁹³ But there were other reservations, expressed privately to the Imperial Government. The Board indicated that it could not contemplate extension building until various problems between company and government were resolved. The SPR's desire to extend, and indeed its long-term interest in Brazil, was confirmed by an unwillingness to surrender all extension options. In waiving the right to build between Jundiai and Campinas, the company restated its intention (given the right conditions) of laying rails on to Rio Claro. The company would not build in 1868, however, because of the untenable position in which it had been placed by the government.⁹⁴

Two interrelated disputes divided the railway and the government: formal acceptance of the line into public service and verification of capital expenditure. When construction was nearing completion, the government had responded to local complaints about an insufficiency of rolling stock by requiring the company to purchase additional locomotives and wagons, above the numbers stipulated in the original concession. Dispute ensued as to whether these purchases should be charged against current or revenue accounts.⁹⁵ Capital expenditure also exceeded the limit fixed in the concession because initial estimates of the cost of purchases of land and rights of way had proved totally unrealistic. This problem was not peculiar to São Paulo, being observed elsewhere in Brazil. Arguably, companies were unrealistic in financial allocations set aside for land purchases, or land owners were driven by inflated expectations of what foreign firms might pay for their property.⁹⁶ In addition, the final figure was further inflated by payments of guaranteed interest out of capital during the period of construction. The result was an extended dispute

between the two parties which was only resolved when the government floated a loan to cover part of the additional expenditure incurred by the company and agreed also to recognise an issue of debentures. Thus although the line was provisionally opened to traffic in February 1867, the capital account was not formally recognised until mid 1873. The company was exercised not merely by the delay in securing agreement. It was alarmed because the controversy had been preceded by a number of other disputes, the resolution of which proved time-consuming and appeared, to the company, to involve breaches of faith by Rio. During earlier negotiations with the Imperial Government, *ad referendum* agreements reached between the company's representative and officials in São Paulo, or between the railway and special agents sent to London, had been rejected on reference to Brazil or had been questioned by Brazil's diplomatic representative in London. Discussion about capital verification was punctuated by similar episodes. While a detailed consideration of the claims and counter claims of the two parties is outside the scope of this study, it is noteworthy that throughout the dispute the Brazilian government financed guarantee payments on the basis of total capital expenditure claimed by the London Board, and that acceptance of the line as being in good working order occurred by the end of 1868. The company's expressions of interest in extensions, but refusal to implement a programme of new construction, may be interpreted as a ploy to pressure the government into an early resolution of the controversy about capital expenditure. Equally, the company was acutely embarrassed by these events and by the precarious position in which it felt that it had been placed by a lack of consideration on the part of the Imperial Government.⁹⁷

The SPR's anxiety to formalise its position in Brazil and to normalise relations with the government was heightened by a sequence of events that occurred before the opening of the line. Foreign-owned utilities were highly visible and all too readily became the butt of popular protest. Providing a public service consumed by a wide spectrum of *paulista* society, the San Paulo was subject to a series of criticisms about the cost and quality of its facilities. A number of incidents indicated how easily general antagonisms could be directed at the company and went some way towards explaining the company's sensitivity to demands emanating from *fazendeiros* and its anxiety to secure a clear juridical status. During construction there had been several labour disputes which developed into altercations between Portuguese and Brazilian workers, confrontations that led to loss of life and damage to company property.⁹⁸ There is evidence that some of these disputes may have been provoked or orchestrated by a powerful lobby of local interests connected with traditional transport enterprises opposed to the railway.⁹⁹ In January 1871 the first fatal accident in the annals of railway operations in the province occurred. This led to the arrest, and imprisonment pending trial, of the chief officer of the SPR and two other senior officials who were held responsible. Although initially

only incarcerated for three days, bail was later withdrawn and they were re-arrested. Suspension of service on the line, protests from London, consular intervention and action by Rio de Janeiro once again secured the release of railway officials.¹⁰⁰ Episodes such as these arose from the novelty of the situation. Local officials had little or no experience of controlling public utilities. Often traditional governmental arrangements were unsuited to, or inappropriate for, the resolution of conflicts between companies and government. Technical and financial complexities of railway operations were not easily accommodated within existing bureaucratic procedures. Senior officers of foreign-owned utilities were usually expatriots unschooled in local customs, and sometimes inclined to overbearing posturing when confronted by petty officials. Little wonder that foreign concerns, employing large sums of capital and lacking effective local contacts, were anxious to secure precise, clearly defensible franchises within the framework of ill-defined commercial codes.

Finally, and possibly most alarming for the company, it was embroiled in litigation with the Barão de Mauá, one of the concessionaires. Initiated on the eve of the inauguration of the line, the case was not terminated until 1877 but had reached a critical stage by 1869. The dispute involved a sum of approximately £300,000 advanced by the Mauá Bank to Robert Sharpe, contractors, who had become financially embarrassed while constructing the line. Mauá sought to recover this loan from the railway company after it had taken over the line from Sharpe. Throughout the controversy the SPR maintained firstly that it could not be held responsible for private, unsecured debts of the contractor to his banker and secondly that, as a company registered in Britain (a situation formally recognised in its franchise from the Imperial Government), complaints against the railway could only be pursued in London. Mauá, however, pleaded that the case should be brought in Brazil. The municipal court in São Paulo found for Mauá and declared itself competent to hear the case. The company protested and won in the São Paulo provincial court of appeal. Thereupon Mauá placed the matter before the Supreme Court in Rio from where it was referred to the national Court of Appeal. At first it appeared that the company had a good case, the Appeal Court recognising that the plea should be heard in London. Early in 1870, Mauá returned to the Supreme Court, which reversed its initial decision and declared that judgement might be sought in Brazilian tribunals. The company claimed that due processes had been overturned 'at the insistence of an influential Brazilian subject ...' and that it was being denied justice.¹⁰¹ These judgements bore upon the legal domicile of the enterprise as set out in its concession. Little wonder that the San Paulo was apprehensive and disinclined to commit further funds to Brazil.

Locked into a conflict with the Imperial Government about capital

expenditure, upon which guarantee payments would be made and future profits assessed, the company also found the basis of its juridical status challenged. In addition, the firm was subjected in São Paulo to what it regarded as manifestations of petty nationalism – assaults upon its workmen, attacks upon its officers and complaints about its services and operating efficiency. The early history of the company was thus hardly auspicious and induced a mood of caution if not a spirit of pessimism. Moreover, most railway companies were inclined to delay extension building until the traffic-earning potential of the initial line had been tested. Companies which had expended a substantial amount of capital were particularly prone to this tendency. In the case of the SPR this natural caution was intensified by the unique technology employed in, and costly working practices of, the mountain section. Assailed by *paulista* complaints, beset by Mauá and in dispute with the government, the company required a respite and substantial operating profits before contemplating new works.

Local investment in railways was not, however, simply a function of the negative response of government and foreign capitalists. Newspapers of the period and debates in the provincial legislature reveal an awareness in coffee planters both of the developmental properties of steam power when applied to transport and also of the potential for profit inherent in efficiently managed railways. Funds placed in railway companies could, and should, expect to earn the same rate of return as that available from investment in other activities.¹⁰² By this time railways were also a known quantity. Provincial savings flowed into the sector after the technical problem of constructing through the coastal mountain range had been solved and also after a few locally financed companies in Rio de Janeiro had begun to declare substantial dividends. While the EFDPII laboured up the Paraíba valley, faced with escalating construction costs, the EFMauá which operated a short section of line on the coastal plain at the apex of a system of turnpike roads was declaring dividends of 8%.¹⁰³ Elsewhere in the province of Rio de Janeiro, contrasting with the lack-lustre performance of the EFDPII, modest companies also established a record of profitability. Indeed, by this stage state action had apparently made investment in the sector risk free. The Imperial Government had bailed out the EFDPII when that company had got into difficulties. Subsequently the state absorbed all equity capital, buying out private shareholders. By 1869 some 2,400:595\$944 had been paid to the Pernambuco Recife & São Francisco Railway under the guarantee and 11,201:140\$000 to the Bahia Company.¹⁰⁴ Additional support was available from the province of São Paulo which also offered guarantees, purchased shares, provided public land, subsidised route surveys and generally encouraged initiative in the field of social overhead capital investment.

Localism was an additional potent force making for *fazendeiro* sponsorship of railway projects. Competitive franchising of regional lines observed above, and recudrescent antagonism experienced by the SPR were features of *paulista* assertiveness which embraced both a desire to maximise local investment opportunities for provincials and a concern to exclude foreign or non-*paulista* groups. Mattoon attributes *paulista* interest in railway construction on the *planalto* to chauvinism and a wish to exclude from a potentially lucrative scheme those who were '... not sons of the province...'.¹⁰⁵ A successful campaign was certainly mounted to remove Mauá from the scene. Mauá's projects were rejected, his concessions revoked and *paulista* enterprises moved against his bank.¹⁰⁶ Paradoxically, local initiative may also be presented as a move to pre-empt further central government interference in the province, but this assumes that national funds were available to underwrite new projects. They were not. And complaints against the SPR – about lack of rolling stock, frequent suspension of service due to land slips exacerbated by inadequate construction, high tariffs, etc. – could also have induced exasperated *fazendeiros* to assume a direct role in the industry.

Yet much of this debate places too negative a construction on *paulista* enterprise. *Fazendeiros* were risk-takers drawn to railways for the direct profits anticipated. Evidence in support of this view is provided by an emphasis upon corporate structures, attempts to promote relatively widespread shareholding and a drive to achieve managerial and technical competence in the administration of the principal companies. Indeed, these qualities were noted by foreign observers who commented too on the alacrity with which *paulistas* ventured capital in new railway enterprises.¹⁰⁷ Not only did coffee planters possess surplus funds between the late 1860s and mid-1870s, they were aware of the volume of produce soon to be yielded by recent coffee plantings. They were also familiar with the difference between rail freights and the cost of moving agricultural commodities by traditional means. Their faith in railways was vindicated by the secular expansion in coffee exports and the dividends declared by companies such as the Companhia Paulista and the Companhia Mojiãna. Accordingly the volume of domestic investment in these companies, as registered in the appendix, grew substantially. *Paulista* funds were drawn to these companies for profit.

New investments were sustained by the expectation of earnings commensurate with yields in other sectors. Local funding of railways depended upon a transfer of coffee profits and continued investment in the sector was equally conditional on good dividend performance by individual companies. As has been stated above, *paulista* planters were accustomed to investing in transport facilities. An established stake in the transport industry not only encouraged São Paulo coffee producers to place funds in railways but also

strengthened their position in dealings with merchants. This factor probably ensured that planters rather than merchants retained the larger part of new profits derived from savings in transport costs associated with the greater efficiency of railways. Before the coming of railways, transport costs represented between one-third and one-half the price of *planalto* coffee at the dockside in Santos. Given the relatively weaker position of the Santos coffee houses (in contrast to Rio merchants), planters or the railway companies themselves absorbed the larger part of the innovation dividend associated with rail transport.¹⁰⁸ A differential of this order of magnitude also provided planters with a buffer against later falls in coffee prices. Thus railways, both as an opportunity for investment and as a device promoting planter profits, served as a mechanism for local accumulation. But the planter-railway connection was neither immutable nor uncritically adhered to, as changed circumstances during the 1880s revealed.

The Cia. Paulista, for example, experienced little difficulty in raising capital for the main line extension from Campinas to Rio Claro during the early 1870s. From January 1873, the beginning of the first half-year during which the whole of the original line from Jundiaí to Campinas was operated for a complete semester, until mid 1877 when the separate capital accounts that had been kept for each section of the company were merged, the dividend record was favourable, as shown in the following table:

Companhia Paulista

Half-yearly dividends expressed as an annual rate of return on paid-up capital invested in the main line section, Jundiaí to Campinas

January - June 1873	-	7.88%
July - December 1873	-	8.75%
January - June 1874	-	10.40%
July - December 1874	-	10.00%
January - June 1875	-	10.33%
July - December 1875	-	9.90%
January - June 1876	-	9.76%
July - December 1876	-	9.56%
January - June 1877	-	7.56%

Compiled and calculated from Companhia Paulista, *Relatório(s) da directoria da Companhia Paulista a sessão da assembléa geral* (São Paulo, 1872-77) for respective half-years.

Dividend payments of this magnitude account for the quotation above par of Paulista scrip. Nominally valued at 200\$000, Jundiá-Campinas shares on which only 170\$000 had been called changed hands for up to 220\$000. The premium demonstrated the acceptance of railways (or rather this company) as a field of investment and underscored the favourable performance of the Paulista compared with alternative outlets for funds. These dividends were clearly higher than the guaranteed rate of profit which was set close to prevailing interest rates. It is equally obvious that the yield per share was very close to that of 'gilts'.

All companies were not as profitable as the EF Paulista (nor as well managed) and the railway sector faced acute competition for domestic funds. By the late 1870s the early euphoria associated with railway projects began to fade, due partly to the weight of extension building and consequent repeated calls for capital, but more especially to the chicanery and malpractices which featured prominently in the flotation and construction of some lines and, most critically, to tightness in the money market. Even the Paulista was not immune from these adverse circumstances. Little difficulty had been experienced placing Campinas-Rio Claro extension shares but it later proved difficult to raise cash to complete the line and an additional share issue for the Moji-Guaçu branch was poorly received. Branch line shares were not taken up as rapidly as earlier issues and calls answered tardily. In 1876 the company was paying 9% to borrow at home to finance new construction and contemplated going abroad for money.¹⁰⁹

Recourse to European money markets was about to become a general feature of railway promotion in the province. The Paulista floated debentures in London in 1878, following a precedent established by the EFSP-RJ which had obtained funds there in 1875 and would do so again in 1879. In 1884 the Mojiana sought permission from the Imperial Government to raise money in Britain. By 1889 most provincially registered lines had issued sterling debentures.¹¹⁰ Although, with the collapse of the exchange following the *encilhamento*, the boom period of the early years of the republic, many companies experienced great difficulty in servicing these obligations, the proportion of foreign to domestic capital remained relatively modest in most cases. The EFSP-RJ was exceptional in that from an early stage in the company's history, debentures issued in London yielded 3,574:266\$889 while capital paid up on domestically issued shares stood at 4,082:320\$000, a precarious balance in favour of the province.¹¹¹ Raising loan capital outside Brazil was a rational response to domestic illiquidity. Sterling debentures could apparently be placed at real rates of interest a fraction above 6% when 9% had to be paid at home. Moreover, overseas debenture flotations did not necessarily constitute a dilution of local control: management was retained by Brazilian

equity stockholders. It was unfortunate that the exchange rate, which had been remarkably stable following the end of the Paraguayan War in 1870 and had even displayed a modest rise, pushed up by coffee exports, began to slip in 1876/7, depreciating continuously until 1885/6. The high points of the mid-1870s were not matched again until 1888 and 1889. Thereafter, reflecting the 'coffee crisis', exchange depreciation became an established feature of the Brazilian economy, a matter of concern for successive Ministers of Finance and mounting anxiety for businessmen whose enterprises needed to remit money overseas.¹¹² By 1898 the milreis would be worth only 27% of its average sterling value in 1889 (see appendix).

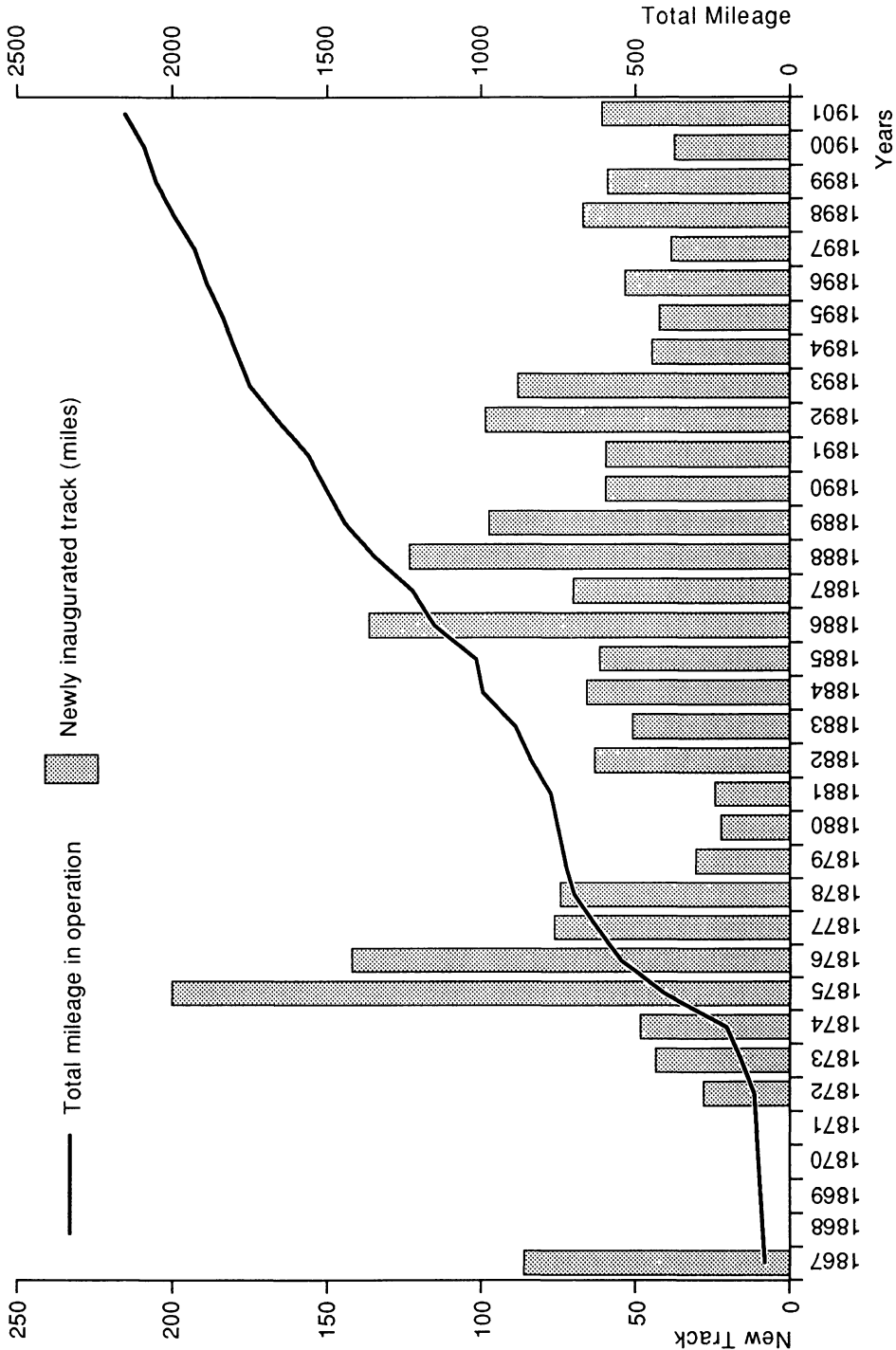
An alternative to foreign borrowing was domestic institutional accommodation or direct state participation, a lead in this direction having already been taken at the EFDPII. However, as explained, neither objective was easily realised by *paulista* lines. Local banks were ill prepared to provide long term loans. Many institutions were already over-extended by the 1870s and short-term accommodation was expensive.¹¹³ Intervention – other than an increase of guarantee cover – by the central government was unlikely and would probably not have been welcomed. The predicament of the EF Sorocabana exemplified that of weaker companies. The railway had exhausted its capital before completing the construction of the mainline. Sorocabana shareholders cast about for a saviour, at first attempting to squeeze further guarantees from administrations in Rio de Janeiro and São Paulo. When this failed more drastic remedies were proposed. An unfortunate line, the Sorocabana had early resorted to borrowing in order to make good shortfalls in calls unanswered by shareholders and in order to pay dividends.¹¹⁴ Rising short-term indebtedness and failure to place debentures locally encouraged the Board to mortgage the line to their bankers in 1874, contrary to the statutes of the company.¹¹⁵ This transaction, of benefit to the Chairman of the Board of Directors, hardly served the needs of hard-pressed shareholders.¹¹⁶ Various groups connected with the company took the view that the line should either be expropriated or granted a massive injection of state aid. Only with direct government participation would the region served by the company obtain an efficient rail service.¹¹⁷ Perhaps reflecting the scarcity of local private capital, there was at this stage, 1876, an emphasis upon the public service function of railways in general and of the Sorocabana in particular. It was a case of special pleading by interests that sought cheap transport facilities, the costs of which would be borne by society at large. The cash crisis of the EFS was finally resolved by following other companies to London. In 1877/8 £230,000 6% debentures were placed at 85%.¹¹⁸ Ever since 1872 the company had sought to establish links with foreign money markets, when some 50% of equities had ambitiously been earmarked for distribution overseas.¹¹⁹

Financial stringency at this juncture profoundly modified attitudes to railway investment in certain quarters of *fazendeiro* society. Whereas earlier projects had been heralded as agents of progress and development, by 1876/7 investment in rails was depicted as immobilising scarce capital. Railways required substantial sums of money, as demonstrated by the first enterprises established in the province. But the efficacy of the rail network depended upon an energetic programme of extension construction which necessitated repeated infusions of additional capital, a process that, as had been argued in 1872, drew funds away from agriculture.¹²⁰

Heightened by the signal failure of the Sorocabana to provide either a reliable transport service to consumers or profits for shareholders, these anxieties re-surfaced during the tariff controversies of the period which embraced the CP and SPR, imparting urgency to the quest for capital and cheap means of communications. Capital famine restricted private investment in the sector and was conducive to a tentative reformulation of railway strategy which envisaged an expanded role for government and projected the view that developmental construction was properly the function of the state. Challenges to private initiative in the industry assumed many forms: disgust at the railway mania which had occasioned under-funded competitive construction; fear of the creation of private monopolies; concern about malfeasance; criticism of the failure of certain enterprises to achieve basic standards of safety or comply with concession obligations. Expressions of unease surfaced in demands for government supervision, for effective transport planning and for additional state assistance to individual enterprises. A similar imperative under-pinned the view that railway promotion was as much an area of state responsibility as the encouragement of immigration.¹²¹

Larger state participation was not an alternative to promoting foreign investment. Rather it complemented the quest for overseas funds. Provincial assistance was necessary in order to secure the approval of the Imperial Government for external stock flotations or sales to foreign consortia. Government supervision was essential if railways registered in London or elsewhere were to conform to local requirements. But raising funds abroad, or better still the mortgage of unprofitable lines to foreign operators, offered immediate relief to capital-hungry railways and coffee planters. Approximately 40,000:000\$000 (£4 million) was tied up in provincial railway companies by 1876. An informed guess, this estimate indicates that local investment was twice as large as foreign. If even part of this sum was released, the benefits to provincial agriculture and industry would be substantial.¹²² Brazilian promoters may have assumed that foreigners would adopt a less critical approach to specific projects. Clearly foreign investors were content with a lower rate of return on capital. It was hardly remarkable, given its proven rec-

Growth of the São Paulo railway network



cord and the security offered, that the Paulista was able to place £100 redeemable 6% debentures in London at £95 - £96, or that the EFSP-RJ, whose provincial guarantee was under-written by the Imperial Government as per the terms of Decree 2450, should do likewise. What most stimulated planters' enthusiasm for greater access to foreign capital was the Sorocabana's success in placing £50 debentures at 85% in indiscriminating overseas markets. This was a company whose 200\$000 equities had fallen as low as 30\$000 and whose stocks normally traded on the local market at about 80\$000 - 100\$000.¹²³ During the early 1870s planters had wished to invest in railways: at the end of the decade it was necessary to stimulate immigration. Labour was the key to a further round of agricultural expansion based on the exploitation of recently opened territory – land brought within the margin of cultivation by the first wave of railway construction. A further shift in the investment cycle, favouring the transport sector against land and labour would not occur again until the middle of the following decade.

As the graph indicates, the pace of railway expansion on the *planalto*, which had accelerated between 1872/3 and 1875/6 tailed off thereafter. The inauguration of newly constructed track began to decline in 1876, falling slowly at first until a low point was reached in 1880. By 1886 railway building, as measured by the completion of lines, had registered remarkable recovery and activity in the sector remained at a high level until the end of the Empire. Renewed buoyancy at this stage was characterised also by a trend towards re-nationalisation. The CP had retired a significant proportion of the 6% debentures by 1889 though the last certificates were not redeemed until 1898. And in 1892 the Paulista purchased from British shareholders the Rio Claro São Paulo Railway Company Limited, an independent Brazilian line running from the CP railhead at Rio Claro to Araraquara and Jau. Registered in Brazil and financed by local capital, this line was acquired in 1889 by a syndicate organised by the Bank of London and Rio de Janeiro.¹²⁴ The Paulista had been negotiating the purchase of the Rio Claro line since 1888.

With the benefit of hindsight, some modern scholarship inclines to the view that a quest for foreign capital in the mid-1870s and the danger of a loss of national control inherent in that process, given the depreciation of the exchange, represents a failure of *paulista* entrepreneurship. The procession of companies floating debentures in London and the unwillingness of local capitalists to devote further funds to the modernisation of infrastructure appears to lend credence to a school of analysis which argues that planters were narrowly interested in acquiring land and had little perception of economic opportunities beyond coffee. Starter investment by agriculturalists is depicted as ancillary to plantation production and as a ploy to trigger state or foreign interest in subsequent railway building. The events of the 1870s do not bear such a

construction. *Paulista* capitalists attempted to secure funds abroad because at that time short-term domestic borrowing was expensive and long-term foreign accommodation relatively cheap. Placing debentures in London was a means of obtaining relatively inexpensive funds without surrendering domestic management (provided mortgage capital was regularly serviced). In retrospect, the wisdom of these moves, and the assumptions upon which they were based, may be questioned. At the time *fazendeiros* behaved as rational capitalists, responding to that peculiar conjuncture of high interest rates at home and a stable exchange. When the exchange rate softened and the milreis fell against sterling, the response was to seek additional state support from the Imperial Government which by Decree 2450 of 1873 was empowered to underwrite companies already in receipt of provincial guarantees and later, when the exchange hardened, to recapture lost ground.

Accounts of the period present the decade or so following 1876 as a time of acute labour shortage.¹²⁵ Rigidity of labour supply was not peculiar to the 1870s, rather planters displayed a heightened awareness of the problem. Indeed, the perceived scarcity of labour was a function of the spread of railways across the *planalto* after 1872 which propelled the cultivation of coffee into the centre of the province and beyond. These years, when the milreis fell, also witnessed increased industrial activity in São Paulo. Manufacturing output grew, presenting additional outlets for domestic funds. Recent historiography supports contemporary opinion that stressed new openings for industrial investment in the 1870s.¹²⁶ Consequently it is hardly surprising that *paulista* interest in railways faded. Restructuring investment portfolios, dynamic coffee capitalists responded to new market opportunities and also to the acute crisis in agriculture.¹²⁷ If after the mid-1860s it was necessary to fund railways in order to bring new land into cultivation, it was now essential to finance schemes to secure adequate labour or opportune to pursue new avenues of investment in manufacturing triggered by modest demand for agricultural equipment and the growth of the local market. If during the early 1870s railways offered a profitable opening for investment that was ancillary, or possibly for some an alternative, to land, by the 1880s improved transport facilities and increased domestic purchasing power yielded additional outlets for capital.

How much capital did local investors place in *paulista* railway companies and what was the relative significance of that investment? As will have become clear from the narrative above, local investment grew substantially after 1869 following the flotation of the Companhia Paulista. Foreign participation in the sector assumed two forms. First, British shareholders invested directly in the San Paulo Railway. Recognised investment in the SPR changed little during the period under consideration. Second, locally-owned companies raised loans in

Relative Importance of Investment in São Paulo Railways

	(A)		(B)	(C)
	Investment in São Paulo Railways		Total British Investment in Brazil	Outstanding Foreign Debt of Central Government
	Total	Domestic	Foreign	
1866	£ 2,458,434	-	2,458,434	£14,418,000
1870	2,770,988	120,988	2,650,000	n.a.
1875	6,132,011	1,980,011	3,152,000	19,488,000
1880	7,873,831	4,205,931	3,667,900	16,554,000
1885	8,572,261	4,205,931	3,658,100	17,877,000
1890	11,235,146	6,507,846	4,727,300	n.a.
1895	n.a.	n.a.	n.a.	35,707,000

Sources (A) Appendix.

(B) M. de Paiva Abreu, 'Brazil', in C. M. Lewis and R. Miller (eds.), *British Business in Latin America* (Cambridge University Press, forthcoming).

(C) M. B. Levy, 'The Brazilian Public Debt - Domestic and Foreign, 1824-1913', Paper Presented at the Colloquium, Latin American Debt in Historical Perspective, IberoAmericanisches Institut, Freie Universität, Berlin, November 1989.

n.a. - not available.

London during the latter half of the 1870s. In addition, the SPR was encumbered with a small volume of debenture stock also issued in Britain, while two small lines were transferred to British ownership at the end of Empire.

As the table on page 50 demonstrates, foreign (British) capital dominated at the outset. In 1866, the San Paulo accounted for the totality of investment in the sector and about 12% of nominal British investment in Brazil. Almost a decade later, following the flotation of the Paulista, Mojiana, Ituana and Sorocabana and before those companies placed debentures in London, domestic and foreign funds were about equal, with a ratio of 1:1.05. Between 1875 and 1880, local investment increased at a much faster rate than the growth in external financing (by 44% compared to 14%) yielding a ratio of 1:0.87. At the end of the period, domestic funding predominated, with a ratio of 1:0.73 or a figure equal to about 20% of the foreign debt. This signalled a significant allocation of provincial capital. To place railway investment more firmly within a local context, Zelia Cardoso de Mello has calculated that between 1870 and 1895 investments in shares, largely railway company scrips, represented from 2% to 39% of the individual wealth of an admittedly small sample of *paulista* capitalists.¹²⁸

Coffee Planters, the State and Foreign Capital

An analysis of the precepts and perceptions underlying *paulista* railway development and the determinants of Brazilian national transport strategy contributes to an understanding of the relationship between the coffee sector and government. The struggle to promote railways and to ensure a local presence in the field prefigures current debates about the alliance between the state, multinational corporations and domestic capital in manufacturing. During the period studied, Brazil experienced remarkable economic expansion which was accomplished at a time of relative political stability. The essential characteristics of the political arrangements of the Second Reign have been well rehearsed, as have the structural and sectional tensions which ultimately resulted from the spread of coffee cultivation on the *planalto*. In essence those tensions are reflected in the course of São Paulo railway history.

The alacrity with which *paulista* capitalists embraced railway projects indicates a substantial degree of entrepreneurial initiative and access to funds. The capitalist character of coffee cultivation (at least in the more dynamic areas of the province) is not in doubt. Of greater interest to students of political economy are the means employed to modernise the infrastructure rather than the nature of funding *per se*. Recognising both financial and technical handicaps which inhibited local participation in schemes to construct in the

serra, paulistas enlisted the aid of central government and foreign capital. An active, anxious state in Rio de Janeiro was determined to pursue various projects designed to secure order and to promote economic expansion. Cautious foreign investors would not act without official support and, moreover, required some local participation as a token of good faith and as confirmation of the feasibility and profitability of technically complex projects. Imperial Government intervention in early provincial railways was probably inevitable; it was essential if funds were to be procured overseas and as such was welcomed by provincial vested interests. Indeed, it is doubtful if the line from Santos to Jundiaí could have been built without direct and sustained support from Rio de Janeiro. Only gold guarantees underwritten by the Imperial Government carried conviction in foreign money markets: only the central government enjoyed established links with foreign financiers. As the superior power, it was at the time assumed that the central administration was most competent to franchise novel schemes such as costly public utilities, especially when a substantial foreign presence in the sector was envisaged.

Thus at the outset central government involvement and external participation were accepted as inevitable. It may also have been assumed that the one would balance the other. Certainly during the 1860s the Imperial Government was depicted as performing a supervisory role. Consensus proved more difficult to secure thereafter. The initial enthusiasm which greeted schemes to build beyond Jundiaí, as evidenced by subscription meetings held at Campinas, Itu, Sorocaba and other up-country centres, indicates a positive provincial commitment to financing railways and a perception of local competence. Subsequent petitions to the São Paulo government for new concessions and extension building by established companies confirms that provincials saw profit in railway construction and operation. This continued enthusiasm for new investment opportunities in corporate structures does not permit an interpretation which argues that *fazendeiro* funding of railways was essentially passive – a response to a refusal by foreign capital and the state to act – or a transient phenomenon. Local capitalists actively invested in the field and, in some circumstances, attempted to exclude outsiders. Mauá's exit was the product of several factors, not least provincial opposition to a number of his projects. The removal of Mauá signalled also a new attitude to central government interference in provincial lines. As has been stated, financial assistance from Rio de Janeiro was invariably applauded, usually there was a clamour for Imperial gold. Supervision by the central government, however, proved irksome, and increasingly so with the passage of time.

In command of the São Paulo administration and under-represented at national level, *fazendeiros* considered that the provincial government was the most appropriate authority to regulate public utilities and franchise companies.

Subsidies from Rio de Janeiro were welcomed, but provincial interests wished to exercise the prerogative of determining routes. The railway decree of 1873 which provided central government-funded guarantees for provincially authorised enterprises went some way to meeting these aspirations. An equally contentious area of railway regulation was tariff policy. Brazilian legislation provided for state regulation of rail freights. Various situations applied at different periods, but government was usually empowered to act when profits exceeded a specified level or occasionally when profits rose above 'acceptable' limits. Guarantee arrangements afforded an even more direct method of corporate regulation. Guarantee payments may have represented a substantial charge upon the Exchequer, but the device provided for government scrutiny of construction and operating costs and also served as a vehicle for bureaucratic training. Reports of railway fiscal engineers (government inspectors) during the period indicate that a considerable degree of government supervision was exercised. These reports usually provided the evidence deployed by *fazendeiros* in campaigns for rate regulation. Scrutiny and tariff fixing lay with the franchising authority. Thus local supervision of railways would be enhanced by the awarding of provincial concessions. Less direct control was implicit in a regime of centrally franchised lines.

The determination of routes and tariffs were obvious areas of conflict between the province and the centre. Early criticisms of San Paulo freight rates rebounded to the discredit of the Imperial Government, as did that company's propaganda campaigns to placate local opposition. Subsequent annoyance at the need to refer projects to Rio de Janeiro for approval, and provincial petulance at limited disbursements by central government for railway guarantees, provoked further irritation. Provincial antagonisms crystallised in complaints about bureaucratic inertia and incompetence at the capital and in the charge that an over-centralised political structure was stifling local initiative. By the 1870s, for many *fazendeiros* the dead hand of Rio de Janeiro was most obvious in the area of transport policy. Railways were by then an established feature of the provincial economy and the performance of the sector was regarded as essential to the well-being of agriculture. In this respect, disputes over railway policy were an important factor in that campaign for greater local economic and administrative autonomy which formed the background to the fall of the Empire in 1889.

Ambivalence was characteristic, too, of the relationship between local and external capital in the railway industry. Although by no means absent, state capital was less a feature of the industry in the province at this juncture than in other parts of Brazil or in the manufacturing sector during the late twentieth century drive to industrialise. An area of early corporate activity involving substantial amounts of finance provided from both domestic and foreign

sources, *paulista* approaches to overseas companies and an absorption of imported expertise in the sector illuminate later discussion about the role of multinational corporations in Brazil. As indicated, external funds and technology were ascribed a specific role, as was the state.

Recognising that a shortage of funds and expertise, and possibly managerial skills, had frustrated pre-1860s schemes to construct through the coastal escarpment, planters accepted and acknowledged the critical importance of a British presence in the railway industry. And the construction of the San Paulo provided an opportunity for acquiring and disseminating appropriate skills throughout the provincial railway industry. Whether or not envisaged at the outset, sub-contractors employed to construct the roadbed of the London-registered line later moved on to build railways on the *planalto*. British engineers associated with the SPR were consulted about projects to push lines into the interior. The despatch to Brazil of experts and mechanics by the San Paulo served as a model of overseas recruitment for *paulista* companies. Consequently an initial direct foreign presence in the field was assumed to be desirable and was perhaps inevitable. Railway building and operations in the interior posed fewer technical and financial problems. Pre-railway schemes to improve roads in the *planalto*, and provincial expenditure on road building and maintenance, demonstrate that funds were available and point to the healthy state of civil engineering. Starter foreign investment was thus encouraged, but an enlarged external presence in the industry was not. If foreign capital continued to be sought by *paulista* railways during the 1870s and 1880s and foreign experts and technology imported, it was to serve locally managed entities. Notwithstanding abortive schemes to sell the EFS to foreign interests, and dangers implicit in an excessive and increasing reliance upon foreign mortgage funds, it is instructive that between the completion of the SPR mainline and the sale of the Rio Claro, a foreign presence in the sector was confined to the level of loan capital.

Perhaps mid-nineteenth century coffee planters were more successful than later generations in domesticising enterprise because the technology gap was less acute in railways than in other sectors. More probably the SPR presented a pressing example of the cost of reliance upon externally controlled entities. That the dividends declared upon equity stock by the Paulista during the 1870s and 1880s matched those paid by the San Paulo reflects both upon the perspicacity and the enterprise of *fazendeiro* society. High dividends, sustained over several decades, demonstrate too that railways were an important mechanism for profit retention and capital accumulation. The early preponderance of coffee planters among railway shareholders confirms not only their affluence but points also to their dominant position within the agro-export complex. The subsequent relative dilution of *fazendeiro* investment in railway

companies points both to the mobility of planter capital and to the growing complexity of the local capital markets. Coffee planters were endowed with a realistic assessment of their capacity to fund major social overhead projects and of the government's ability or willingness to defend local interests in disputes with foreign firms. Certainly the Imperial Government, in its dealings with the SPR, was often depicted as ignoring provincial interests. Perceived shortcomings in the performance of central government and widening opportunities for profitable investment fuelled the quest for direct control over the state apparatus and for a larger role in the local economy.

APPENDIX

Several problems are encountered when seeking to calculate, and to determine the origin of, capital invested in São Paulo railway companies. Where possible an attempt has been made to construct tables on the basis of real investment recognised by the provincial government. When this information is not available, corporate statements of paid-up capital or declared results of share calls have been employed. Converting milreis into sterling has been complicated by exchange rate instability. Although the lowest rate for the milreis was recorded in 1885 ($1\$000 = 17 \frac{5}{8}d$), the Brazilian currency was weak against sterling during the late 1860s and early 1870s. But the milreis appreciated during the mid-1870s, touching a high point of $28 \frac{3}{8}d$ in 1875, and also recovered during the late 1880s when, in 1889, the average rate for the year stood at $26 \frac{7}{16}d$. In addition, sharp fluctuations were registered during the course of every year. Conversion has been effected on the basis of annual average rates of exchange and not the notional rate of $27d$ which became the semi-official rate for 'fiscalising' (i.e. inspecting) the accounts of foreign enterprises. Total sterling equivalents of a company's capital account have been computed by converting new investment into sterling at the prevailing annual average rate of exchange, this sum being added to the previous sterling base. Such a course has been followed where complete – or near complete – sets of data exist. In all other cases individual calculations have been made for the years that data are available.

Quantitative and qualitative evidence suggests that virtually all funds invested in provincially registered railways were raised in São Paulo. Shareholders lists are dominated by *paulistas*. Only occasionally is there reference to stock holdings by Brazilians from other provinces of the Empire and most were described as long-term residents of São Paulo. Corroboration of the local character of investment is provided by the unsuccessful attempts of some enterprises to place equity stock in Rio de Janeiro. Most lines also

obtained accommodation with local banks, though the Sorocabana floated loans in the national capital. The principal flow of non-*paulista* Brazilian funds into provincial railway companies was directed towards entities registered abroad. But the San Paulo was probably exceptional in the volume of extra-provincial capital that it attracted. The vast majority of funds – debentures and direct investments – drawn to *paulista* railways from outside the Empire emanated from London. Foreign investment has been calculated on the basis of real capital transfers to Brazil; commissions and discounts have been deducted from stock flotations overseas.

Notwithstanding difficulties in determining real (as opposed to nominal) investment and in calculating an approximate rate of exchange in order to convert milreis accounts into sterling, the most intractable problems arise from the incomplete nature of, or obvious inconsistencies in, the data. Difficulties emerge from the tendency of different reporting agencies to record distinct series of statistics. Some bodies compiled data by fiscal year, others by calendar year. Occasionally reference was made to authorised rather than to actual investment. The documents are not always unambiguous about these matters. Gaps in the data are compounded by mistakes which resulted when transcribing information from one series or agency to another. Large differences sometimes occur in statistics reproduced in official provincial reports, on the one hand, and yearbooks published by the central government, on the other. Such errors appear in statements which purport to emanate from the same source.

Other difficulties are presented by contemporary accounting practices and differing conventions applied from company to company. Although amalgamations were rare during the period, several railways maintained separate capital accounts for main and branch lines or for different sections of the network that were franchised at different periods. Towards the end of the 1870s a number of entities unified these separate capital accounts. The usual method of obtaining unified accounts was by means of a distribution of new scrip amongst the several historic categories of stockholders. New scrip was allocated on the basis of the previous earnings of stocks to be retired, not upon the basis of real investment. For example, when the Companhia Paulista unified three sets of accounts in 1877, holders of ex-mainline shares received an allotment of new stocks equal to the face value of their old shares, only 85% of which had been called. Indeed, original shareholders received an additional distribution of scrip on account of the better dividend record of the mainline compared with branch line paper. Sometimes the details of these arrangements survive and the resultant writing up of capital accounts may be discounted; often, however insufficient information is available.

Malpractice is not unknown in the annals of *paulista* railway history: some capital accounts contained a great deal of 'water'. The most notorious case was that of the Sorocabana whose first chairman behaved most improperly. He appears to have appropriated funds raised to build the line for his own purposes and illegally issued company paper as security against private ventures. In this instance government inspectors identified discrepancies in the railway's official returns and wrote down recognised capital. But were public servants always sufficiently alert? Furthermore, a number of lines, such as the Ituana, were poorly constructed and later additions to capital account should properly have been charged against depreciation. Such tendencies inevitably inflate the volume of domestic investment in railways. Problems of a different nature are presented by schemes to finance construction from revenue or convert floating debt into equity capital. The terms of these arrangements are not always set out in available documents and reports. Failure to record these transactions obviously results in an under-estimation of domestic financing.

In spite of these defects and deficiencies, the following tables remain a reasonable guide to the weight of *paulista* capital tied up in the local railway industry and demonstrate also the balance between domestic and foreign finance. The figures indicate the scale of Brazilian initiative in absolute terms and provide an insight into the capacity of the provincial economy to sustain a flow of funds for social overhead projects.

TABLE 1

**Annual Average Exchange Rates
(pence per milreis)**

	d	p
1869	18 13/16	7.83
1870	22 1/16	9.19
1871	24 1/32	10.01
1872	25	10.40
1873	26 3/32	10.87
1874	25 25/32	10.74
1875	27 7/32	11.33
1876	25 11/32	10.55
1877	24 9/16	10.23
1878	22 15/16	9.55
1879	21 3/8	8.94
1880	22 3/32	9.20
1881	21 29/32	9.12
1882	21 5/32	8.81
1883	21 9/16	8.98
1884	20 11/16	8.61
1885	18 19/32	7.74
1886	18 11/16	7.78
1887	22 7/16	9.34
1888	25 1/4	10.52
1889	26 7/16	11.01

Source: Calculated from J F Normano, *Brazil: a study of economic types* (Chapel Hill, 1935), p. 200.

TABLE 2

Companhia Bragantina

	Recognised Capital	
	Local currency	Sterling equivalent
1879/80	338:300\$000	£30,683.81
1880/1		
1881/2		
1882/3		
1883/4	2.155:762\$302	189,599.26
1884/5	2.308:372\$302	202,075.12
1885/6	2.320:000\$000	202,977.45
1886/7*	-	-
1887/8*	-	-
1888/9*	-	-

Source: Ministerio de Agricultura, Commercio e Obras Públicas, *Relatório apresentado a assembléa geral na segunda sessão da vigésima legislatura* (Rio de Janeiro, 1887), p. 305.

* No further capital raised during the Empire.

Note: The company did not raise any capital outside Brazil. At the end of the century the line was purchased by the San Paulo (Brazilian) Railway Company Limited.

TABLE 3A

Companhia Ituana de Estradas de Ferro

* Capital Expenditure (local currency)

		Main Line	Branches	Total
	1871	937:820\$	937:820\$	
	1872			
July	1873	2.542:389\$	1.068:146\$	3.610:535\$
	1874			
June	1875	3.014:172\$	2.507:642\$	5.521:814\$
Dec	1876	3.366:026\$	3.428:944\$	6.794:970\$
	1877			
June	1878	3.359:185\$	5.223:991\$	8.583:176\$
June	1879	3.411:921\$	4.253:191\$	7.655:112\$
Dec	1879	3.505:620\$	4.207:923\$	7.713:543\$
	1880			
	1881			
	1882			
June	1883	3.916:684\$	4.365:644\$	8.282:328\$
	1884			
Dec	1885	4.345:871\$	4.845:799\$	9.191:670\$

Source: Companhia Ituana, *Relatório da directoria da Companhia Ituana apresentado a assembléa geral de accionistas em sessão de 7 de janeiro de 1872* (hereafter *Relatório ...*) (Itu 1872) p. 5; *Relatório ... 3 de agosto de 1873* (São Paulo, 1873), Anexos 1 & 4; *Relatório ... 21 de novembro de 1875* (São Paulo, 1880), Anexos 3 & 5; *Relatório ... 3 de setembro de 1876* (São Paulo, 1880), Anexo 2; *Relatório ... 29 de abril de 1877* (São Paulo, 1879), Anexos 2 & 3; *Relatório ... 10 de novembro de 1878* (São Paulo, 1878), Anexos 2 & 3; *Relatório ... 12 de outubro de 1879* (São Paulo, 1879), Anexos 3 & 5; *Relatório ... 28 março de 1880* (São Paulo, 1880), Anexos 3 & 5; *Relatório ... de 16 de setembro 1883* (São Paulo, 1883), Anexos 3 & 5; *Relatório ... 4 de abril de 1886* (São Paulo, 1886), Anexos 7, 8, 9.

* Includes stock distributed to shareholders in lieu of dividends.

TABLE 3B

Companhia Ituana de Estradas de Ferro

*Capital Expenditure (Sterling equivalent)				
		Main Line	Branches	Total
				+Capital Issued Abroad
	1871	£93,875.78		£93,875.78
	1872			
Jul	1873	264,601.04	116,107.47	380,708.51
	1874			
June	1875	316,662.38	274,955.85	591,618.23
Dec	1876	354,117.34	375,746.28	729,863.62
	1877			
June	1878	353,440.77	553,276.42	906,717.15
June	1879	358,316.21	463,525.96	821,842.17
Dec	1879	366,692.80	459,479.01	826,171.81
	1880			
	1881			
	1882			
June	1883	403,565.24	473,626.58	877,191.82
	1884			
Dec	1885	438,651.29	512,878.67	951,529.96
	1886			
	1887			
	1888			£150,00.00

Source: See Table 3A.

* Includes stock distributed to shareholders in lieu of dividends.

+ Nominal value of debentures placed in London.

TABLE 4

Companhia Ituana de Estradas de Ferro

	Recognised Capital (Main Line)	+ Capital Issued Abroad
	Local currency	Sterling equivalent
1870/1	110:290\$000	£10,587.84
1871/2	1.342:240\$000	136,369.93
1872/3	1.748:600\$000	179,606.63
1873/4	1.873:500\$000	193,102.07
1874/5	1.957:895\$906	202,415.05
1875/6	1.997:364\$466	206,732.95
1876/7		
1877/8	2.052:695\$206	212,329.91
1878/9	2.023:185\$136	209,267.92
1879/80	2.043:256\$692	211,088.35
1880/1	2.043:386\$232	211,100.25
1881/2	2.043:420\$922	211,103.29
1882/3		
1883/4	2.047:596\$692	211,472.65
1884/5	2.048:702\$042	211,563.06
1885/6		
1886/7		
1888		£150,000.00

Source: Ministerio de Agricultura, Commercio e Obras Públicas, *Relatório apresentado a assembléa geral legislativa na segunda sessão da vigésima legislatura* (Rio de Janeiro, 1887), p. 304.

+ Dentures issued in London

TABLE 5

Companhia Paulista de Estradas de Ferro

	Total Capital Expenditure		+Balance of Sums
	Local currency	Sterling equivalent	Raised Abroad
1870	*1.316:528\$	£120,988.73	
1871			
1872	4.161:159\$	433,176.65	
1873	4.202:197\$	437,637.48	
1874	5.918:535\$	621,972.18	
1875	8.310:396\$	892,970.03	
1876	10.242:720\$	1,096,830.20	
1877	12.723:420\$	1,350,605.80	
1878	13.704:965\$	1,444,343.30	£150,000.00
1879	14.420:199\$	1,511,575.20	148,500.00
1880	15.159:043\$	1,579,548.80	146,900.00
1881	15.722:870\$	1,630,969.80	145,200.00
1882	16.121:116\$	1,663,227.70	143,400.00
1883	16.504:104\$	1,697,620.00	141,500.00
1884	16.221:804\$	1,673,314.00	139,400.00
1885	16.660:905\$	1,707,300.40	137,100.00
1886	16.151:864\$	1,667,697.10	134,600.00
1887	17.538:233\$	1,797,183.90	131,900.00
1888	18.022:200\$	1,848,097.20	129,000.00
1889	18.446:245\$	1,894,783.50	125,900.00
1890	19.487:116\$	1,992,626.30	122,600.00

Source: Arquivo de Estado de São Paulo, Ordem 942/Lata 147 (Ofícios Diversos: Capital, Estradas de Ferro, 1871); Companhia Paulista, *Relatório de directoria da Companhia Paulista de Estradas de Ferro para a assembléa geral ordinário de 28 de abril de 1941* (São Paulo, 1941), Anexo.

* Paid up capital

+ The figures that appear in this column represent the *unredeemed* balance of debentures issued in London.

TABLE 6

Companhia Mojiana de Estradas de Ferro

	Total Paid Up Equity and Loan Capital		Debentures Issued Abroad
	Local currency	Sterling equivalent	
1873	756:850\$	£82,269.60	
1874	1.350:000\$	145,973.90	
1875	3.000:000\$	332,918.90	
1876	-	-	
1877	-	-	
1878	4.700:000\$	495,268.90	
1879	5.000:000\$	522,088.90	
1880	5.071:200\$	528,639.30	
1881	5.100:000\$	531,265.86	
1882	-	-	
1883	-	-	
1884	-	-	
1885	-	-	
1886	-	-	
1887	-	-	
1888	11.225:476\$	1,175,665.90	£483,700.00
1889	12.850:137\$	1,354,541.00	-
1890	20.991:456\$	2,119,824.90	-

Source: Companhia Mojiana, *1872-1922: centenario do Brazil, cincuentário da companhia* (Campinas, 1922), unpaginated.

TABLE 7

Companhia Sorocabana de Estradas de Ferro

	-----Local Currency-----		-----Sterling-----	
	Recognised Capital	Yield from Share Calls and Loans	Recognised Capital Expenditure	Yield from Share Calls and Loans
1873	3.057:407\$852	3.724:990\$000	£332,340.14	£404,906.41
1874	5.410:837\$077		585,543.89	
1875	6.420:859\$056	8.654:566\$520	699,979.38	980,562.32
1876	9.027:832\$777		1,019,941.88	
1877	7.176:746\$821	10.110:806\$621	778,364.86	1,130,730.12
1878	-			
1879				
1880				
1881				
1882	7.262:916\$456			
1883				
—				
1889		no data available		
				*£195,000.00

Sources: Ministerio de Agricultura, Comercio e Obras Públicas, *Relatório apresentado a assembléa geral na segunda sessão da vigésima legislatura* (Rio de Janeiro, 1887), p. 307; São Paulo, *Relatório apresentado a assembléa legislativa provincial de São Paulo pelo presidente da provincia O Exm. Sr. Dr. João Theodoro Xavier em 5 de fevereiro de 1874* (hereafter *Relatório*) (São Paulo, 1874), p. 26; *Relatório...14 de fevereiro de 1875* (São Paulo, 1875), p. 8; Companhia Sorocabana, *Relatório apresentado pela directoria da Companhia Sorocabana a assembléa geral de accionistas em 5 de setembro de 1875* (hereafter *Relatório...*) (São Paulo, 1875), p.10; *Relatório ... 3 de setembro de 1876* (São Paulo, 1876), Anexo 1; *Relatório...10 de março de 1877* (São Paulo, 1877), Anexos 2 & 3; *Relatório...17 de março de 1878* (São Paulo, 1878), p. 4; *Relatório...11 de dezembro de 1882* (Rio de Janeiro, 1882), p. 6; Arquivo do Estado de São Paulo, Ordem 5630/Lata 53/II (Estrada de Ferro Sorocabana, 1871-90).

* Net yield of £230,000 6% debentures issued in London at 85, equal to 1,994:870\$660 at prevailing rate of exchange.

TABLE 8

Estrada de Ferro São Paulo a Rio de Janeiro

	Nominal Capital	-----Local currency----- Capital Paid Up in Brazil	Net Yield on Debentures Issued in London	-----Sterling equivalent----- Capital Paid Up in Brazil	Net Yield on Debentures Issued in London
1874	4.000:000\$				
1875	10.665:000\$	4.082:320\$	3.574:266\$	£462,526.85	£402,000.00
1876	-				
1877	-				
1878	-				
1879	-				
1880	-				576,000.00
1881	-				
1882	-				
1883	-				
1884	-				
1885	-				
1886	-				
1887	-				
1888	-				
1889	-				

* 426,000,000

Sources: São Paulo, *Relatório apresentado a assembléa legislativa provincial de S. Paulo pelo presidente da provincia Exm. Sr Dr Sebastião José Pereira em 2 de fevereiro de 1876* (hereafter *Relatório...*) (São Paulo 1876), p. 26; *Relatório...17 de janeiro de 1887* (São Paulo, 1887), p.72; *Relatório...11 de janeiro de 1889* (São Paulo, 1889), p. 137.

* £150,000.00 of debentures redeemed.

TABLE 9

Companhia Rio Claro

	Nominal Capital	
	Local currency	Sterling equivalent
1882		
1883		
1884		
1885		
+ 1886	3.000:000\$000	£280.200
1887		
1888		
* 1889	6.606:000\$000	600.000

Sources: São Paulo, *Relatório Apresentado a Assembléa Legislativa Provincial de São Paulo pelo Presidente de Província Barão do Parnahyba no dia 17 de Janeiro de 1887* (São Paulo,1887), p. 84; R. Graham, *Britain and the Onset of Modernization in Brazil* (Cambridge, 1968), p. 60.

+ Capital placed entirely in Brazil

* The Company was sold to a British consortium by the Brazilian shareholders.

TABLE 10**San Paulo (Brazilian) Railway Company Limited**

	* Recognised Capital
1861	
/	no data available
1865	
1866	£2,458,434.00
1867	-
1868	+£2,650,000.00
1869	-
1870	-
1871	-
1872	-
1873	-
1874	+£2,750,000.00
1875	-
1876	-
1877	-
1878	-
1879	-
1880	-
1881	-
1882	-
1883	-
1884	-
1885	-
1886	-
1887	-
1888	+£2,750,000.00
1889	-

Source: Compiled from various issues, San Paulo (Brazilian) Railway Company Limited, Annual Report(s) and Statement(s) of Accounts.

* Includes interest payments to shareholders during period of construction and approximately £300,000 loaned by Maua Bank.

+ Includes loan of £100,000 raised by the Imperial Government.

NOTES

1. F. H. Cardoso and E. Faletto, *Dependency and Development in Latin America* (London, 1979); P. Evans, *Dependent Development: the Alliance of Multinational State and Local Capital in Brazil* (Princeton, 1979).
2. A. Gerschenkron, *Economic Backwardness in Historical Perspective* (Cambridge, Mass., 1962).
3. J. M. Cardoso de Mello, *O capitalismo tardio* (São Paulo, 1982).
4. W. Fritsch, *External Constraints on Economic Policy in Brazil, 1889-1930* (Basingstoke, 1988); S. Topik, *The Political Economy of the Brazilian State, 1889-1930* (Austin, 1987); C. M. Peláez, 'Análise econômica do programa brasileiro de sustentação do café 1906-1945: teoria, política e medição', *Revista Brasileira de Economia* V (1971); W. Cano, *Raízes da concentração industrial em São Paulo* (São Paulo, 1981); Z. M. Cardoso de Mello, *Metamorfoses da riqueza; São Paulo, 1845-1895* (São Paulo, 1990); F. A. M. de Saes, *A grande empresa de serviços públicos na economia cafeeira* (São Paulo, 1986).
5. C. B. Ottoni, *O futuro das estradas de ferro no Brasil* (Second Edition, Rio de Janeiro, 1938) represents an early attempt to set out an appropriate national strategy. N. Brito, *Meio século de estradas de ferro* (Rio de Janeiro, 1961) addresses the period to 1889 and contains lengthy quotations from official reports, debates in parliament on railway policy, and extracts from various statutes - material not readily accessible elsewhere. J. S. Duncan, *Public and Private Operation of Railways in Brazil* (New York, 1932), although dated, has two useful chapters outlining the broad drift of policy between 1835 and 1889. Collections of railway legislation and concessions can be found in C. E. Chrockatt de S, *Brazilian Railways, their History, Legislation and Development* (Rio de Janeiro, 1893), C. Pereira da Silva, *Política e legislação de estradas de ferro* (Rio de Janeiro, 1904) and A. R. Paiva, *Synopse da legislação da viação ferrea federal* (Rio de Janeiro, 1913). Most pertinent for the province of São Paulo are A. A. Pinto, *História da viação pública de São Paulo* (São Paulo, 1903) and O. Nogueira da Matos, *Café e ferrovias: a evolução ferroviária de São Paulo e o desenvolvimento da cultura cafeeira* (São Paulo, 1974).
6. A. El-Kareh, *Filha Branca de mae preta: a companhia da estrada de ferro D Pedro II, 1855-1865* (Petropolis, 1982), pp. 48-56; C. M. Lewis, 'The Financing of Railway Development in Latin America, 1850-1914', *Ibero-Amerikanisches Archiv*, IX 3/4 (1983).

7. El-Kareh, *op.cit*, pp. 54-6.
8. *Correio Paulistana*, 7 November 1875, 3a-b; N. Villela Luz, *A luta pela industrialização do Brasil (1808 a 1930)* (São Paulo, 1961), pp. 52-4, quoted in W. P. Glade, *The Latin American Economies: a Study of Their Institutional Evolution* (New York, 1969) p. 351.
9. J. Cechin, 'A construção e operação das ferrovias no Brasil no século XIX', unpublished MA thesis, UNICAMP, 1978.
10. *Parliamentary Papers* (hereafter *PP*) (1875) LXXV 311; Brasil, Ministerio da Agricultura, Commercio e Obras Públicas (hereafter MACOP), *Relatório apresentado a assembléa geral legislativa na segunda sessão da décima-quarta legislatura* (hereafter *Relatório...*) (Rio de Janeiro, 1870).
11. F. A. Marques de Saes, 'Expansão e declino das ferrovias paulistas, 1870-1940', in C. M. Peláez and M. Buesco (eds.), *A moderna história econômica* (Rio de Janeiro, 1976), pp. 78-80.
12. Brito, *op.cit*, pp. 7-8.
13. Estrada de Ferro Dom Pedro II (hereafter EFDPII), *As estradas de ferro do Brasil em 1879* (Rio de Janeiro, 1880), p. 6.
14. Robert Sharpe & Sons, contractors, to the Directors of the San Paulo (Brazilian) Railway Company Limited, 9 Dec 1861, copy enclosed. R. A. Heath, Chairman San Paulo (Brazilian) Railway, to F. I. de Carvalho Moreira, Brazilian Minister in London, 15 Jan. 1862. Arquivo Histórico da Secretaria de Estado das Relações Exteriores (hereafter Itamarati), Estrada de Ferro São Paulo (hereafter EFSP) Maço 413-3-422.
15. 'Instruções ao Engenheiro Newton Bennaton sobre as explorações para o prolongamento da estrada de ferro de S Paulo, 6 fev. 1866,' MACOP, *Relatório ... quarta sessão da décima segunda legislatura* (Rio de Janeiro, 1866), Anexo G.
16. E. Thornton, British Minister at Buenos Aires, to Earl Russell, Secretary of State, 25 Feb. 1865, Public Record Office, London, Foreign Office correspondence (hereafter FO) FO6/255:96-105; L. S. Sackville West, Minister at Buenos Aires, to Earl of Derby, 14 Sept 1875, FO6/227:132-5; R. G. Granziera, *A guerra do Paraguai e o capitalismo no Brasil* (São Paulo).

17. *PP, Diplomatic and Consular Reports on Trade and Finance, Report for the Years 1888, 89, 90, on the Trade and General Industries of Brasil*, Annual Series, No. 807, p. 40.

18. J. Morgan, British Consul at Bahia, to the Earl of Clarendon, Secretary of State, 6 Oct. 1853, FO13/308:147-54; Morgan to Clarendon, 10 March 1854. FO 13/321: 294-309.

19. P. Eisenberg, *The Sugar Industry in Pernambuco: Modernization without change, 1840-1910* (Berkeley, 1974); J. Camilo de Melo, 'A lavoura canavieira em Pernambuco', unpublished MA thesis, Federal University of Pernambuco, 1978, pp. 114-126.

20. MACOP, *Relatório ... quarto sessão da décima-quinta legislatura* (Rio de Janeiro, 1875), pp. 70-77; *PP* (1876), LXXV 18.

21. Ottoni, *op.cit.*, pp. 51-2, 54, 56-7, 63-5.

22. For a representative sample see MACOP, *Relatório ... segunda sessão da décima-terceira legislatura* (Rio de Janeiro, 1868), p. 84; *Relatório ... primeira sessão da décima-quarta legislatura* (Rio de Janeiro, 1869), pp. 33-4; *Relatório ... terceira sessão da décima-quarta legislatura* (Rio de Janeiro, 1871), p. 104; *Relatório ... segunda sessão da décima-quinta legislatura* (Rio de Janeiro, 1873), pp. 64-5.

23. Consulta do Tribunal da Junta do Commercio, Agricultura, Fábricas e Navegação do Imperio de Brazil sobre o Requerimento do Inglez Thomaz Cochrane, em que pede facultade para estabelecer huma estrada de ferro, com carros de vapor desde a Paruna até Resende, 26 Nov 1839. Consulta da Junta do Commercio, Agricultura, Fábricas e Navegação do Imperio do Brasil sobre o Requerimento de Thomaz Cochrane, relativo a Empreza do Establecimento de huma estrada de ferro com Carros de Vapor, desde a província athe [sic] a Villa de Rezende, 4 Abril 1840. Arquivo Nacional, Rio de Janeiro (hereafter AN), IT3 105.

24. M. R. Smith, Chairman SPR, to Barão de Penedo, Brazilian Minister in London, 7 November 1887, Itamarati, EFSP, 413-3-425; Província de São Paulo (hereafter SP) *Relatório apresentado a assembléa legislativa provincial de São Paulo pelo presidente da província Dr Pedro Vicente de Azevedo o dia 11 de Janeiro de 1889* (hereafter *Relatório ...* (São Paulo, 1889)), p. 112. The provincial report mentions £639,939-18-3, a figure that includes both the final instalment of guarantee debt repayment plus the balance due to the government from earnings in excess of 8%.

25. Smith to Penedo, 21 Nov. 1888; Smith to P. de A Beltrão, Brazilian Chargé d’Affaires in London, 7 Nov. 1889. Itamarati, EFSP, 413-3-425.
26. MACOP, *Relatório ... quarto sessão da vigésima legislatura* (Rio de Janeiro, 1889), p. 168.
27. PP, *Diplomatic and Consular Reports, Report on the Railway of Brazil, Miscellaneous Series No 617*, p. 12; Duncan, *op.cit.*, pp. 141-3.
28. SP, *Discurso com que O Illustríssimo e Excellentíssimo Vicente Pires da Motta, presidente da província de São Paulo abriu a assembléa legislativa provincial no dia 15 de Abril 1850* (São Paulo, 1850), p. 12; *Discurso com que O Illustríssimo e Excellentíssimo Senhor Dr Jose Thomaz Nabuco D’Araujo, presidente da província de S Paulo abriu a assembléa legislativa provincial no dia 1 de maio de 1852* (São Paulo, 1852), pp. 41-2, 44-5.
29. *Correio Paulistano*, 20 Dec. 1867, 2 a-d, quoted in C. Dêbes, *A Caminho do Oeste (história da Companhia Paulista de Estradas de Ferro) primeira parte* (São Paulo, 1968), p. 85; SP, *Annaes da assembléa legislativa provincial de São Paulo: sessão de 1868* (hereafter *Annaes ...*) (São Paulo, 1868), p. 25.
30. Calculated from SP, *Relatório ... 13 de janeiro de 1881* (São Paulo, 1881), p. 82.
31. Dêbes, *op.cit.*, p. 85; Cano, *op.cit.*, pp. 29, 34.
32. De Saes, *A grande empresa*, pp. 49-53, 62-3.
33. Nogueira de Matos, *op.cit.*, pp. 120-1.
34. João Guilherme d’Aguiar Whitaker, Barão de Ararquara *et al*, residents of Rio Claro, to Antônio Cândido da Rocha, president of the province of São Paulo, 21 Feb. 1870, Arquivo de Estado de São Paulo (hereafter AESP), Ordem 1193/Lata 398: Ofícios Diversos (Rio Claro, 186601891); SP, *Annaes ... sessão de 1868* (São Paulo, 1868), pp. 24, 212-4.
35. SP, *Annaes ... sessão de 1880* (São Paulo, 1880), p. 250; *Relatório ... 13 de janeiro de 1881* (São Paulo, 1881), pp. 132-6; *Falla dirigida a assembléa legislativa provincial de S Paulo na abertura da la sessão da 25 legislatura em 16 de Janeiro de 1884 pelo presidente Barão de Guajara* (São Paulo, 1884), p. 72; *Correio Paulistano*, 8 Jan. 1880, 2c, 15 Jan. 1880, 1d - 2c, 17 Jan. 1880, 1b-e, 2 March 1880, 2c, 6 April 1880, 2c. See also Companhia Paulista (hereafter

CP), *Relatório da directoria da Companhia Paulista apresentado na sessão de assembléa geral de 28 de fevereiro de 1879* (São Paulo 1879), pp. 7-8 and Anexo 6, *Relatório ... 29 de fevereiro de 1880* (São Paulo, 1880), pp. 9-10; *Relatório ... 29 de agosto de 1880* (São Paulo, 1880), pp. 5-6, Anexo 7. The reluctance of the CP to construct to Araraquara and Pinhal at this junction may also be explained by the disappointing performance of the Rio Claro branch at a time when the company was engaged in re-laying the mainline out of Jundiaí with steel rails.

36. For various accounts of the antecedents of the Companhia de Estrada de Ferro Sorocabana (hereafter CS) see 'Proceedings of the labours of the session presided over by the Most Excellent President of the Province, Antônio Cândido da Rocha, to give effect to the construction of a railway from the City of Jundiahy to (Itu), 20 January 1870, AESP Ordem 5612/Lata 35: TI (EF, Paulista - Diversos 1870-1890); Ubalando do Amaral Fontaurna, Luis Matheus Mayasky *et al*, citizens of Sorocabana to Antônio Cândido da Rocha, President of the Province of São Paulo, 6 Feb. 1870, AESP Order 1304/Lata 509 Ofícios Diversos (Sorocaba, 1865-1873); SO, *Relatório ... 2 de fevereiro 1870* (São Paulo, 1870), pp. 26-8; EF, *Sorocabana, 1875-1950* (São Paulo, 1950), unpaginated; A. F. Gaspar, *Vultos fundadores da Estrada de Ferro Sorocabana: esboços biográficos* (Sorocaba, 1958), p. 9; SP, *Annaes ... sessão de 1871* (São Paulo, 1871), pp. 186-92, 195, 271, 273, 317-22; *Apêndice aos annaes da assembléa legislativa provincial de São Paulo: sessão de 1869* (São Paulo, 1871), pp. 1-6; *Annaes ... sessão de 1876* (São Paulo, 1876), pp. 199-202.

37. Municipal Council, Rio Claro, to President of the Province of São Paulo, 4 March 1866, AESP, Ordem 1193/Lata 398, Ofícios Diversos (Rio Claro, 1866-1891).

38. SP, *Annaes ... sessão de 1871* (São Paulo, 1871), pp. 403-5.

39. CP, *Relatório ... 29 de Janeiro de 1871* (São Paulo, 1871), p. 7.

40. CP, *Relatório ... 24 de agosto de 1873* (São Paulo, 1873), anexo 9; Companhia Ituana (hereafter CI), *Relatório da directoria da Companhia Ituana para a sessão da assembléa geral de 9 de março de 1873* (hereafter *Relatório ...*) (São Paulo, 1873), anexo 2.

41. CS, *Relatório apresentado pela directoria da Companhia Sorocabana a assembléa geral dos accionistas a ... 2 de julho de 1862* (hereafter *Relatório ...*) (Sorocaba, 1872), pp. 6-7; *Relatório ... 2 de setembro de 1873* (Santos, 1873), pp. 31-2; C I, *Relatório ... 21 de novembro de 1875* (São Paulo, 1880), pp. 59-

60; *Relatório ... 3 de setembro de 1876* (São Paulo, 1880), p. 10; *Relatório ... 12 de outubro de 1879* (São Paulo, 1880), pp. 16-7; *Relatório ... 28 de março de 1880* (São Paulo, 1880), pp. 10-11; *Relatório ... 5 de setembro de 1880* (São Paulo, 1880), pp. 11-2; *Relatório ... 6 de março de 1881* (São Paulo, 1881), pp. 13-4; *Relatório ... em (sic) 16 de setembro de 1883* (São Paulo, 1883), pp. 7-8; SP, *Relatório ... 5 de fevereiro de 1880* (São Paulo, 1880), pp. 27-40.

42. *Correio Paulistano*, 6 Nov. 1875, 1d-2a; SP, *Annaes ... sessão de 1872* (São Paulo, 1872), pp. 138-44, 299-300, 345; *Relatório ... 5 de fevereiro de 1880* (São Paulo, 1880), pp. 24-7; *Relatório ... 13 de janeiro de 1881* (São Paulo, 1881), pp. 138-9.

43. SP, *Relatório ... 5 de fevereiro 1871* (São Paulo, 1871), pp. 37, 42; *Relatório com que O Exmo. Sr Dr Antonio da Costa Pinto Silva, presidente da província passou a administração da mesma ao Exmo. Sr Conselheiro Vicente Pires da Motta, 1o vice presidente* (São Paulo, 1871), p. 4; PP (1871) lxx, 3 (1872) lviii, 394, 407; (1874) lxvi 207; (1877) lxxxi, 321.

44. Cano, *op.cit.*, passim; de Saes, *A grande empresa*.

45. PP, (1872) lxiii, 407; (1874) lxvi, 207, 209; (1875) lxxv, 309, 321.

46. S. J. Stein, *Vassouras: a Brazilian coffee county, 1850-1900* (Cambridge, Mass., 1957), pp. 91, 108. See also R. M. dos Santos, 'O término do escravismo na província de São Paulo, 1885-1888' (Mimeo, São Paulo, 1972), cited in de Saes, *A grande empresa*, p. 65, note 70.

47. SP, *Relatório ... 12 de maio de 1867* (São Paulo, 1867), pp. 48-50; *Relatório ... 5 de fevereiro de 1871* (São Paulo, 1871), pp. 39, 42; *Relatório com que O Exmo. Sr. Dr Antonio da Costa Pinto Silva, presidente da província, passou a administração da mesma ao Exmo. Sr Conselheiro Vincente Pires da Motta, 1o vice presidente* (São Paulo, 1871), pp. 4-5.

48. *Correio Paulistano*, 18 July 1876, 1a-2a; SP, *Annaes ... sessão de 1876* (São Paulo, 1876), pp. 88-9, 211-5.

49. CP, *Relatório ... março de 1884* (São Paulo, 1884), p. 5; SP, *Relatório ... 17 de janeiro de 1887* (São Paulo, 1887), Anexo 10, pp. 4-5.

50. SP, *Relatório ... em (sic) fevereiro de 1887* (São Paulo 1887), Anexo A; *Relatório com que O Exm. Sr Dr João Baptista Pereira, presidente da província de S Paulo passou a administração ao 2o vice presidente, Exm. Sr Barão de*

Três Rios (São Paulo, 1878), p. 76; *Relatório ... 5 de fevereiro de 1880* (São Paulo, 1880), pp. 28-9; *Relatório ... 13 janeiro de 1881* (São Paulo, 1881), pp. 138-40.

51. SP, *Relatório ... 5 de fevereiro de 1880* (São Paulo, 1880), pp. 28-9.

52. SP, *Relatório ... 14 de fevereiro de 1875* (São Paulo, 1875), p. 8.

53. SP, *Relatório ... 5 de fevereiro de 1874* (São Paulo, 1874), pp. 23-5.

54. MACOP, *Relatório ... quarto sessão da décima-quinta legislatura* (Rio de Janeiro, 1875), p. 152; *Relatório ... primeira sessão da décima sexta legislatura* (Rio de Janeiro, 1877), p. 262; SP, *Contracto celebrado entre o governo da província e a companhia sorocabana (representada por seu advogado e procurado o conselheiro Martim Francisco de Andrada)* (São Paulo, 1875); *Annaes ... sessão de 1877* (São Paulo, 1877), pp. 189-192.

55. MACOP, *Anexos ao relatório apresentado a assembléa geral legislativa na primeira sessão da décima-sétima legislatura* (Rio de Janeiro, 1878), p. xv; SP, *Relatório com que O Exm. Sr Dr João presidente da província de S Paulo, passou a administração ao 2o vice-presidente, Exm. Sr Barão de Três Rios* (São Paulo, 1878), pp. 76-7; CP, *Relatório ... 1 de setembro de 1876* (São Paulo, 1976), p. 15; *Relatório ... 28 de fevereiro de 1879* (São Paulo, 1879), Anexo 9; *Relatório ... 27 de fevereiro de 1881* (São Paulo, 1881), Anexo 8; CI, *Relatório ... 6 de março de 1881* (São Paulo, 1881), pp. 11-2 and Anexo 6.

56. SP, *Relatório dirigido a assembléa legislativa provincial de S Paulo pelo 1o vice-presidente da província conde de Três Rios e apresentado no acto da instalação da mesma assembléa pelo 4o vice-presidente Dr Manoel Marcondes de Moura e Costa* (Santos, 1882), p. 53.

57. MACOP, *Relatório ... quarto sessão da décima-oitava legislatura* (Rio de Janeiro, 1884), pp. 383-4; SP, *Falla dirigida a assembléa legislativa provincial de S Paulo na abertura da 1a sessão da 25 legislatura em 16 de janeiro de 1884 pelo presidente Barão de Guajara* (São Paulo, 1884), p. 70.

58. F. A. Marques de Saes, 'Expansão e declínio das ferrovias paulistas, 1870-1940', in Peláez and Buescu, *op. cit.*, p. 79.

59. SP, *The State of São Paulo (Brazil): Some Useful Information* (São Paulo, 1914), pp. 29, 78.

60. T. Holloway, *The Brazilian valorization of 1906: regional politics and economic dependency* (Madison, 1975).
61. CP, *Relatório ... 4 de setembro de 1875* (São Paulo, 1875), p. 46; *Relatório ... 26 de fevereiro de 1882* (São Paulo, 1882), pp. 7-8.
62. Companhia Mojiana (hereafter CM), *Relatório da Companhia Mogiana lido na reunião da assembléa a geral de accionistas em 10 de março de 1878* (hereafter *Relatório ...*) (São Paulo, 1878), pp. 4-5; *Relatório ... 4 de abril de 1886* (São Paulo, 1886), pp. 6-7.
63. SP, *Relatório ... em fevereiro de 1877* (São Paulo, 1877), p. 55.
64. SP, *Relatório com que O Exm. Sr Dr Sebastião José Pereira passou a administração da província ao 5o vice-president Monsenhor Joaquim Manuel Gonçalves de Andrade* (São Paulo, 1878), p. 11.
65. SP, *Relatório com que O Exm. Sr Dr João Baptista Pereira, presidente da província de S Paulo, passou a administração ao 2o vice-presidente Exm Sr Barão de Três Rios* (São Paulo, 1878), p. 96.
66. SP, *Annaes ... sessão de 1871* (São Paulo, 1871), p. 220.
67. PP, *Diplomatic and Consular Reports on Trade and Finance, Report for the Years 1888-89-90 on the Trade and General Industries of Brazil*, Annual Series, No. 807, p. 40. For some years the CP had voiced anxiety about schemes to forge connections between metre gauge lines in the North-West of the province and the EFSP-RJ, projects which were depicted by the Paulista as designed to siphon traffic along circuitous routes to Rio de Janeiro at the expense of Santos. See CP, *Relatório ... 25 de fevereiro de 1883* (São Paulo, 1883), Anexo 9, pp. 71-2.
68. *Correio Paulistano*, 18 July 1877, 1a, 22 August 1877, 1a.
69. *Correio Paulistano*, 7 September, 1 a-c.
70. CP, *Relatório ... 29 de agosto de 1880* (São Paulo, 1880), Anexo 7.
71. CP, *Relatório ... 27 de setembro de 1885* (São Paulo, 1885), pp. 8-10.
72. SP, *Annaes ... sessão de 1866* (São Paulo, 1866), pp. 257-8, 307, 311.

73. SP, *Annaes ... sessão de 1869* (São Paulo, 1869), pp. 32, 143-6.
74. R. H. Mattoon, 'Railroads, Coffee and the Growth of Big Business in Sao Paulo, Brazil', *Hispanic American Historical Review* LVII, 2, 2 (1977), pp. 273-95.
75. João Guilherme d'Aguiar Whitaker, Barão de Araraquara *et al*, petitioners for a railway to Rio Claro, to Antônio Cândido de Rocha, president of the province of São Paulo, 21 February 1870; Araraquara to Rocha, 26 April 1870, AESP Ordem 1193/Lata 398: Ofícios Diversos (Rio Claro, 1866-1891); Heath to J. C. d'A Arêas, 14 February 1981, Itamarati, 413-3-424; Francisco Xavier Lima, president of the province of São Paulo, to Clemente Falcão de Souza Filho, chairman C Paulista, 22 June 1872, printed in CP, *Relatório ... 28 de setembro de 1872* (São Paulo, 1872), Anexo 5; SP, *Annaes ... sessão de 1873* (São Paulo, 1873), pp. 112-24.
76. SP, *Relatório ... 5 de fevereiro de 1880* (São Paulo, 1880), pp. 27-40; Falla dirigida a assembléa legislativa provincial de S Paulo na abertura de 2 sessão da 24 legislatura em 10 de janeiro de 1883 pelo presidente conselheiro Francisco de Carvalho Soares Brandão (São Paulo, 1883), pp. 39-43.
77. De Saes, *A grande empresa*, pp. 78, 116-123.
78. CP, *Relatório ... 28 de agosto de 1875* (São Paulo, 1874), pp. 11, 12; *Relatório ... 28 de fevereiro de 1875* (São Paulo, 1875), pp. 4, 6-7; *Relatório ... 4 setembro de 1875* (São Paulo, 1875), pp. 4-5, 6; *Relatório ... 20 de fevereiro de 1876* (São Paulo, 1876), pp. 7-9; *Relatório ... 1 setembro de 1876* (São Paulo, 1876), pp. 5-6, 8; *Relatório de accionistas de 28 de fevereiro de 1877* (São Paulo, 1877), pp. 7, 9.
79. SP, *Annaes ... sessão de 1867* (São Paulo, 1867), pp. 80-3.
80. Heath to M. da Costa Mota, Brazilian Chargé d'Affaires, London, 8 July 1867, Itamarati 413-3-423; SP, *Relatório ... 2 de fevereiro de 1868* (São Paulo, 1868), pp. 9-11.
81. SP, *Falla dirigida a assembléa legislativa provincial de S Paulo na abertura de 2a sessão da 24a legislatura em 10 janeiro de 1883 pelo presidente conselheiro Francisco de Carvalho Soares Brandão* (São Paulo, 1883), pp. 40-2.
82. SP, *Falla dirigida a assembléa legislativa provincial de S Paulo na abertura da 1a sessão da 25a legislatura em 16 de Janeiro de 1884 pelo*

presidente Barão de Guajara (São Paulo, 1884), p. 70; CP, *Relatório ... agosto de 1883* (São Paulo, 1884), pp. 6-7; *Relatório ... agosto de 1884* (São Paulo, 1884), p. 9; *Relatório ... março de 1885* (São Paulo, 1885), pp. 3-4.

83. San Paulo (Brazilian) Railway Company Limited, *Report of Proceedings at the Ordinary General Meeting, 17 April 1889* (London, 1889); W. Speers, *Companhia São Paulo Railway [sic] e o governo imperial: reprodução aos artigos sob essa epígrafe publicados no journal 'A Província de São Paulo' pelo Dr Engenheiro Fiscal d'esta estrada de ferro com as respostas dadas aos ditos artigos pela respectiva superintendência e os documentos a que os mesmos se referem* (São Paulo, 1889), p. 6.

84. For details of the course of negotiations between the Imperial Government and the company see correspondence, Barão de Penedo, Chevalier P. de A. Beltrão and Visconde de Arinos (for the government) and Martin R. Smith and G. A. Hillier (for the company), November 1887 - May 1890, Itamarati 413-3-425. The company's public position was presented in Speer, *op.cit.*

85. Speer, *op.cit.*, pp. 8-12, 15-17, 23.

86. Lewis, *loc cit.*

87. Duncan, *op cit.*, pp. 22-3; Brito, *op cit.*, pp. 32, 111.

88. Lewis, *loc cit.*

89. MACOP, *Relatório ... quarta sessão da décima-quinta legislatura* (Rio de Janeiro, 1875), pp. 70-7.

90. MACOP, *Relatório ... segunda sessão da décima-quinta legislatura* (Rio de Janeiro, 1873), pp. 66-9; *Relatório ...quarta sessão da décima-quinta legislatura* (Rio de Janeiro, 1875), pp. 71-2; *PP* (1875) lxxv 313.

91. MACOP, *Relatório ... primeira sessão da décima-sétima legislatura* (Rio de Janeiro, 1878), pp. 247-52; *PP* (1875) lxxv, 313.

92. Brito, *op cit.*, pp. 135, 148-9.

93. *PP* (1875) lxxv, 313.

94. Heath to E. M. d'Aragão, Brazilian Minister in London, 18 March 1968; Heath to Arêas, 5 August 1868, Itamarati 413-3-423.

95. Heath to Aragão, 21 December 1867, 20 May 1868, Itamarati 413-3-423.
96. R. Benson, Chairman, Recife (Pernambuco) São Francisco Railway Company Ltd, to Dr L. Barbalho de Munoz Feriza, President of the Province of Pernambuco, 8 February 1860, Arquivo Estadual Público de Pernambuco, Divisão de Arquivos Permanente, Estradas de Ferro (hereafter EF) III - 1812. See also EF IV 25-28, 34-5, 36-39.
97. For details of the dispute and a statement of the company's claim for guarantee extensions to cover interest payments during construction, see correspondence between the company and the Brazilian Legation, London, Itamarati 413-3-423; Manuel de Cunha Galvão, Special Inspector of the Anglo-Brazilian Railways to Dioso Velho Calvacante do Amaral, Minister of Agriculture, Commerce and Public Works, 3 October 1870, Instituto Histórico e Geográfico Brasileiro (hereafter IHGB), Coleção Ourem, Lata 143/Document 7.
98. SP, *Relatório que por ocasião da abertura da assembléa legislativa provincial de S Paulo no dia 3 de fevereiro de 1864 apresentou O Illmo. e Exmo. Sr Conselheiro Doutor Vincentre Peres da Motta presidente da mesma província* (São Paulo, 1864), Anexo, table 10.
99. Edward Thornton, British Minister at Rio de Janeiro, to the Earl of Clarendon, Secretary of State, 7 July 1866, Despatch No 66, FO 13/437: 9-15.
100. Heath to Arêas, 5 July 1871, Itamarati 413-4-424; Charles Dundas, British Consul, Santos, to Barão do Tiete, president of the province of São Paulo, 4 May 1871, AESP Ordem 942/Lata 147, Ofícios Diversos (Capital, EEFF, 1871).
101. Arêas to Heath, 8 May 1869, 21 April 1870, Itamarati 414-4-545c; Heath to Arêas, 19 March 1870, Itamarati 413-3-424; Heath to the Earl of Derby, Secretary for State for Foreign Affairs, 5 September 1874, FO 13/502:225-7; G. B. Matthew, British Minister at Rio de Janeiro, to Derby, 21 October 1874, FO 128/102: 421; Derby to V. A. W. Drummond, Chargé d'Affaires at Rio de Janeiro, 12 November 1876, FO 128/106:252-70; Heath to Derby, 10 September 1877, FO 13/535: 316-322.
102. SP, *Relatório ... em fevereiro de 1877* (São Paulo, 1877), p. 54; *Falla dirigida a assembléa legislativa provincial de S Paulo na abertura da 2a sessão da 24a legislatura em 10 de janeiro de 1883 pelo presidente Conselheiro Francisco de Carvalho Soares Brandão* (São Paulo, 1883), p. 39.

103. Barão de Mauá, chairman, Estrada de Ferro; Mauá, to E. Bramah, manager, Pernambuco Railway Company, 7 January 1861, IHGB, Coleção Mauá, Lata 515/Document 11-43.

104. MACOP, *Relatório ... segunda sessão da décima-sexta legislatura* (Rio de Janeiro, 1877), pp. 66 and 75.

105. Mattoon, *loc cit.*

106. SP, *Annaes ... sessão de 1868* (São Paulo, 1868), p. 112; *Relatório ... 2 de fevereiro de 1870* (São Paulo, 1879), p. 24; Mauá to Falcão, 20 December 1869; Falcão to Mauá, 9 February 1870, reproduced in CP.

107. *Relatório ... março de 1870* (São Paulo, 1870), pp. 47-63.

108. Cano, *op cit*, p. 34.

109. CP, *Relatório ... 1 de setembro de 1876* (São Paulo, 1876), pp. 7, 16-18; *Relatório ... 28 fevereiro de 1877* (São Paulo, 1877), pp. 7-9, 16-18.

110. Graham, *op cit*, pp. 54-6.

111. SP, *Relatório ... 2 de fevereiro de 1876* (São Paulo, 1876), p. 27.

112. E. A. Cardoso, 'Exchange rates in nineteenth century Brazil: An Econometric Model', *Journal of Development Studies*, XIX, 2 (1983), pp. 170-78.

113. F. A. M. de Saes, *Crédito e Bancos no desenvolvimento da Economia Paulista, 1850-1930* (São Paulo, 1986), *passim*, especially pp. 72-93.

114. SO, *Annaes ... sessão de 1873* (São Paulo, 1973), p. 249; CS, *Relatório ... 1 de março de 1874*, pp. 8-9; *Relatório ... 5 de setembro de 1875*, pp. 5-6 and Anexo 5.

115. SP, *Relatório ... 2 de fevereiro de 1876* (São Paulo, 1876), p. 38; *Relatório com que O Exm. Dr Sebastião José Pereira passou a administração da província ao 5 vice-presidente Monsenhor Joaquim Manuel Gonçalves de Andrade* (São Paulo, 1878), p. 45.

116. *Correio Paulistano*, 16 May 1880, 2e-3b.

117. SP, *Annaes ... sessão de 1876* (São Paulo, 1876), pp. 10-14, 88-89, 12-3, 149-58, 199-206, 211-28.
118. CS, *Relatório ... 17 de março de 1878* (Sorocaba, 1878), p. 4.
119. CS, *Relatório ... 2 de janeiro de 1872* (Sorocaba, 1872), p. 5.
120. SP, *Annaes ... sessão de 1872* (São Paulo, 1872), p. 526.
121. SP, *Annaes ... sessão de 1876* (São Paulo, 1876), pp. 211-5; *Relatório ... 2 de fevereiro de 1876* (São Paulo, 1876), p. 13; *Relatório ... 5 de fevereiro de 1880* (São Paulo, 1880), pp. 24-40; *Relatório ... 13 de janeiro de 1881* (São Paulo, 1881), pp. 129-30, 138-40.
122. *Correio Paulistano*, 25 February 1876, lajd.
123. SP, *Relatório dirigido a assembléa legislativa provincial de S Paulo pelo lo vice-presidente da província conde de Três Rios e apresentado no acto da instalação da mesma assembléa pelo 4o vice-presente Dr Manoel Marcondes de Moura e Costa* (Santos, 1882), p. 50, *Annaes ... sessão de 1876* (São Paulo, 1876), p. 12.
124. Pinto, *op cit*, pp. 67, 198-200; Graham, *op cit*, p. 60. Controversy surrounds the second transaction, the purchase of the RCSP Railway Company Limited by the CP. The Paulista was said to have paid an inflated price for the English line which, as it involved an issue of 5% sterling preference shares, represented a severe burden. Graham presents the deal as a lucrative speculation by British financiers. Pinto, who was involved in earlier negotiations to purchase the EF Rio Claro from Brazilian shareholders and was also involved in discussions with the London registered company, defends the 1892 arrangement on the grounds that the RSCP had invested heavily in repairing and extending the line, augmenting rolling stock parks, etc. Moreover, the line earned sufficient funds both to service and amortise preference scrip and to yield a large balance of income for CP ordinary stockholders.
125. PP, 1876 LXXXV, 30; 1877 LXXXI, 321; S. Bassetto 'Política de Mao-de-Obra na Economia Cafeeira do Oeste Paulista Período de Transição', unpublished PhD thesis, Universidade de São Paulo, 1982; P. Eisenberg 'A Mentalidade dos Fazendeiros no Congresso Agrícola em 1878', in J. R. A. Lapa (ed.), *Modos de Produção e Realidade Brasileira* (Petropolis, 1980); M. L. Lamounier, *Da Escravidão ao Trabalho Livre: A Lei de Locação de Serviços de 1879* (Campinas, 1988).

126. *PP*, 1874 LXVI, 211; 1875 LXXIV, 202-6; 1875 LXXVII, 57-8; 1876 LXXV, 35-6; 1877 LXXXI, 346; W. Cano, *Raizes de Concentração Industrial em São Paulo* (São Paulo, 2nd ed, 1981); Cardoso de Mello, *Metamorfoses*.

127. Cardoso de Mello, *Metamorfoses*, *passim*, especially pp. 105-147, 156, 161, 163-4.

128. Cardoso de Mello, *Metamorfoses*, pp. 104, 158.

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