

## INDEX

Italics have been used to identify figures and tables.

- agriculture, 11, 12, 128  
    conflict with industrialization, 13  
air bellows, 38, 41, 44  
*alvará* [type of charter], 38–9, 181n6  
Andrada e Silva, José Bonifácio de [economic advisor], 36, 38, 40, 104, 193n22  
*As minas do Brasil*, 27–8  
asset specificity, 3–4  
assets, indivisibility of, 5, 20–2, 40, 45–6, 51–2, 69–70, 75, 76–7, 111, 131, 133, 182n15  
    *see also* subsoil ownership rights  
asymmetric information, 4  
  
Banco do Brasil, 124, 126  
bankruptcy, 39, 113  
Barbosa, General Horta, 119, 120  
Belgo-Mineira, 90, 95f5.8, 96f5.9, 97, 215n93  
    shares trading, 162–3*tA.8*, 164–5*tA8.8B*  
beneficial-use provisions, 23, 32, 58  
Bernardes, Artur [Brazilian president], 65–6, 119, 204n48  
BNDE *see* National Development Bank  
Bolivia, 128–9  
Brazil  
    debt service burden, 223n42  
    empire, 11–12  
    industrial policy, 15–17, 35, 56  
    post-republican era, 13–14  
    republic, 12–13  
    unit of currency, xvii  
  
Brazilian Institute of Geography and Statistics, 15  
Brazilian state, economic role of, 1, 4–6, 14, 16–17, 82–5, 99–101, 103–4, 108–10, 122–3  
    *see also* SOE [state-owned enterprise]  
British Hematite Syndicate *see* Itabira Iron Ore Company  
Burns, Bradford, 109, 218n29  
business enterprise, organization of, 38–40  
business property law, 21  
Calmon, Pedro [legislator], 106  
Calógeras, João Pandiá, 27–8, 62, 186n55, 186n64  
capital markets, 16, 56–7, 70, 73, 74–5, 76, 92–8, 112–3, 124  
Cardoso, Fernando Henrique [Brazilian President], 125  
Chalmers, George, 28–9  
coal supplies, 64, 86, 202–3n35  
    stock exchange data, 162–3*tA.8A*, 164–5*tA.8B*, 166–7*tA.8C*, 168–9*tA.9*  
codified law, 19  
coke supplies, 64, 65, 67  
Commercial Code, for business structures, 12, 21, 40, 72, 94  
Companhia Belgo-Mineira *see* Belgo-Mineira  
Companhia Petróleos do Brasil, 118, 119  
Companhia Siderúrgica Nacional *see* CSN [Companhia Siderúrgica Nacional]  
Companhia Vale do Rio Doce *see* Vale  
compensation to surface owners, 33  
Congonhas do Campo [iron foundry], xviii, 43

- Constitutions  
 1824, 27  
 1891, 13, 23, 24–5, 55, 58, 63, 132  
 1934, 30, 32, 34, 68, 187n81  
 1937, 32–3, 118  
 1946, 34  
 1967, 34, 118  
 1988, 33–4, 124–5, 134  
 constraints on business, 16, 34, 36, 52,  
 69–72, 75, 119, 133  
 contracts, 3–4  
 CSN [Companhia Siderúrgica Nacional],  
 15, 79, 85–6, 91, 92, 95–7, 95f5.8,  
 96f5.9, 100–1, 112–13, 119, 125, 133  
 shares trading, 162–3*tA.8A*,  
 164–5*tA.8B*  
 currency, xvii, 98–9  
 demographic movement, 12  
 Departamento Nacional de Produção Min-  
 eral *see* National Department of Mining  
 Production  
 DNPM *see* National Department of Mining  
 Production  
*doações of capitánias hereditárias*, 19–20  
 economic nationalism, 29, 80–2, 108–9,  
 120, 125–6, 132, 219–20n59  
 economic role of the state *see* Brazilian state,  
 economic role of  
 environmental issues, 134  
 Eschwege, Baron Wilhelm Ludwig von  
 [mining engineer], 43–4  
 Escola de Minas [Mining School], 11,  
 179n10  
 Estado Nôvo, 32  
 exports, 65, 66, 68, 72–3, 73*tA.7*, 83–4,  
 85, 88–9, 89f5.3, 89f5.4, 127, 132,  
 170–1*tA.10*  
 Fábrica Pilar [iron foundry], 42, 44  
 family partnership enterprises, 21–2  
 Farquhar, Percival, 65, 66, 71, 72, 83, 86, 99,  
 211n40  
 financial institutions, 91  
 First Republic, 12–13, 29, 55–6, 68, 75, 76,  
 81–2, 105–6  
 foreign influences, 31–4, 64–5, 66, 72,  
 82–3, 107, 111–13, 120, 123, 128  
 foundries, development of, 40–4  
 Furtado, Celso, 108  
 gold production, 10, 11, 20, 21, 23–4, 36,  
 45, 52, 69f*A.6*, 131  
 estimates, 37, 37f3.1  
 Gómez-Galvarriato, A., 114, 220n61  
 Guerrero-Luchtenburg, C.L., 114, 220n61  
 Guinle, Guilherme [entrepreneur], 81,  
 84–5, 119  
 hydropower, 44, 109, 128  
 immigration, 12  
 imports, 65, 72–3, 73*tA.7*, 81, 121f7.1  
 import-substituting industrialization, 103,  
 105, 108, 109, 114, 115, 123, 124, 132  
 indivisibility of assets *see* assets, indivisibility  
 of  
 industrial censuses [1907 and 1919], 70  
 industrial policy, 15–17, 35, 36, 56, 67  
 infrastructure, 91, 105, 109, 113, 123,  
 132–3, 202n34  
 development, 10, 13, 14, 16  
 inheritance law, 22, 40, 70  
 institutions, role of, 3, 4, 5, 16–17, 75, 131,  
 133–4  
 interest groups, influence of, 80–2, 119, 123,  
 126, 132  
 interest rates, 92–3, 93f5.7, 99–100  
 Ipanema [iron foundry], xviii, 42–3*t3.1*,  
 42–3  
 iron ore production, 42  
 deposits, 15, 65, 76, 180n24  
 development of iron foundries, 40–4  
 effects of institutional change, 56, 57,  
 75, 76  
 exports, 68, 72–3, 76, 83–4, 85, 89,  
 89f5.3, 89f5.4, 132, 170–1*tA.10*  
 forging and laminating, 70*tA.1*, 71*tA.2*  
 government subsidies, 41, 42, 43, 52  
 industrial policy, 36, 38  
 interest groups, influence of, 80–2,  
 99–100  
 links with steel production, 66, 67, 68,  
 71, 76, 80, 83–5, 86, 101, 115, 132  
 mining, 10, 13–14, 16–17  
 political influences on, 56, 61, 65–6, 72,  
 83–4  
 private investment, 44, 76, 84

- smelting methods, 41  
state-owned enterprise [SOE], 87–91  
statistics, 42–3*t*3.1, 44, 87–8, 88*f*5.1, 88*f*5.2, 172–3*t*A.11  
transportation, 41  
*see also* Itabira Iron Ore Company; pig iron production; Vale
- Iron Quadrilateral, 15  
Itabira Iron Ore Company, xviii, 64–7, 71, 71*t*A.3, 72, 73, 73*t*A.7, 76, 79, 81–5, 86, 159*t*A.6  
distribution of capital improvements, 202n33
- João, Dom [Portuguese ruler], 36, 38–9, 43, 44, 191n5  
joint-stock partnerships, 21, 30, 38–40, 42–3, 44, 70, 71*t*A.2, 72, 93–4, 182n13
- Lage, Henrique [entrepreneur], 84, 119  
Land Code, 12, 20, 181n4  
land holdings, legal cases, 48–52  
land transfers, 62*f*A.3, 63, 63*f*A.4, 156*t*A.4  
*Lei Calógeras* [1915], 28  
*Lei da Trintena*, 21, 182n12  
*Lei Simões Lopes*, 28  
liberalism, 104–5, 115  
loans, 85, 91–3, 99, 115, 122, 125, 126  
Lobato, Monterio [entrepreneur], 119  
Love, Joseph, 107–8, 217n22
- McCann, Frank, 81, 209n12  
Menezes, Rodrigo José de [economic advisor], 36, 38, 40, 41, 104, 194n38  
metallurgy companies, 70–1, 70*t*A.1, 71*t*A.2, 97  
size of, 157–8*t*A.5  
stock exchange data, 95*f*5.8, 96*f*5.9, 97*f*5.10, 98*t*5.2, 166–7*t*A.8C  
Mexico, oil monopoly, 128  
migration, 12  
military sector, 14, 80–1, 83, 84, 97, 100, 106, 119, 132, 208n8
- Minas Gerais  
land transfers, 156*t*A.4  
map, xviii  
metallurgy companies, 157–8*t*A.5  
mining law and regulations, 150–1*t*A.1B, 152*t*A.2A, 153–4*t*A.2B
- mineral extraction, 5–6, 9, 14–15  
access regulations, 61, 62–3  
rights, 1–2, 4, 26–7  
role in economy, 117–18
- miners  
as landowners, 26  
loss of rights, 26–7, 186n55  
political representation, 25–6, 26*t*2.1
- mining  
concessions, 22, 27, 30–1, 32, 34, 57, 62–3, 62*f*A.3, 68, 82, 85, 155*t*A.3  
development, 26, 27–8, 30, 34, 54, 62  
law and regulations, 20, 27, 28, 34, 38, 57, 58–62, 59*f*A.1, 60*f*A.2, 68, 143–9*t*A.1A, 150–1*t*A.1B, 152*t*A.2A, 153–4*t*A.2B, 205n65  
methods, 37, 39  
privatization policies, 125
- Mining Code, 30–3, 68, 69, 82, 85, 100, 106, 110, 118, 119, 128, 187n91
- mining companies, 31, 32, 36, 114*t*6.2  
political representation, 25–6, 26*t*2.1  
shares data, 96*f*5.9  
stock exchange data, 95*f*5.8, 96*f*5.9, 97*f*5.10, 166–7*t*A.8C, 168–9*t*A.9  
*see also* St John del Rey Mining Company
- Morro Velho [gold mine], 45  
multiple ownership claims, 48–52
- Napoleonic Code of 1810, 24  
National Brazilian Mining Association, 50  
National Department of Mining Production, 82, 118–19, 188n99  
National Development Bank, 123, 125, 126  
National Petroleum Council, 119  
national security issues, 80–2, 105, 119, 120, 132, 189n114  
National Steel Company *see* CSN [Companhia Siderúrgica Nacional]  
National Steel Council, 83  
nuclear minerals, 33
- Olson, Mancur [economist], 57, 74, 178n18
- personal estates, division of, 45–6, 48–52, 111, 131, 133, 183n18  
*see also* assets, indivisibility of  
personal property law, 21

- Petrobras [petroleum company], 118, 120–2, 124, 126, 127, 128, 221n9, 222n34, 224n61, 225n74
- petroleum, 33, 109, 115, 118–22, 121f7.1, 122f7.2, 126, 127
- stock exchange data, 162–3*tA.8A*, 164–5*tA.8B*, 166–7*tA.8C*, 168–9*tA.9*
- pig iron production, 67, 67f4.5, 69, 69f4.6, 72, 82, 87–9, 88f5.1, 88f5.2, 159*tA.6*, 172–3*tA.11*, 200n4
- exports, 89, 89f5.3, 89f5.4, 170–1*tA.10*
- port development, 65, 86, 91, 101
- Portugal
- colonization of Brazil, 9–11
- imperial court in exile, 10–11
- role of Crown in iron ore production, 36–40, 41–4
- positivism, 104, 105–6, 108, 115, 216n4, 216n9
- precious stones, 10, 11, 36, 52
- privatization, 2, 55–77, 123–7, 134
- property law, 19–34
- property rights, 1–2, 3, 10
- public ownership of land, 22–3
- Quadrilátero Ferrífero, 15
- quinto* [tax on mineral production], 20
- railway development, 11, 41, 61, 64, 65, 66, 71, 83, 86, 91, 101, 105, 202n34
- Real Fábrica do Morro do Gaspar Soares *see* Fábrica Pilar
- Regimento dos Superintendentes, Guardas-mores e Oficiais Deputados*, 20–1
- renationalization, 56, 67–8
- res nullius* [property status], 24, 30, 33, 111, 184n38
- road building, 43
- Roman law, 19
- Rotulo Company, 50
- Royal Dutch-Shell, 120, 128
- Royal Treasury, 39, 40, 42
- security *see* national security issues
- Serzedello, Innocencio Corrêa, 106
- sesmarias* [property rights], 20, 181n3
- shares, 32, 39, 85, 94–8, 112, 126, 133, 214n81
- Siciliano, Alexandre [entrepreneur], 81, 84
- Siderbrás [steel conglomerate], 125
- Simonsen, Roberto [Minister of Labour], 81
- sistema acesso*, 24–5
- slave descendants, rights to land, 49–50
- slavery, 10, 11, 12, 38
- SOE [state-owned enterprise], 5, 6, 15–16, 17, 34, 79, 80, 86, 97, 100, 109–15, 112t6.1, 114t6.2, 119
- privatization, 123–7
- production and exports, 87–91
- St John d'el Rey Mining Company, 28, 31, 35, 44–6, 63, 90, 128, 183n28
- land holdings, 46, 47f3.2
- legal cases and land acquisition, 48–52, 53–4, 196n72
- Standard Oil-New Jersey, 120, 128
- state capitalism, 1, 108, 115, 123, 125, 126, 133, 134
- state monopolies, 118, 120, 122, 128
- see also* SOE [state-owned enterprise]
- state-owned enterprise *see* SOE [state-owned enterprise]
- statutory capital, 93–4, 94t5.1, 97f5.10
- steel production, 1–2, 16, 56, 63, 66, 76, 80, 82, 83–5
- exports, 170–1*tA.10*
- links with iron ore production, 66, 67, 68, 71, 76, 80, 83–5, 86, 101, 115, 117, 132
- statistics, 87–8, 88f5.1, 88f5.2, 172–3*tA.11*
- stock exchanges, 94, 96, 112
- structuralism, 104, 106–8, 115, 127, 217n15
- subsoil ownership rights
- attachment to surface rights, 24, 25, 45, 55, 63, 76
- foreign ownership, 30
- privatization, 23–9, 55–77
- renationalization, 29–34, 55, 67–8, 76
- regulation, 27
- separation from surface rights, 20, 22, 28, 30, 31, 34, 63, 68, 109, 187n91, 188n104, 200–1n14
- state versus national ownership, 25
- Superintendência da Moeda e do Crédito, 98

- Távora, Juarez [Minister of Agriculture 1932–4], 106, 119, 120
- taxation, 20, 21, 38, 41, 65
- Technical Council of Economy and Finance, 84, 119
- terras devolutas*, 22, 183n23
- timber supplies, 39, 46, 128
- tool production, 35, 38, 40–1
- trade development, 36
- trade disruptions, 81
- transportation, 41, 43, 83, 86  
costs, 70, 70*tA.1*
- unit of currency, xvii
- United Nations Economic Commission on Latin America, 108
- US Export-Import Bank, 85, 91–3, 115, 211n46
- Vale, xv, 15, 16, 80, 86–8, 90–1, 90*f5.5*, 91*f5.6*, 100–1, 110, 113, 225–6n1  
assets and liabilities 1943–64, 160*tA.7A*, 161*tA.7B*  
exports, 98–9  
loan for, 91–3, 93*f5.7*, 99, 112  
organisation of, 93–4, 124  
privatization, 125–6, 127  
shares, 95–8, 95*f5.8*, 112, 133, 162–3*tA.8A*, 164–5*tA.8B*, 214n81  
statutory capital, 93–4, 94*t5.1*
- Vargas, Getúlio *see* Vargas regime
- Vargas regime, 13–14, 16, 29–33, 67–8, 81–2, 84–5, 90, 106, 109–10, 113, 115, 118, 120, 123
- Varnhagen, Fredreich Wilhelm von [mining engineer], 42–3, 194–5n49
- Vitória, 65
- Volta Redonda project, 86
- War of the Triple Alliance [1864–70], 81, 106
- Washington Accords, 86
- Water Code, 82, 106, 109, 128
- water supplies, 39, 46, 128
- Werneck, Américo, 106
- Wirth, John, 109, 190n120, 211n46, 218n29
- World War I, 81, 208–9n11
- World War II, 16, 100, 132
- Wright, Gavin, 9