

## Appendix 11: Modeled Productivity Trend of Economies

USA	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Actual Population	29611	30056	29210	30158	32076	33023	33850	34730	35863	36756
Modeled Population	27194.34	28138.06	29114.53	30124.89	31170.32	32252.02	33371.26	34529.34	35727.61	36967.46
CHN	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Actual Population	1930	1962	2128	2227	2444	2619	2748	2931	3045	3022
Modeled Population	5484.458	6698.276	8180.736	9991.293	12202.56	14903.23	18201.6	22229.97	27149.9	33158.71
BRA	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Actual Population	8249	7709	7587	7203	7438	7862	8281	8402	8230	8333
Modeled Population	7648.984	7714.331	7780.237	7846.705	7913.742	7981.351	8049.538	8118.307	8187.664	8257.613
IND	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989

Actual Population	1495	1557	1570	1663	1690	1720	1755	1793	1938	2024
Modeled Population	4604.399	5359.34	6238.062	7260.861	8451.358	9837.051	11449.94	13327.29	15512.44	18055.87
HKG	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Actual Population	17086	18301	18527	19349	21042	20883	22823	25414	27063	27377
Modeled Population	19195.93	20970.89	22909.98	25028.36	27342.62	29870.87	32632.9	35650.31	38946.74	42547.97
HTI	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Actual Population	2063	1964	1855	1835	1803	1776	1729	1682	1701	1619
Modeled Population	1733.647	1644.65	1560.222	1480.128	1404.145	1332.063	1263.682	1198.81	1137.269	1078.887
		0.948665	0.948665	0.948665	0.948665	0.948665	0.948665	0.948665	0.948665	0.948665
GRC	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Actual Population	14300	14180	14153	14132	14453	14850	15047	14944	15596	16117

Modeled Population	14197.31	14431.02	14668.57	14910.03	15155.47	15404.94	15658.52	15916.28	16178.28	16444.59
ISR	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Actual Population	17508	18103	18155	18468	18305	18605	19160	20196	20256	20091
Modeled Population	18425.65	18563.59	18702.55	18842.56	18983.61	19125.73	19268.9	19413.15	19558.48	19704.89
KEN	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Actual Population	1675	1647	1680	1627	1594	1604	1658	1698	1741	1761
Modeled Population	3930.506	3909.092	3887.794	3866.612	3845.546	3824.594	3803.757	3783.033	3762.422	3741.923
MWI	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Actual Population	1004	925	904	913	925	966	936	905	872	864
Modeled Population	3181.571	2923.895	2687.089	2469.461	2269.46	2085.656	1916.739	1761.502	1618.838	1487.728
GBR	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989

Actual Population	20612	20319	20650	21366	21869	22579	23498	24536	25679	26164
Modeled Population	24290.14	24688.39	25093.17	25504.59	25922.75	26347.77	26779.76	27218.83	27665.1	28118.68
SAU	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Actual Population	21068	21393	20535	17315	16343	14422	12897	12919	12795	12758
Modeled Population	8345.066	8619.914	8903.816	9197.067	9499.977	9812.864	10136.06	10469.89	10814.72	11170.91
JPN	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Actual Population	21404	21924	22440	22805	23548	24437	24992	25904	27393	28601
Modeled Population	23720.29	24325.14	24945.41	25581.49	26233.79	26902.73	27588.73	28292.22	29013.64	29753.46
FIN	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Actual Population	20640	20935	21495	21944	22486	23148	23621	24519	25644	27012
Modeled Population	20664.22	21002.05	21345.39	21694.35	22049.01	22409.48	22775.83	23148.17	23526.61	23911.22

AUS	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Actual Population	22972	23368	22972	22697	24009	24927	25116	25971	26702	27407
Modeled Population	22447.41	22862.17	23284.6	23714.82	24153	24599.28	25053.8	25516.72	25988.19	26468.38
DMA	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Actual Population	2219	2499	2592	2644	2802	2872	3107	3370	3687	3714
Modeled Population	1460.285	1658.351	1883.281	2138.72	2428.805	2758.235	3132.348	3557.203	4039.684	4587.606

1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
36982	36463.96	37240.3	37761.54	38807.28	39390.63	40412.75	41722.67	43072.76	44575.85	45886.47	45878.01
38250.34	39577.74	40951.2	42372.33	43842.77	45364.24	46938.51	48567.42	50252.85	51996.77	53801.21	55668.27
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
2982	3051.315	3227.744	3506.48	3730.164	3999.729	4219.644	4310.828	4309.847	4466.736	4730.354	4995.145
40497.38	49460.24	60406.75	73775.95	90104.01	110045.8	134401.1	164146.7	200475.5	244844.7	299033.6	365215.6
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001

7842	7888.049	7812.794	8166.236	8615.689	8951.694	9124.516	9409.947	9419.108	9441.759	9834.424	9953.31
8328.16	8399.31	8471.067	8543.437	8616.426	8690.039	8764.28	8839.155	8914.67	8990.831	9067.642	9145.109
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
2087	2062.31	2115.257	2176.428	2254.899	2355.963	2475.568	2514.022	2611.781	2707.741	2753.086	2837.856
21016.33	24462.19	28473.03	33141.5	38575.41	44900.27	52262.16	60831.11	70805.03	82414.29	95927.02	111655.3
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
27960	29008.7	30202.54	31242.2	32219.36	31941.91	32261.8	33385.82	30866.43	31134.17	32894.01	32734.2
46482.19	50780.19	55475.6	60605.18	66209.07	72331.13	79019.26	86325.82	94307.98	103028.2	112554.8	122962.2
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1602	1628.719	1535.971	1443.181	1262.337	1378.542	1426.413	1456.234	1480.577	1513.332	1520.729	1501.103
1023.503	970.961	921.1166	873.831	828.9728	786.4174	746.0465	707.7482	671.4158	636.9486	604.2508	573.2315
0.948665	0.948665	0.948665	0.948665	0.948665	0.948665	0.948665	0.948665	0.948665	0.948665	0.948665	0.948665
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
15964	16409.69	16545.96	16331.31	16724.29	17148.2	17719.56	18588.3	19378.71	20076.56	20965.33	21913.8
16715.29	16990.44	17270.13	17554.41	17843.38	18137.1	18435.66	18739.13	19047.6	19361.14	19679.85	20003.8
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
20829	20912.94	21531.6	21484.98	22128.8	23378.16	23980	24226.73	24506.16	24644.2	26058.84	25427.32

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1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
26884	25174.9	24219.76	23943.74	24797.66	25761.62	26637.27	28239.87	29715.34	30986.89	32689.77	33481.68
24302.13	24699.43	25103.22	25513.61	25930.71	26354.63	26785.48	27223.38	27668.43	28120.76	28580.48	29047.72
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
27373	26861.28	27560.18	28622.48	29844.17	30690.06	31740.47	32857.99	34337.14	35551.02	36603.05	37275.99
26957.43	27455.53	27962.82	28479.49	29005.71	29541.65	30087.49	30643.42	31209.62	31786.28	32373.59	32971.76
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
3939	4083.996	4271.69	4339.817	4459.365	4606.734	4894.842	5170.808	5462.697	5584.024	5696.955	5799.816
5209.845	5916.482	6718.963	7630.288	8665.221	9840.527	11175.24	12691	14412.34	16367.15	18587.11	21108.17

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
46266.3	47158	48492.72	49654.76	50489.86	50901.74	50275.75	48452.93	49266.92	49675	50394	50863
57600.12	59599.01	61667.27	63807.31	66021.61	68312.75	70683.41	73136.33	75674.37	78300.49	81017.75	83829.3
2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
5343.112	5649.463	6067.591	6626.592	7271.036	7895.713	8190.112	8734.041	9658.419	10221	10680	11328
446044.9	544763.4	665330.2	812580.8	992420.8	1212063	1480316	1807939	2208071	2696761	3293607	4022546
2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013



10245.07	10354.6	10949.66	11305.77	11766.61	12500.01	13164.01	13180.89	14215.61	14831	14985	15306
9223.238	9302.034	9381.504	9461.652	9542.486	9624.01	9706.23	9789.153	9872.784	9957.13	10042.2	10127.99
2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
2870.924	3035.923	3212.511	3396.649	3629.411	3870.699	4030.654	4270.708	4525.746	4768	4932	5172
129962.4	151271.2	176073.7	204942.9	238545.6	277657.7	323182.7	376172.1	437849.6	509639.8	593200.8	690462.6
2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
33038.15	33594.32	36052.99	38191.9	40172.85	42230.89	42635.48	41076.23	43170.55	44532	44904	46040
134332	146753	160322.6	175147	191342	209034.5	228363	249478.7	272546.9	297748.1	325279.5	355356.7
2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
1494.184	1495.892	1439.208	1461.8	1493.038	1541.767	1555.493	1604.113	1556.55	1648	1674	1722
543.8046	515.8884	489.4052	464.2815	440.4476	417.8371	396.3874	376.0388	356.7348	338.4218	321.0489	304.5678
0.948665	0.948665	0.948665	0.948665	0.948665	0.948665	0.948665	0.948665	0.948665	0.948665	0.948665	0.948665
2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
22893.96	24380.07	25780.39	26091.52	27731.11	28822.92	28907.93	27839.9	26517.47	24349	22693	22118
20333.09	20667.79	21008.01	21353.82	21705.33	22062.63	22425.8	22794.96	23170.19	23551.6	23939.28	24333.35
2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
24823.55	24545.25	25210.88	25686.41	26571.26	27624.88	27857.62	27644.7	28575.53	29370	29517	30257

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2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
33986.55	34607.22	35888.61	36787.26	38160.7	39998.53	40129.65	36662.61	37615.11	38432	37704	37246
29522.6	30005.24	30495.78	30994.33	31501.03	32016.02	32539.42	33071.38	33612.04	34161.54	34720.02	35287.63
2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
38567.07	39523.66	40887.73	41904.45	42650.99	44033.58	44421.64	44686.54	45400.22	46132	46999	47250
33580.98	34201.46	34833.4	35477.01	36132.52	36800.14	37480.1	38172.62	38877.94	39596.29	40327.91	41073.05
2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
5771.375	6321.956	6602.7	6697.535	7133.781	7698.774	8454.063	8511.858	8768.477	8944	8823	9145
23971.17	27222.5	30914.82	35107.95	39869.81	45277.54	51418.75	58392.93	66313.04	75307.4	85521.71	97121.43

2014	2015	2016	2017	2018
51664	52591	53015	54007.77	55334.74
86738.43	89748.5	92863.04	96085.66	99420.11
2014	2015	2016	2017	2018
11944	12244	12569	12733.93	13101.71
4912814	6000116	7328060	8949902	10930691
2014	2015	2016	2017	2018

15258	15826	13873	13951.6	14033.57
10214.52	10301.78	10389.79	10478.55	10568.07
2014	2015	2016	2017	2018
5458	5794	6125	6449.113	6806.499
803671.5	935442.2	1088818	1267342	1475136
2014	2015	2016	2017	2018
47038	47777	48330	49918.6	50839.37
388214.9	424111.4	463327.1	506168.8	552972
2014	2015	2016	2017	2018
1749	1742	1728	1725.606	1729.043
288.9328	274.1004	260.0294	246.6808	234.0174
0.948665	0.948665	0.948665	0.948665	0.948665
2014	2015	2016	2017	2018
22344	22442	22574	22959.12	23450.77
24733.9	25141.05	25554.9	25975.57	26403.15
2014	2015	2016	2017	2018
30686	30954	31701	32339.09	32954.77

23743.76	23921.51	24100.58	24281	24462.77
2014	2015	2016	2017	2018
2942	3046	3169	3249.877	3377.47
3264.219	3246.434	3228.747	3211.156	3193.661
2014	2015	2016	2017	2018
1129	1124	1112	1118.771	1116.64
180.1065	165.5196	152.1142	139.7945	128.4725
2014	2015	2016	2017	2018
36436	36941	37334	37782.83	38058.09
42224.49	42916.79	43620.44	44335.62	45062.53
2014	2015	2016	2017	2018
50693	51681	51397	50001.94	50304.75
25114.16	25941.31	26795.7	27678.23	28589.82
2014	2015	2016	2017	2018
36537	37031	37465	38414.86	38673.81
55836.67	57260.45	58720.54	60217.86	61753.36

2014	2015	2016	2017	2018
36858	36836	37239	38366.56	38896.7
35864.51	36450.84	37046.74	37652.39	38267.94
2014	2015	2016	2017	2018
47867	48357	48845	49265.61	49830.8
41831.96	42604.88	43392.1	44193.85	45010.42
2014	2015	2016	2017	2018
9507	9319	9550	8842.023	9021.174
110294.5	125254.3	142243.1	161536.2	183446.2