
**PARAMETER VALUES: HISTORICAL PATTERNS
AND STUDY ASSUMPTIONS**

Table B.1 summarizes historical data on the means and standard deviations for the six principal parameters used in our forecasts.¹

In choosing the periods from 1985 through 1996 as the reference decade for estimating means and standard deviations, we are deliberately setting aside the sharp economic reversals suffered in 1997 and 1998 by two of the five countries—Korea and Indonesia. Part of the reason for doing this is elaborated in the Chapter Two discussion of the end of the 1997–1998 financial crisis in East Asia. However, the gradual pace of recovery from the 1997–1998 East Asian crisis does affect judgments we make concerning several of the parameters for these countries, e.g., see footnotes e and f of Table B.1.

We use the historical data shown in Table B.1 as background for making explicit judgments about whether and why we believe the parameter values will change from their averages and the patterns of stability or volatility they displayed in the 1985–1996 period.

For example, the second row of Table B.1 for Japan (showing the parameter values assumed in this study) posits that employment and capital growth will be lower in Japan than their averages in the

¹The six parameters do not include the same annual depreciation rate, δ , applied to the military capital stock of the five countries, as discussed in the text and in Appendix A.

Table B.1
Parameter Values: Historical Context and Current Assumptions

	Employment Growth		Capital Growth		Productivity Growth		Labor Share		Military Spending Share		Military Investment Share	
	\dot{L}/L , %/yr		\dot{K}/K , %/yr		(τ) , %/yr		(α) , %		(γ) , %		(π) , %	
	mean	S.D. (σ)	mean	S.D. (σ)	mean	S.D. (σ)	mean	S.D. (σ)	mean	S.D. (σ)	mean	S.D. (σ)
Japan												
1985–1996	1.05	.73	7.1	3.7	−0.35	1.71	63.7	2.5	1.01	.04	a	
Current assumption	0.3–0.4		3.0–5.0		−(1)+(0.4)		67.0		1.1		21	
China (Scenario A)												
1985–1997	2.18	0.76	37.9 ^b	2.6	10.12 ^c	3.29	61.17	3.35	1.46	0.34	d	
Current assumption	1–1.20		8–9.0		1.0–1.5		60.0		2.0–3.0		25–32	
India												
1986–1996	2.68	1.0	6.7	1.0	1.4–1.5	0.10			3.52	0.53	24.1	1.58
Current assumption	2.2		5.7		1.5		55.0		4.0		25	
Korea												
1985–1997	2.76	1.20	10.1	1.66	3.65	1.04	62.0	.08	3.25	0.03	30	0
Current assumption	0.5–1.0		−(0.2) +(7.1) ^e		3.0		60.0		3.5		30	
Indonesia												
1985–1997	2.71	2.27	3.99	0.80	1.91	1.01	60.3	.013	1.95	0.00	25	0.00
Current assumption	1.0–2.5		2.0–7.2 ^f		1.9		60.0		1.8–2.0		25	

SOURCES: The principal sources for the historical data are as follows: Japan, *Statistical Yearbook, 1998*; China, *Statistical Yearbook, 1998*; India, M. Brahmhatt, T. G. Srinivasan, K. Murrell, *India in the Global Economy*, World Bank, 1996; I. J. Ahluwalia, *Productivity and Growth in Indian Manufacturing*, 1991; A. K. Ghosh, *India's Defense Budget*, 1996; S. Gordon, "Indian Defense Spending: Treading Water in the Fiscal Deep," *Asian Survey*, 1992; Korea, *International Monetary Fund, International Financial Statistics Yearbook, 1998*; ACDA, *World Military Expenditures and Arms Transfers* (various issues); ISS, *The Military Balance* (various issues); Indonesia, same sources as for Korea, plus ILO, *Yearbook of Labor Statistics, 1997*, and *Economically Active Population Estimates and Populations, 1997*.

^aHistorical data on Japan's military investment share are not available. The 21 percent figure we used is derived from data shown in *Defense of Japan, 1998*, published by Japan's Defense Ministry.

^bThe 37.9 percent figure is not the rate of capital growth, but the investment rate (i.e., investment as a share of GDP), which as indicated has been quite stable in the reference decade. The 8–9 percent capital growth estimate reflects the authors' judgment in consideration of a plausible capital/output ratio of perhaps 4–5/1 for the economy as a whole.

^cThe figures shown, 10.12 percent for the mean, and 3.29 for the standard deviation (S.D.), refer to GDP growth rates, *not* productivity growth; the latter is estimated as a residual (about 1.5–2.0 percent annually in the prior decade) in the accounting model that we used. Assuming constancy of the other parameters in the model, a similarly relatively stable value of τ is inferred.

^dTime series data on China's military investment share are not available. As indicated in the China section of Chapter Four, the relatively high investment share that we have assumed (25–32 percent) is based on the leadership's emphasis on military modernization, in part at the expense of force size.

^eThe extraordinarily wide range in capital growth for Korea results from several considerations: First, the International Monetary Fund investment data for Korea imply a decline in civilian capital in 1998 and 1999, net of depreciation; second, we assume that, over the forecast period, investment will gradually rise to a "long-run" growth rate of about 7 percent.

^fThe large difference in capital growth for Indonesia is mainly a result of the effect of the 1997 downturn. In gradually recovering from near-zero growth in 1998, Indonesia will likely show a capital stock gradual rise to a long-run rate of slightly above 7 percent.

preceding decade, although within one standard deviation thereof. The reasons for this judgment relate principally to what we have described in Chapter Four as the depth of Japan's structural economic problems, and the probable insufficiency of its reform efforts to bring about large and rapid remedies for these problems. A similar rationale applies to our judgment about the likely range of factor productivity (i.e., the parameter τ in Table B.1) in Japan during the forecast period.

For China, we have also made judgments that employment growth, capital growth, and productivity growth will be somewhat lower in the forecast period than in the prior decade. The rationale for these judgments relates largely to diminishing returns. The rationale for the assumed boost in military spending and military investment is summarized in Chapter Four and in footnote a of Table B.1.

For India, the reasons for judging that the key parameter values shown in Table B.1 will rise above their recent historical averages are discussed in Chapter Four. These reasons relate partly to more rapid economic growth achieved in the 1993–1997 period, and partly to the BJP's apparent success in gaining wider consensus for its goals of continued liberalization of the economy.

For Korea and Indonesia, both of which experienced several setbacks in the 1997–1998 economic turmoil, footnotes e and f of Table B.1 and Chapter Four provide the rationales for our assessment of the parameter values during the forecast period. These judgments are especially uncertain in Indonesia because of the serious political pressures threatening that country.

It is worth noting that, for all five countries, the parameters γ and π (see the right-side columns of Table B.1), which represent military spending shares in GDP and military investment shares in military spending, respectively, show remarkable stability (as reflected by the low standard deviations) in the previous decade. Consequently, the corresponding parameters used in our forecasts are close to the historical values, except for China, whose military spending share of GDP is raised for reasons described in Chapter Four.

Of course, despite their general pattern of stability, the military spending and investment parameters are inevitably subject to major uncertainties. For example, an apparently aggressive China might

trigger sharp increases in these parameters in Japan; a significant retreat of Indonesia's military from the political domain might result in an appreciable reduction in military spending. However, the historic stability of military and investment spending parameters generally reflects strong organizational and bureaucratic influences, as well as inertia, and these forces are unlikely to change quickly.