

# Effects of Legal and Unauthorized Immigration on the U.S. Social Security System

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# Introduction and Motivation

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- Immigration into the United States has grown rapidly for the last decades and the share of older immigrants has gone up.
- The effect of immigration on the social insurance system is a policy issue of growing importance. According to one SSA Actuary report, an increase in legal immigration of about a quarter of a million would reduce the 75-year actuarial deficit of the Social Security program by about 5 percent under the current set of assumptions.
- Eligible immigrants have the right to eventually receive pension benefits. However, a significant percentage of immigrants migrate back to their countries of origin after a relatively short period of time. Duration of stay in the United States varies according to legal status.
- Some undocumented immigrants contribute to the system through taxed wages, but they are not eligible for these programs unless they attain legal status. Possible migration reform could have an effect in this conversion.
- Remittances sent abroad reduce the amount of savings that stay within the country negatively affecting capital formation and economic growth.
- Any analysis that tries to understand the impact of immigrant workers on the overall system has to take into account most, if not all, these issues.

# Immigrant Population by Period of Entry (American Community Survey 2009)

<i>Period of Entry</i>	<i>Number (thousands)</i>	<i>Percent</i>
All	37,342	100
After 2000	10,335	27.68
1990 to 1999	10,965	29.36
Before 1990	16,042	42.96

# Population by Age and Birthplace in Percentage Points (ACS 2009)

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<b>Age</b>	<b>Natives</b>	<b>Foreign Born</b>
Younger than 18	27.00	7.90
18 to 54	49.50	69.20
54 to 64	10.80	10.90
65 and above	12.80	11.90

## Educational Attainment of Immigrants (and Natives) age 25 and over by Period of Entry (ACS 2009)

<i>Educational Attainment</i>	<i>Native</i>	<i>Immigrant</i>	<i>Prior to 1980</i>	<i>1980-1989</i>	<i>1990-1999</i>	<i>2000-2009</i>
6 Years or Less	1.9	16.3	15.7	17.6	16.7	15.2
7 – 12 Years	9.0	13.4	13.0	13.8	14.4	12.1
High School Graduate	59.7	40.5	44.2	41.2	38.9	36.0
College +	29.5	29.9	27.1	27.4	29.9	36.7

## Participation in Social Insurance Programs of Immigrants age 25 and over by Period of Entry (ACS 2009)

	age 25 and over					
Program	Native	Immigrant	Prior to 1980	1980-1989	1990-1999	2000-2009
Social Security	20.1	13.7	36.9	8.6	4.5	1.9
Welfare	1.4	1.5	1.2	1.7	1.7	1.3
Pensions	9.9	4.9	13.7	2.6	1.2	0.9
SSI	2.1	2.2	3.3	2.8	2.2	0.7
Percentage Unemployed	6.1	6.4	4.2	6.5	7.1	7.8
Not in Labor Force	33.1	31.7	45.2	23.1	25.3	31
	age 40 and over					
Program	Native	Immigrant	Prior to 1980	1980-1989	1990-1999	2000-2009
Social Security	31.7	23.0	40.4	12.1	9.6	5.2
Welfare	1.1	1.5	1.11	1.6	2.1	1.9
Pensions	15.9	8.2	15.0	3.5	2.4	2.6
SSI	2.6	3.6	3.4	3.7	4.6	2.0
Percentage Unemployed	4	5.2	4	5.9	5.9	7
Not in Labor Force	40.6	37.7	48.4	26.7	29.1	36.5

# Objective and Contribution

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- **Objective:** Understand the long term effects of legal and unauthorized immigration on the financial viability of the U.S. economy in general, and the Social Security system in particular.
- **Contribution:** We are evaluating immigration reform in the form of some legalization with the emphasis on the tradeoff between savings and usage of the social insurance system. We present an equilibrium model of the key decisions of immigrants including labor supply, consumption, wealth accumulation, retirement and health investments as well as different incentive structures and eligibility rules faced by immigrants regarding their retirement decisions, their health coverage, and their unemployment benefits and return migration probability.
- We propose the equilibrium setting to account for the macroeconomic effects of immigration as general equilibrium effects of migration are particularly important when studying the sustainability of social insurance programs, since changes in wages and interest rates affect directly the government budget through changes in tax revenues and government debt.
- Differential savings strategies of documented and undocumented immigrants, and their effect on economic growth, makes this equilibrium framework a key aspect in order to understand the effects of possible reforms to the system.



## GE - OLG Model

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- The economy consists of households, firms and a government where households accumulate human capital. Firms produce output and are owned by the households. The government sets payroll taxes for the workers and provides social security benefits to the retirees in a Pay As You Go system.
- We have a general equilibrium framework within an OLG model. Mainly through the individual problem that the key migration features come to life and the rest is much more standard.

# Potential Impacts of Legalization within the model

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## □ Benefits of legalization:

1. Increase in number of social security tax payers.
2. Longer spells contributes to higher taxes due to wage growth.
3. Reduction in remittances and increase in savings.

Remittances and savings are particularly important in the GE setting. They have a direct effect on capital formation and economic growth. In that way, the policy simulation of legalization is like an exogenous increase in the capital stock,  $K$ , and as in Aurberbach and Kotlikoff classic work (on OLG, Dynamic Fiscal Policy) this leads to lower interest rates, higher accumulation and higher growth.

## □ Costs of legalization

1. More eligible recipients due to longer stays.

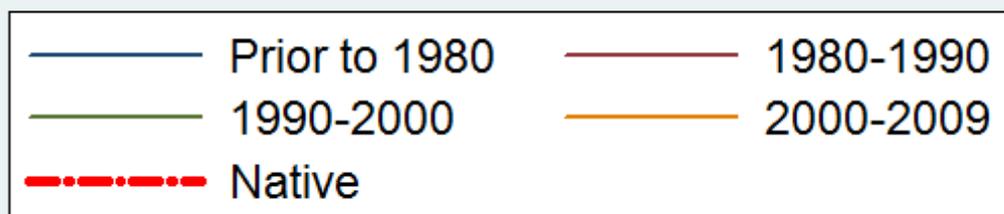
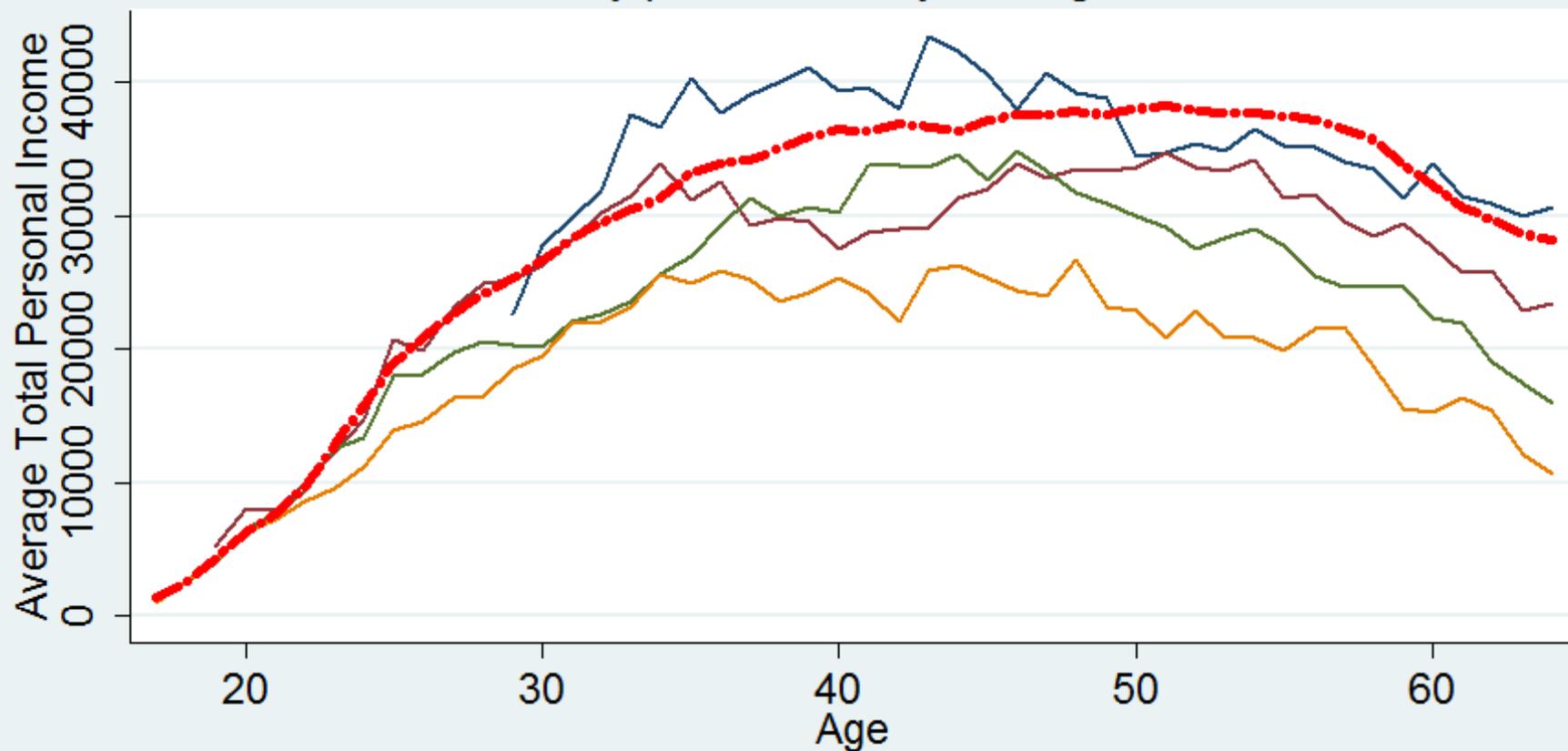
## Percentage of Immigrants paying Social Security Taxes (MMP and LAMP)

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<b>Social Security Taxes</b>	<b>All Immigrants</b>	<b>Undocumented</b>	<b>Legal</b>
Paid	73.1	64.4	84
Not Paid	26.9	35.6	16

Among undocumented immigrants, SSA actuaries currently assume that about half actually pay social security taxes although they are very unlikely to collect benefits.

# Average Personal Income of Immigrants and Natives by period of entry and age



# Remittances and Savings of Immigrants (MMP and LAMP)

	Remittances		Savings	
	Percentage	Amount	Percentage	Amount
All Immigrants	0.65	409	0.50	522
Immigration Status				
Unauthorized	0.74	405	0.49	382
Legal	0.55	417	0.51	682
Education				
Less than 12	0.67	401	0.49	499
12 and above	0.52	500	0.54	697
Years in the U.S.				
0-5 Years	0.73	389	0.47	387
5-10 Years	0.72	456	0.59	519
≥10 Years	0.55	419	0.54	671

# Emigrants by length of Stay in the United States (MMP and LAMP)

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<b>Length of Stay</b>	<b>All Emigrants</b>	<b>Undocumented</b>	<b>Legal</b>
<10 Years	84.4	94	53.6
>10 Years	15.6	6	46.4

SSA actuaries assume that about 83 percent of legal emigrants are not eligible for Social Security Benefits due to working less than 40 quarters before leaving the United States. Every year approximately 30 percent of all immigrants emigrate.



# Retirement Decision

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- Retirement is one key decision made by the agents in the model, so it is important to analyze some features of this decision in our economy.
- Retirement peaks at age 62 and age 65.
- Around 12-14% working part-time(defined as working less than 35 hours per week). Working full-time at age 60+ has increased considerable (especially for those over 61).
- The fraction of those not working increases substantially at age 62 and reaches 70% after age 67.

# U.S. Males Retirement Benefits Claiming Behavior

New Male claimants, proportions, 1994-2004 (w/o DI conversions)

Age	1994	1996	1998	1999	2000	2001	2002	2003	2004
62	0.489	0.509	0.491	0.473	0.414	0.453	0.460	0.465	0.478
63	0.162	0.150	0.163	0.152	0.137	0.163	0.160	0.148	0.142
64	0.081	0.072	0.071	0.072	0.061	0.075	0.073	0.073	0.072
65	0.207	0.201	0.207	0.212	0.248	0.273	0.275	0.282	0.219
66	0.022	0.025	0.024	0.033	0.054	0.009	0.010	0.010	0.076
67	0.008	0.013	0.013	0.018	0.031	0.007	0.005	0.006	0.004
68	0.008	0.009	0.007	0.012	0.021	0.004	0.003	0.005	0.002
69	0.007	0.007	0.007	0.009	0.013	0.004	0.004	0.003	0.001
Claimants	5,766	6,001	6,344	6,970	8,169	7,195	7,266	7,404	7,794

Average monthly benefits in \$ of 2005. *Adjusted by the ARF and the DRC*

Age	1994	1996	1998	1999	2000	2001	2002	2003	2004
62	1,203.60	1,179.96	1,233.06	1,302.46	1,315.69	1,352.61	1,402.60	1,414.35	1,356.50
63	1,161.82	1,178.75	1,199.40	1,205.90	1,275.80	1,264.56	1,310.93	1,355.05	1,317.45
64	1,209.15	1,227.03	1,209.64	1,223.97	1,240.47	1,322.56	1,344.97	1,359.56	1,354.08
65	1,260.02	1,264.51	1,243.25	1,234.88	1,258.35	1,298.34	1,348.48	1,384.61	1,349.91
66	1,333.34	1,275.72	1,279.76	1,286.73	1,331.57	944.09	856.84	1,157.49	1,300.07
67	1,205.93	1,261.28	1,155.12	1,274.97	1,398.17	848.03	869.19	925.18	1,078.54
68	1,062.62	1,191.53	1,238.22	1,183.47	1,367.90	918.91	922.04	679.81	678.86
69	1,311.41	1,218.69	1,140.63	1,211.33	1,333.55	1,069.62	852.70	712.98	836.69

Data Source: OASDI Public-Use Microdata File 2004. Social Security Administration.

## Labor Supply of Elderly (CPS 2005)

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full-time	1996	1998	2000	2002	2004	2006
60	56.27	50.63	54.56	52.79	54.87	56.64
61	51.17	50.80	57.67	48.02	52.05	54.46
62	39.95	41.10	39.93	39.09	41.94	44.45
63	30.09	31.39	31.32	32.88	37.45	39.76
64	23.81	26.08	30.78	30.32	30.31	32.87
65	21.48	18.06	23.20	23.47	23.14	26.05
66	15.65	15.42	22.98	19.20	20.41	20.47
67	12.66	12.52	15.76	16.94	17.70	15.61

## Labor Supply of Elderly, Continued (CPS 2005)

part-time	1996	1998	2000	2002	2004	2006
60	10.73	12.91	10.34	11.19	11.79	11.27
61	12.38	12.76	11.03	12.16	10.96	11.14
62	11.28	13.35	12.14	13.61	10.86	12.59
63	15.28	14.66	12.76	13.32	12.98	13.87
64	13.12	10.69	13.95	14.91	12.30	12.70
65	14.68	14.30	13.65	13.95	13.74	13.95
66	16.66	12.34	13.32	13.74	12.35	14.74
67	14.61	12.04	15.04	14.06	11.53	12.45

## Labor Supply of Elderly, Continued (CPS 2005)

no work	1996	1998	2000	2002	2004	2006
60	33.00	36.47	35.10	36.02	33.33	32.09
61	36.44	36.44	31.30	39.82	36.99	34.41
62	48.77	45.54	47.93	47.30	47.20	42.96
63	54.63	53.94	55.92	53.80	49.57	46.36
64	63.07	63.22	55.28	54.76	57.38	54.42
65	63.84	67.63	63.15	62.58	63.12	60.00
66	67.70	72.24	63.70	67.06	67.24	64.79
67	72.73	75.45	69.20	69.01	70.77	71.94

# Simulation Results

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- We are in the process of obtaining full results of this complex problem, which takes considerably longer given the GE-OLG structure of the problem.
- The individual life-cycle problem has given us some interesting results. The model does a good job in fitting retirement decisions, and also labor supply, especially before the retirement years.
- We find a distribution of claiming ages very close to the data reported by the U.S. Social Security Administration. In particular, we capture the sharp peak at age 62, with a simulated percentage almost identical to the males in the data, and we also capture the peaks at age 63 and 65 we see in the Public-Use microdata (and also the aggregate SSA data).
- Regarding labor supply, the qualitative results show a declining labor supply at older ages, especially at age 62 and then at age 63 and 64. The proportion of individuals working increases at age 65 and 66 mainly due to the phasing-out and eventual disappearance of the earnings test
- The retirement benefit levels are also remarkably in line with what we observe in the aggregate Social Security data.

# U.S. 10,000 Simulations of the Individual Model

Ages	Survivors	Work <sup>a</sup>	Claimers <sup>b</sup>	Benefits (\$)	Consum. (\$)	Wealth (\$)
Benchmark Model						
Age 60	8,331	5,625 (67.5%)	—	—	1,957	107,576
Age 61	8,205	5,560 (67.77%)	—	—	1,984	102,953
Age 62	8,055	4,081 (50.67%)	3,726(47.33%)	999	1,999	97,571
Age 63	7,883	2,559 (32.46%)	1,437(18.25%)	1,115	2,005	93,695
Age 64	7,726	2,924 (37.85%)	1,042(13.24%)	1,273	1,986	85,589
Age 65	7,555	3,659 (48.43%)	1,463(18.6%)	1,397	1,927	78,244
Age 66	7,357	4,753 (64.61%)	203(2.58%)	1,477	1,946	76,135



# Conclusion

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- Our research tries to bring to the forefront some of the economic consequences of legalization, mainly the likely increase in capital stock thanks to the fact that newly documented immigrants will probably invest a higher proportion of the resources now that their immigration status is no longer a major stigma for their economic behavior, but also the fact that this newly gained status will give them rights that will probably translate into a higher usage of our social insurance system.
- A discussion of optimal immigration reform is likely to naturally emerge from the framework we are proposing, as long as we can measure with some level of confidence, some the key parameters we propose to analyze this interesting trade-off.
- In summary, we hope our research provides a step in the direction of having a framework to evaluate and discuss the consequences of possible migration reform.