

## Note 22. Social Insurance

SOSI presents the projected actuarial present value of the estimated future revenue and estimated future expenditures of the Social Security, Medicare, Railroad Retirement, and Black Lung social insurance programs which are administered by the SSA, HHS, RRB, and DOL, respectively. These estimates are based on the intermediate economic and demographic assumptions presented later in this note as set forth in the relevant Social Security and Medicare Trustees' Reports and in the AFRs of SSA, HHS, and DOL, as well as in the relevant entity PAR for RRB. Due to a change in the presentation of the consolidated SOSI and this note from billions of dollars to trillions of dollars beginning in fiscal year 2016, some amounts in the narrative will not be traceable to the corresponding AFRs. The SOSI projections, with one exception related to Medicare Part A and OASDI, are based on current law. The one exception is that they assume that scheduled social insurance benefit payments would continue after related trust funds are projected to be depleted, contrary to current law. By law, once trust fund asset reserves are depleted, expenditures cannot be made except to the extent covered by ongoing tax receipts and other trust fund income, but the BLDTF has the ability to borrow and use the borrowed funds to pay benefits and other expenditures. The estimates in the consolidated SOSI of the open group measures are for persons who are participants or eventually will participate in the programs as contributors (workers) or beneficiaries (retired workers, survivors, dependents, and disabled) during the 75-year projection period. To enhance comparability of the BLDTF social insurance information and continue to illustrate the fund's long-term condition and sustainability, in fiscal year 2017 DOL revised its projection period from a fixed terminus of September 30, 2040 to a rolling 25-year projection period that begins on the September 30 valuation date each year. Contributions consist of: payroll, income, and excise taxes, premiums from, and state transfers on behalf of, participants in Medicare, and miscellaneous reimbursements from the General Fund. The SOSI also includes projected general revenues that, under current law, would be used to finance the remainder of the expenditures in excess of revenues for Medicare Parts B and D that is reported in the SOSI. Expenditures include benefit payments scheduled under current law and administrative expenses. Current Social Security and Medicare law provides for full benefit payments only to the extent that there are sufficient balances in the trust funds. Expenditures reflect full benefit payments even after the point at which trust fund asset reserves are projected to be depleted. For more information regarding the estimates to prepare the SOSI, see Note 27—Subsequent Events.

Actuarial present values of estimated future income (excluding interest) and estimated future expenditures for the Social Security and Medicare social insurance programs are presented for three different groups of participants: (1) current participants who have not yet attained eligibility age; (2) current participants who have attained eligibility age; and (3) new entrants, who are expected to become participants in the future. Current participants in the Social Security and Medicare programs are the "closed group" of taxpayers and/or beneficiaries who are at least age 15 years at the start of the projection period. Since the projection period for the Social Security, Medicare, and Railroad Retirement social insurance programs consists of 75 years, the period covers virtually all of the current participants' working and retirement years, a period that could be greater than 75 years in a relatively small number of instances. Future participants for Social Security and Medicare include births during the projection period and individuals below age 15 as of January 1 of the valuation year. Railroad Retirement's future participants are the projected new entrants as of October 1 of the valuation year. For fiscal year 2015 and years prior, future participants for Railroad Retirement were the projected new entrants as of January 1 of the valuation year.<sup>6</sup>

The present values of estimated future expenditures in excess of estimated future revenue are calculated by subtracting the actuarial present values of future scheduled contributions as well as dedicated tax income by and on behalf of current and future participants from the actuarial present value of the future scheduled benefit payments to them or on their behalf. To determine a program's funding shortfall over any given period of time, the starting trust fund balance is subtracted from the present value of expenditures in excess of revenues over the period.

The trust fund balances as of the valuation date for the respective programs, including interest earned, are shown in the table below.<sup>7</sup> Substantially all of the OASDI, HI, and SMI Trust Fund balances consist of investments in special nonmarketable Treasury securities that are backed by the full faith and credit of the U.S. government. For more information, see Note 20—Funds from Dedicated Collections.

<sup>6</sup> Beginning with the fiscal year 2016 reporting period, the valuation date for the RRP was changed from calendar year to fiscal year.

<sup>7</sup> Trust fund balances for the Railroad Retirement and Black Lung programs are not included, as these balances are less than \$50 billion.

**Social Insurance Programs Trust Fund Balances <sup>1</sup>**

(In trillions of dollars)	2019	2018	2017	2016	2015
Social Security .....	2.9	2.9	2.8	2.8	2.8
Medicare .....	0.3	0.3	0.3	0.3	0.3

<sup>1</sup> As of the valuation date of the respective programs.

**Social Security**

The OASI Trust Fund, established on January 1, 1940, and the DI Trust Fund, established on August 1, 1956, collectively referred to as OASDI or “Social Security,” provides cash benefits for eligible U.S. citizens and residents. Eligibility and benefit amounts are determined under the laws applicable for the period. Current law provides that the amount of the monthly benefit payments for workers and their eligible dependents or survivors is based on the workers’ lifetime earnings histories.

The primary financing of the OASDI Trust Funds are taxes paid by workers, their employers, and individuals with self-employment income, based on work covered by the OASDI Program. Refer to the unaudited RSI—Social Insurance section for additional information on Social Security program financing.

The portion of each trust fund not required to pay benefits and administrative costs is invested, on a daily basis, in interest-bearing obligations of the U.S. government. The *Social Security Act* authorizes the issuance by the Treasury of special nonmarketable, intragovernmental debt obligations for purchase exclusively by the trust funds. Although the special issues cannot be bought or sold in the open market, they are redeemable at any time at face value and thus bear no risk of fluctuation in principal value due to changes in market yield rates. Interest on the bonds is credited to the trust funds and becomes an asset to the funds and a liability to the General Fund. These Treasury securities and related interest are eliminated in consolidation at the governmentwide level.

**Medicare**

The Medicare Program, created in 1965, has two separate trust funds: the HI (Medicare Part A) and SMI (Medicare Parts B and D) Trust Funds. HI helps pay for inpatient hospital stays, home health care following a hospital stay, and skilled nursing facility and hospice care. SMI helps pay for hospital outpatient services, physician services, and assorted other services and products through Part B and for prescription drugs through Part D. Though the events that trigger benefit payments are similar, HI and SMI have different dedicated financing structures. Similar to OASDI, HI is financed primarily by payroll contributions. Other income to the HI Trust Fund includes a small amount of premium income from voluntary enrollees, receipts from fraud and abuse control activities, a portion of the federal income taxes that beneficiaries pay on Social Security benefits and interest credited on Treasury securities held in the HI Trust Fund. These Treasury securities and related interest are eliminated in the consolidation at the governmentwide level.

For SMI, transfers from the General Fund represent the largest source of income for both Parts B and D. Generally, beneficiaries finance the remainder of Parts B and D costs via monthly premiums to these programs. With the introduction of Part D drug coverage, Medicaid is no longer the primary payer of drug costs for full-benefit dually eligible beneficiaries of Medicare and Medicaid. For those beneficiaries, states are subject to a contribution requirement and must pay a portion of their estimated foregone drug costs into the Part D account (referred to as state transfers). The estimated foregone drug costs is the estimated difference between the drug costs that used to be fully covered by Medicaid for full-benefit dually eligible beneficiaries (i.e., for Medicare and Medicaid) prior to the introduction of Part D, and the drug cost that is now covered for such dually eligible beneficiaries by Medicare Part D. Fees related to brand-name prescription drugs, required by the PPACA, are included as income for Part B of SMI. As with HI, interest received on Treasury securities held in the SMI Trust Fund is credited to the fund and these Treasury securities as well as related interest are eliminated in consolidation at the governmentwide level. By accounting convention, the transfers of general revenues are eliminated in the consolidation of the SOSI at the governmentwide level and as such, the General Fund transfers that are used to finance Medicare Parts B and D are also shown as eliminations in these calculations. For the fiscal years 2019 and 2018 SOSI, the amounts eliminated totaled

\$36.8 trillion and \$33.0 trillion, respectively. Refer to unaudited RSI—Social Insurance section for additional information on Medicare program financing.

The financial projections for the Medicare program reflect substantial, but very uncertain, cost savings deriving from specific provisions of the PPACA and the MACRA that lowered increases in Medicare payment rates to most categories of health care providers.

The PPACA became law in fiscal year 2010 and provided funding for the establishment by CMS of a Center for Medicare and Medicaid Innovation to test innovative payment and service delivery models to reduce program expenditures while preserving or enhancing the quality of care furnished to individuals. It also allowed for the establishment of a CCIIO. One of the main programs under CCIIO is *Exchanges*. A brief description of these programs is presented below. There are two additional programs – *Transitional Reinsurance* and *Risk Corridors* – that are no longer in operation.

*Health Insurance Exchanges.* Grants have been provided to the states to establish Health Insurance Exchanges. The initial grants were made by HHS to the states “not later than one year after the date of enactment.” Thus, HHS made the initial grants by March 23, 2011. Subsequent grants were issued by CMS through December 31, 2014, after which time no further grants could be made. All Exchanges were launched on October 1, 2013.

*Risk Adjustment Program.* The Risk Adjustment Program is a permanent program. It applies to non-grandfathered individuals and small group plans inside and outside the Exchanges. It provides payments to health insurance issuers that disproportionately attract higher-risk populations (such as individuals with chronic conditions) and transfers funds from plans with relatively lower risk enrollees to plans with relatively higher risk enrollees to protect against adverse selection. States that operate a state-based exchange are eligible to establish a risk adjustment program. States operating a risk adjustment program may have an entity other than the Exchanges perform this function. CMS operates a risk adjustment program for each state that does not operate its own.

It is important to note that the Medicare projections depend in part on the long-range feasibility of the various cost-saving measures in the PPACA. Physician payment update amounts are specified for all years in the future, and these amounts do not vary based on underlying economic conditions, nor are they expected to keep pace with the average rate of physician cost increases. These rate updates could be an issue in years when levels of inflation are high and would be problematic when the cumulative gap between the price updates and physician costs becomes large. Payment rate updates for most non-physician categories of Medicare providers are reduced by the growth in economy-wide private nonfarm business multifactor productivity although these health providers have historically achieved lower levels of productivity growth. If the health sector cannot transition to more efficient models of care delivery and if the provider reimbursement rates paid by commercial insurers continue to be based on the same negotiated process used to date, then the availability, particularly with respect to physician services, and quality of health care received by Medicare beneficiaries would, under current law, fall over time compared to that received by those with private health insurance.

A transformation of health care in the U.S., affecting both the means of delivery and the method of paying for care, is also a possibility. Private health insurance and Medicare are taking important steps in this direction by initiating programs of research into innovative payment and service delivery models, such as accountable care organizations, patient-centered medical homes, improvement in care coordination for individuals with multiple chronic health conditions, better coordination of post-acute care, payment bundling, pay for performance, and assistance for individuals in making informed health choices. Such changes have the potential to reduce health care costs as well as cost growth rates and could, as a result, help lower health care spending to levels compatible with the lower price updates payable under current law.

The ability of new delivery and payment methods to lower cost growth rates is uncertain at this time. Preliminary indications are that some of these delivery reforms have had modest levels of success in lowering costs, but at this time it is too early to tell if these reductions in spending will continue, or if they will grow to the magnitude needed to align with the statutory Medicare price updates. For those providers affected by the productivity adjustments and the specified updates to physician payments, sustaining the price reductions will be challenging, as the best available evidence indicates that most providers cannot improve their productivity to this degree for a prolonged period given the labor-intensive nature of these services and that physician costs will grow at a faster rate than the specified updates. As a result, actual Medicare expenditures are highly uncertain for reasons apart from the inherent difficulty in projecting health care cost growth over time.

The specified rate updates could be an issue in years when levels of inflation are high and would be problematic when the cumulative gap between the price updates and physician costs becomes large. The gap will continue to widen throughout the projection, and it is estimated that physician payment rates under current law will be lower than they would have been under the SGR formula by 2048. Absent a change in the delivery system or level of update by subsequent legislation, access to Medicare-participating physicians may become a significant issue in the long term under current law. Overriding the price updates in current law, as lawmakers repeatedly did in the case of physician payment rates, would lead to substantially higher costs for Medicare in the long range than those projected in this report.

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To help illustrate and quantify the potential magnitude of the cost understatement, the Trustees asked the Office of the Actuary at CMS to prepare an illustrative Medicare Trust Fund projection under a hypothetical alternative. This scenario illustrates the impact that would occur if the payment updates that are affected by the productivity adjustments transition from current law to the payment updates assumed for private health plans over the period 2028 to 2042. It also reflects physician payment updates that transition from current law to the increase in the Medicare Economic Index over the same period. Finally, the scenario assumes the continuation of the 5 percent bonuses for physicians in advanced APMs and of the \$500-million payments for physicians in the merit-based incentive payment system, which are set to expire in 2025. This alternative was developed for illustrative purposes only; the calculations have not been audited; no endorsement of the policies underlying the illustrative alternative by the Trustees, CMS, or the Office of the Actuary should be inferred; and the examples do not attempt to portray likely or recommended future outcomes. Thus, the illustrations are useful only as general indicators of the substantial impacts that could result from future legislation affecting the productivity adjustments and physician updates under Medicare and of the broad range of uncertainty associated with such impacts. The table on the following page contains a comparison of the Medicare 75-year present values of estimated future income and estimated future expenditures under current law with those under the illustrative alternative scenario.

**Medicare Present Values (in trillions) (Unaudited)**

	<b>2019 Consolidated SOSI Current Law</b>	<b>Illustrative Alternative Scenario <sup>1,2</sup></b>
<b>Income:</b>		
Part A .....	24.4	24.4
Part B <sup>3</sup> .....	10.9	12.7
Part D <sup>4</sup> .....	<u>3.2</u>	<u>3.2</u>
Total income .....	<u>38.5</u>	<u>40.3</u>
<b>Expenditures:</b>		
Part A .....	29.8	34.9
Part B .....	39.7	46.3
Part D .....	<u>11.2</u>	<u>11.2</u>
Total expenditures .....	<u>80.7</u>	<u>92.4</u>
<b>Income less expenditures:</b>		
Part A .....	(5.4)	(10.5)
Part B .....	(28.8)	(33.6)
Part D .....	<u>(8.0)</u>	<u>(8.0)</u>
Excess of expenditures over income	<u>(42.2)</u>	<u>(52.1)</u>

<sup>1</sup>These amounts are not presented in the 2019 Trustees' Report.

<sup>2</sup>At the request of the Trustees, the Office of the Actuary at CMS has prepared an illustrative set of Medicare Trust Fund projections that differ from current law. No endorsement of the illustrative alternative to current law by the Trustees, CMS, or the Office of the Actuary should be inferred.

<sup>3</sup>Excludes \$28.8 trillion and \$33.6 trillion of General Revenue Contributions from the 2019 Consolidated SOSI Current Law projection and the Illustrative Alternative Scenario's projection, respectively; i.e., to reflect Part B income on a consolidated governmentwide basis.

<sup>4</sup>Excludes \$8.0 trillion of General Revenue Contributions from both the 2019 Consolidated SOSI Current Law projection and the Illustrative Alternative projection; i.e., to reflect Part D income on a consolidated governmentwide basis.

The difference between the current-law and illustrative alternative projections is substantial for Parts A and B. All Part A fee-for-service providers and roughly half of Part B fee-for-service providers are affected by the productivity adjustments, so the current-law projections reflect an estimated 1 percent reduction in annual cost growth each year for these providers. If the payment updates that are affected by the productivity adjustments were to gradually transition from current law to the payment updates assumed for private health plans, the physician updates transitioned to the Medicare Economic Index, and the 5 percent bonuses paid to physicians in advanced APMs did not expire, as illustrated under the alternative scenario, the estimated present values of Part A and Part B expenditures would each be higher than the current-law projections by roughly 17 percent. As indicated above, the present value of Part A income is basically unaffected under the alternative scenario.

The Part D values are the same under each projection because the services are not affected by the productivity adjustments or the physician updates. The extent to which actual future Part A and Part B costs exceed the projected amounts due to changes to the productivity adjustments and physician updates depends on what specific changes might be legislated and whether Congress would pass further provisions to help offset such costs. As noted, these examples reflect only hypothetical changes to provider payment rates.

### **Social Security and Medicare—Demographic and Economic Assumptions**

The Boards of Trustees<sup>8</sup> of the OASDI and Medicare Trust Funds provide in their annual reports to Congress short-range (10-year) and long-range (75-year) actuarial estimates of each trust fund. Significant uncertainty surrounds the estimates, especially for a period as long as 75 years. To illustrate the range of uncertainty, the Trustees use three alternative scenarios (low-cost, intermediate, and high-cost) that use specific assumptions. These assumptions include fertility rates, rates of change in mortality, LPR and other-than-LPR immigration levels, emigration levels, changes in real GDP, changes in the CPI, changes in average real wages, unemployment rates, trust fund real yield rates, and disability incidence and recovery rates. The assumptions used for the most recent set of projections shown in the Social Security and Medicare demographic and economic assumption tables are generally referred to as the “intermediate assumptions,” and reflect the Trustees’ reasonable estimate of expected future experience. For further information on Social Security and Medicare demographic and economic assumptions, refer to SSA’s and HHS’s AFRs.

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<sup>8</sup> The boards are composed of six members. Four members serve by virtue of their positions in the federal government: the Secretary of the Treasury, who is the Managing Trustee; the Secretary of Labor; the Secretary of HHS; and the Commissioner of Social Security. The President appoints and the Senate confirms the other two members to serve as public representatives. These two positions are currently vacant.

**Social Security – Demographic and Economic Assumptions****Demographic Assumptions**

Year	Total <sup>1</sup> Fertility Rate	Age-Sex <sup>2</sup>		Period Life <sup>4</sup> Expectancy at Birth	
		Adjusted Death Rate (per 100,000)	Net Annual <sup>3</sup> Immigration (persons per year)	Male	Female
2019	1.75	785.9	1,409,000	76.6	81.3
2020	1.76	779.9	1,413,000	76.7	81.4
2030	2.00	716.5	1,329,000	77.9	82.4
2040	2.00	657.7	1,280,000	79.0	83.3
2050	2.00	606.0	1,251,000	80.1	84.2
2060	2.00	560.6	1,236,000	81.1	85.0
2070	2.00	520.6	1,227,000	82.0	85.7
2080	2.00	485.1	1,221,000	82.8	86.4
2090	2.00	453.5	1,218,000	83.6	87.1

**Economic Assumptions**

Year	Real <sup>5</sup> Wage Differ- ential (percent change)	Average <sup>6</sup> Annual Wage in Covered Employment (percent change)	CPI <sup>7</sup> (percent change)	Real <sup>8</sup> GDP (percent change)	Total <sup>9</sup> Employ- ment (percent change)	Average <sup>10</sup> Annual Interest Rate (percent)
	2019	2.19	4.02	1.83	2.8	1.0
2020	2.08	4.71	2.63	2.4	0.6	3.5
2030	1.29	3.89	2.60	2.0	0.4	5.1
2040	1.20	3.80	2.60	2.0	0.4	5.1
2050	1.25	3.85	2.60	2.1	0.5	5.1
2060	1.25	3.85	2.60	2.0	0.4	5.1
2070	1.19	3.79	2.60	2.0	0.4	5.1
2080	1.16	3.76	2.60	2.1	0.5	5.1
2090	1.16	3.76	2.60	2.0	0.4	5.1

<sup>1</sup>The total fertility rate for any year is the average number of children that would be born to a woman in her lifetime if she were to experience, at each age of her life, the birth rate observed in, or assumed for, the selected year, and if she were to survive the entire childbearing period.

<sup>2</sup>The age-sex-adjusted death rate is based on the enumerated total population as of April 1, 2010, if that population were to experience the death rates by age and sex observed in, or assumed for, the selected year. It is a summary measure and not a basic assumption; it summarizes the basic assumptions from which it is derived.

<sup>3</sup>Net annual immigration is the number of persons who enter during the year (both as LPRs and otherwise) minus the number of persons who leave during the year. It is a summary measure and not a basic assumption; it summarizes the effects of the basic assumptions from which it is derived.

<sup>4</sup>The period life expectancy at birth for a given year is the average number of years expected prior to death for a person born on January 1 in that year, using the mortality rates for that year over the course of his or her remaining life. It is a summary measure and not a basic assumption; it summarizes the effects of the basic assumptions from which it is derived.

<sup>5</sup>The real-wage differential is the annual percentage change in the average annual wage in covered employment less the annual percentage change in the CPI for CPI-W. Values are rounded after all computations.

<sup>6</sup>The average annual wage in covered employment is the total amount of wages and salaries for all employment covered by the OASDI program in a year, divided by the number of employees with any such earnings during the year. It is a summary measure and not a basic assumption; it summarizes the basic assumptions from which it is derived.

<sup>7</sup>The CPI is the CPI-W.

<sup>8</sup>The real GDP is the value of total output of goods and services in 2012 dollars. It is a summary measure and not a basic assumption; it summarizes the effects of the basic assumptions from which it is derived.

<sup>9</sup>Total employment is total U.S. military and civilian employment. It is a summary measure and not a basic assumption; it summarizes the basic assumptions from which it is derived.

<sup>10</sup>The average annual interest rate is the average of the nominal interest rates, compounded semiannually, for special public-debt obligations issuable to the OASI and DI Trust Funds in each of the 12 months of the year. It is a summary measure and not a basic assumption; it summarizes the basic assumptions from which it is derived.

**Medicare – Demographic and Economic Assumptions**

<b>Demographic Assumptions</b>								
<b>Year</b>	<b>Total <sup>1</sup> Fertility Rate</b>	<b>Age-Sex Adjusted<sup>2</sup> Death Rate (per 100,000)</b>	<b>Net Annual<sup>3</sup> Immigration (persons per year)</b>					
2019	1.75	785.9	1,409,000					
2020	1.76	779.9	1,413,000					
2030	2.00	716.5	1,329,000					
2040	2.00	657.7	1,280,000					
2050	2.00	606.0	1,251,000					
2060	2.00	560.6	1,236,000					
2070	2.00	520.6	1,227,000					
2080	2.00	485.1	1,221,000					
2090	2.00	453.5	1,218,000					

  

<b>Economic Assumptions</b>								
<b>Year</b>	<b>Real<sup>4</sup> Wage Differ- ential (percent change)</b>	<b>Average<sup>5</sup> Annual Wage In Covered Employment (percent change)</b>	<b>CPI<sup>6</sup> (percent change)</b>	<b>Real<sup>7</sup> GDP (percent change)</b>	<b>Per Beneficiary Cost<sup>8</sup> (percent change)</b>			<b>Real<sup>9</sup> Interest Rate (percent)</b>
					<b>HI</b>	<b>SMI</b>		
					<b>Part B</b>	<b>Part D</b>		
2019	2.19	4.02	1.83	2.8	3.5	5.5	(1.5)	1.0
2020	2.08	4.71	2.63	2.4	3.8	5.0	3.5	0.7
2030	1.29	3.89	2.60	2.0	4.2	5.6	4.9	2.5
2040	1.20	3.80	2.60	2.0	4.5	4.4	4.7	2.5
2050	1.25	3.85	2.60	2.1	4.0	4.0	4.7	2.5
2060	1.25	3.85	2.60	2.0	3.7	3.8	4.5	2.5
2070	1.19	3.79	2.60	2.0	3.8	3.7	4.4	2.5
2080	1.16	3.76	2.60	2.1	3.9	3.8	4.5	2.5
2090	1.16	3.76	2.60	2.0	3.5	3.6	4.3	2.5

<sup>1</sup>Average number of children per woman.

<sup>2</sup>The age-sex-adjusted death rate per 100,000 that would occur in the enumerated population as of April 1, 2010, if that population were to experience the death rates by age and sex observed in, or assumed for, the selected year.

<sup>3</sup>Includes legal immigration, net of emigration, as well as other, non-legal, immigration.

<sup>4</sup>Difference between percentage increases in wages and the CPI.

<sup>5</sup>Average annual wage in covered employment.

<sup>6</sup>CPI represents a measure of the average change in prices over time in a fixed group of goods and services.

<sup>7</sup>Total dollar value of all goods and services produced in the U.S., adjusted to remove the impact of assumed inflation growth.

<sup>8</sup>These increases reflect the overall impact of more detailed assumptions that are made for each of the different types of service provided by the Medicare program (for example, hospital care, physician services, and pharmaceutical costs). These assumptions include changes in the payment rates, utilization, and intensity of each type of service.

<sup>9</sup>Average rate of interest earned on new trust fund securities, above and beyond rate of inflation.

## Railroad Retirement

The Railroad Retirement and Survivor Benefit program pays full retirement annuities at age 60 to railroad workers with 30 years of service. The program pays disability annuities based on total or occupational disability. It also pays annuities to spouses and divorced spouses of retired workers and to widow(er)s, surviving divorced spouses, remarried widow(er)s, children, and parents of deceased railroad workers. Medicare covers qualified railroad retirement beneficiaries in the same way as it does Social Security beneficiaries.

The RRB and the SSA share jurisdiction over the payment of retirement and survivor benefits. The RRB has jurisdiction over the payment of retirement benefits if the employee has at least 10 years of railroad service, or five years if performed after 1995. For survivor benefits, RRB requires that the employee's last regular employment before retirement or death be in the railroad industry. If a railroad employee or his or her survivors do not qualify for railroad retirement benefits, the RRB transfers the employee's railroad retirement credits to SSA, where they are treated as social security credits.

Payroll taxes paid by railroad employers and their employees are a primary source of funding for the Railroad Retirement and Survivor Benefit Program. By law, railroad retirement taxes are coordinated with Social Security taxes. Employees and employers pay Tier I taxes at the same rate as Social Security taxes and Tier II taxes to finance railroad retirement benefit payments that are higher than Social Security levels.

Revenues in excess of benefit payments are invested to provide additional trust fund income. Legislation enacted in 2001 allowed for Railroad Retirement Account funds transferred to the NRRIT to be invested in non-governmental assets, as well as in governmental securities. Funds transferred from the SSEB Account to the NRRIT are allowed to be invested only in governmental securities. Under the financial interchange provisions, the RRP's SSEB Account and the trust funds interchange amounts on an annual basis so that each trust fund is in the same position it would have been had railroad retirement always been covered under Social Security.

Since its inception, NRRIT has received \$21.3 billion from RRB (including \$19.2 billion in fiscal year 2003, pursuant to the *Railroad Retirement and Survivors' Improvement Act of 2001*) and returned \$24.7 billion. During fiscal year 2019, the NRRIT made net transfers of \$1.8 billion to the RRB to pay retirement benefits. Administrative expenses of the trust are paid out of trust assets. The balance as of September 30, 2019, and 2018, of non-federal securities and investments of the NRRIT are disclosed in Note 7—Debt and Equity Securities.

Another major source of income to the Railroad Retirement and Survivor Benefit program consists of financial transactions with the Social Security and Medicare Trust Funds. The RRB, SSA, and CMS are parties to a financing arrangement, the "financial interchange", which is intended to put the OASDI and Medicare HI Trust Funds in the same positions they would have been had railroad employment been covered under the Social Security and FICAs.

Other sources of program income include revenue resulting from federal income taxes on railroad retirement benefits, and appropriations provided after 1974 as part of a phase out of certain vested dual benefits. From a governmentwide perspective, these future financial interchanges and transactions are intragovernmental transfers and are eliminated in consolidation.

The estimated future revenues and expenditures reflected in the SOSI are based on various economic, employment, and other actuarial assumptions, and assume that the RRP will continue as presently constructed. The calculations assume that all future transfers required by current law under the financial interchange will be made. For further details on actuarial assumptions related to the RRP and how these assumptions affect amounts presented on the SOSI and SCSIA, consult the Technical Supplement to the *27th Actuarial Valuation of the Assets and Liabilities Under the Railroad Retirement Acts as of December 31, 2016* and RRB's financial statements.

## Black Lung—Disability Benefit Program

The BLDBP provides for compensation, medical, and survivor benefits for eligible coal miners who are totally disabled due to pneumoconiosis (black lung disease) arising out of their coal mine employment, and the BLDTF provides benefit payments when no RMO can be assigned the liability or when the liability is adjudicated to the BLDTF, which may occur as a result of, among other things, bankruptcy of the RMO. DOL operates the BLDBP.

Black lung disability benefit payments are funded by excise taxes from coal mine operators based on the domestic sale of coal, as are the fund's administrative costs. These taxes are collected by the IRS and transferred to the BLDTF, which was established under the authority of the *Black Lung Benefits Revenue Act* and administered by the Treasury.

P.L. 110-343, *Division B-Energy Improvement and Extension Act of 2008*, enacted on October 3, 2008, among other things, restructured the BLDTF debt by refinancing the outstanding high interest rate repayable advances with low interest rate discounted debt instruments similar in form to zero-coupon bonds, plus a one-time appropriation. This Act also allowed that any subsequent debt issued by the BLDTF may be used to make benefit payments, other authorized expenditures, or to repay debt and interest from the initial refinancing.

The significant assumptions used in the projections for the SOSI are the coal excise tax revenue estimates, the tax rate structure, number of beneficiaries, life expectancy, federal civilian pay raises, medical cost inflation, and interest rates used to

discount future cash flows. These assumptions affect the amounts reported on the SOSI and the SCSIA. The program's valuation date is September 30 for each year of information presented in the SOSI and the SCSIA. Refer to DOL's financial statements for further details on significant assumptions related to the BLDBP, and how these assumptions affect amounts presented on the SOSI and SCSIA.

## Statement of Changes in Social Insurance Amounts

The SCSIA reconciles the change (between the current valuation and the prior valuation) in the present value of estimated future revenue less estimated future expenditures for current and future participants (the open group measure) over the next 75 years (except Black Lung which has a rolling 25-year projection period through September 30, 2044). The reconciliation identifies several components of the changes that are significant and provides reasons for the changes. The following disclosures relate to the SCSIA including the reasons for the components of the changes in the open group measure during the reporting period from the end of the previous reporting period for the government's social insurance programs. For more information regarding the estimates used to prepare the SCSIA, see Note 27—Subsequent Events.

### Social Security

The SCSIA shows two reconciliations for Social Security: (1) changes from the period beginning on January 1, 2018, to the period beginning on January 1, 2019, and (2) changes from the period beginning on January 1, 2017, to the period beginning on January 1, 2018. All estimates relating to the Social Security Program in the SCSIA represent values that are incremental to the prior change. As an example, the present values shown for economic data, assumptions, and methods represent the additional effect of these new data, assumptions, and methods after considering the effects from demography and the change in the valuation period. In general, an increase in the present value of net cash flows represents a positive change (improving financing), while a decrease in the present value of net cash flows represents a negative change (worsening financing).

### Assumptions Used for the Components of the Changes for the Social Security Program

The present values included in the SCSIA are for the current and prior years and are based on various economic as well as demographic assumptions used for the intermediate assumptions in the Social Security Trustees' Reports for these years. The Social Security – Demographic and Economic Assumptions table summarizes these assumptions for the current year.

#### From the period beginning on January 1, 2018 to the period beginning on January 1, 2019

Present values as of January 1, 2018 are calculated using interest rates from the intermediate assumptions of the 2018 Trustees' Report. All other present values in this part of the SCSIA are calculated as a present value as of January 1, 2019. Estimates of the present value of changes in social insurance amounts due to changing the valuation period and changing demographic data, assumptions, and methods are presented using the interest rates under the intermediate assumptions of the 2018 Trustees' Report. Because interest rates are an economic estimate and all estimates in the table are incremental to the prior change, all other present values in this part of the SCSIA are calculated using the interest rates under the intermediate assumptions of the 2019 Trustees' Report.

#### From the period beginning on January 1, 2017 to the period beginning on January 1, 2018

Present values as of January 1, 2017 are calculated using interest rates from the intermediate assumptions of the 2017 Trustees' Report. All other present values in this part of the SCSIA are calculated as a present value as of January 1, 2018. Estimates of the present value of changes in social insurance amounts due to changing the valuation period and changing demographic data, assumptions, and methods are presented using the interest rates under the intermediate assumptions of the 2017 Trustees' Report. Because interest rates are an economic estimate and all estimates in the table are incremental to the prior change, all other present values in this part of the SCSIA are calculated using the interest rates under the intermediate assumptions of the 2018 Trustees' Report.

### Changes in Valuation Period

#### From the period beginning on January 1, 2018 to the period beginning on January 1, 2019

The effect on the 75-year present values of changing the valuation period from the prior valuation period (2018–2092) to the current valuation period (2019–2093) is measured by using the assumptions for the prior valuation and extending them to cover the current valuation. Changing the valuation period removes a small negative net cash flow for 2018, replaces it with a much larger negative net cash flow for 2093, and measures the present values as of January 1, 2019, one year later.

Thus, the present value of estimated future net cash flows (excluding the combined OASI and DI Trust Fund asset reserves at the start of the period) decreased (became more negative) when the 75-year valuation period changed from 2018–2092 to 2019–2093. In addition, the effect on the level of asset reserves in the combined OASI and DI Trust Funds of changing the valuation period is measured by assuming all values projected in the prior valuation for the year 2018 are realized. The change in valuation period decreased the starting level of asset reserves in the combined OASI and DI Trust Funds. As a result, the present value of the estimated future net cash flows decreased by \$0.5 trillion.

#### **From the period beginning on January 1, 2017 to the period beginning on January 1, 2018**

The effect on the 75-year present values of changing the valuation period from the prior valuation period (2017-2091) to the current valuation period (2018-2092) is measured by using the assumptions for the prior valuation and extending them to cover the current valuation. Changing the valuation period removes a small negative net cash flow for 2017, replaces it with a much larger negative net cash flow for 2092, and measures the present values as of January 1, 2018, one year later. Thus, the present value of estimated future net cash flows (excluding the combined OASI and DI Trust Fund asset reserves at the start of the period) decreased (became more negative) when the 75-year valuation period changed from 2017-2091 to 2018-2092. In addition, the effect on the level of asset reserves in the combined OASI and DI Trust Funds of changing the valuation period is measured by assuming all values projected in the prior valuation for the year 2017 are realized. The change in valuation period increased the starting level of asset reserves in the combined OASI and DI Trust Funds. As a result, the present value of the estimated future net cash flows decreased by \$0.6 trillion.

### **Changes in Demographic Data, Assumptions, and Methods**

#### **From the period beginning on January 1, 2018 to the period beginning on January 1, 2019**

The ultimate demographic assumptions for the current valuation (beginning on January 1, 2019) are the same as those for the prior valuation. However, the starting demographic values and the way these values transition to the ultimate assumptions were changed.

- The numbers of new LPRs for calendar years 2018 and 2019 were assumed to be slightly lower than projected in the prior valuation period, due to recent lower annual refugee ceilings set by the Administration.
- The current valuation incorporated a gradual rise in 2017 and 2018 of other-than-LPR immigrants, reaching the ultimate assumed level in 2019. In contrast, the prior valuation incorporated a surge in the number of other-than-LPR immigrants for years 2016 through 2021.
- Final birth rate data for 2017 indicated slightly lower birth rates than were assumed in the prior valuation.
- Incorporating 2016 mortality data obtained from the NCHS for ages under 65 and 2016 and preliminary 2017 mortality data from Medicare experience for ages 65 and older resulted in higher death rates for all future years than were projected in the prior valuation.

Inclusion of the lower numbers of LPRs in the short-term, eliminating the surge in other-than-LPRs, and lower birth rates decreased the present value of estimated future net cash flows, while the inclusion of the recent mortality data increased the present value of estimated future net cash flows.

There were two notable changes in demographic methodology:

- Improved the method for projecting fertility rates by better incorporating detailed provisional birth rate data available from NCHS.
- Incorporated more comprehensive Medicare mortality data from CMS.

Inclusion of the fertility change decreased the present value of estimated future cash flows, while the mortality change increased the present value of estimated future net cash flows. Overall, changes to these assumptions caused the present value of the estimated future net cash flows to increase by \$0.4 trillion.

#### **From the period beginning on January 1, 2017 to the period beginning on January 1, 2018**

The ultimate demographic assumptions for the current valuation (beginning on January 1, 2018), with the exception of a small decrease of 10,000 LPR immigrants per annum in the future, are the same as those for the prior valuation. However, the starting demographic values and the way these values transition to the ultimate assumptions were changed.

- Final birth rate data for 2016 indicated slightly lower birth rates than were assumed in the prior valuation.
- Recent fertility data suggests that the short-term increase in the total fertility rate used in the prior valuation to account for an assumed deferral in childbearing (resulting from the recent economic downturn) was no longer warranted. The observed persistent drop in the total fertility rate in recent years is now assumed to be a loss of potential births rather than just a deferral for this period.

- Incorporating 2015 mortality data obtained from NCHS for ages under 65 and preliminary 2015 mortality data from Medicare experience for ages 65 and older resulted in higher death rates for all future years than were projected in the prior valuation.
- More recent LPR and other-than-LPR immigration data and historical population data were included.

Inclusion of the recent birth rate data, eliminating the short-term increase in fertility, and immigration data decreased the present value of estimated future net cash flows, while the inclusion of the recent mortality data and historical population data increased the present value of estimated future net cash flows.

There was one notable change in demographic methodology:

- Improved the method for projecting mortality rates by marital status by utilizing recent data from NCHS and the American Community Survey.

Inclusion of this new method increased the present value of estimated future net cash flows. Overall, changes to these assumptions caused the present value of the estimated future net cash flows to increase by \$0.1 trillion.

## Changes in Economic Data, Assumptions, and Methods

### From the period beginning on January 1, 2018 to the period beginning on January 1, 2019

For the current valuation (beginning on January 1, 2019), there were four changes to the ultimate economic assumptions.

- The ultimate annual rate of change in total-economy labor productivity was lowered from 1.68 percent in the prior valuation to 1.63 percent in the current valuation, reflecting an expected slower rate of productivity growth in the long term.
- The difference between the ultimate growth rates for the CPI-W and the GDP implicit price deflator (the "price differential"), was decreased from 0.40 percentage point in the prior valuation to 0.35 percentage points in the current valuation.
- The ultimate average real-wage differential was increased from 1.20 percentage points in the prior valuation to 1.21 percentage points in the current valuation.
- The ultimate real interest rate was lowered by 0.20 percentage point, from 2.70 percent in the prior valuation to 2.50 percent in the current valuation.

The lower ultimate annual rate of change in total-economy labor productivity and the lower ultimate real interest rate decreased the present value of estimated future net cash flows, while the smaller price differential and the higher ultimate average real-wage differential increased the present value of estimated future net cash flows.

In addition to these changes in ultimate assumptions, the starting economic values and the way these values transition to the ultimate assumptions were changed. The most notable change was to include the July 2018 revisions in historical GDP estimated by the BEA of the DOC. This and other smaller changes in starting values and near-term growth assumptions combined to increase the present value of estimated future net cash flows.

There was one notable change in economic methodology:

- Incorporated more recent projections of disability prevalence in the labor force participation model.

Inclusion of this new method increased the present value of estimated future net cash flows. Overall, changes to these assumptions caused the present value of the estimated future net cash flows to decrease by \$1.0 trillion.

### From the period beginning on January 1, 2017 to the period beginning on January 1, 2018

The ultimate economic assumptions for the current valuation (beginning on January 1, 2018), are the same as those for the prior valuation. However, the starting economic values and the way these values transition to the ultimate assumptions were changed.

- The estimated level of potential GDP was reduced by about 1 percent in 2017 and throughout the projection period, primarily due to the slow growth in labor productivity for 2010 through 2017 and low unemployment rates in 2017. This lower estimated level of potential GDP means that cumulative growth in actual GDP is 1 percent less over the remainder of the projected recovery than was assumed in the prior valuation.
- Near-term interest rates were decreased, reflecting a more gradual path for the rise to the ultimate real interest rate than was assumed in the prior valuation.
- New data from the BEA indicated lower-than-expected ratios of labor compensation to GDP for 2016 and 2017, while new data from the IRS indicated lower-than-expected ratios of taxable payroll to GDP for 2016 and 2017. This new data led to assumed extended recoveries in these ratios to the unchanged ultimate ratios.

The changes in near-term interest rates and GDP decreased the present value of estimated future net cash flows. The new data from BEA and IRS and the resulting extended recovery in the ratios of labor compensation to GDP and taxable payroll to GDP increased the present value of estimated future net cash flows.

There was one notable change in economic methodology:

- Improved the method for projecting educational attainment among women in age groups 45-49 and 50-54 in the labor force participation model.

Inclusion of this new method increased the present value of estimated future net cash flows. Overall, changes to these assumptions caused the present value of the estimated future net cash flows to decrease by \$0.5 trillion.

## Changes in Law or Policy

### From the period beginning on January 1, 2018 to the period beginning on January 1, 2019

The monetary effect of the changes in law or policy on the present value of estimated future net cash flows of the OASDI program was not significant at the consolidated level. Please refer to SSA's financial statements for further information related to the impact of the changes in law or policy on the present value of estimated future net cash flows of the OASDI program.

### From the period beginning on January 1, 2017 to the period beginning on January 1, 2018

The monetary effect of the changes in law or policy on the present value of estimated future net cash flows of the OASDI program was not significant at the consolidated level. Please refer to SSA's financial statements for further information related to the impact of the changes in law or policy on the present value of estimated future net cash flows of the OASDI program.

## Changes in Methodology and Programmatic Data

### From the period beginning on January 1, 2018 to the period beginning on January 1, 2019

Several methodological improvements and updates of program-specific data are included in the current valuation (beginning on January 1, 2019). The most significant are identified below.

- The ultimate disability incidence rate was lowered from 5.4 per thousand exposed in the prior valuation to 5.2 in the current valuation. In addition, recent levels of disability applications and awards are lower than expected in the prior valuation, and estimated disability incidence rates in the current valuation are assumed to increase more gradually toward the assumed ultimate level than in the prior valuation.
- As in the prior valuation, the current valuation uses a 10-percent sample of newly-entitled worker beneficiaries in 2015 to project average benefit levels of retired-worker and disabled-worker beneficiaries. For the current valuation, the model's projection of earnings for workers becoming newly entitled in future years was improved to better reflect the "dispersion" in taxable earnings levels observed from 1970 to 2010. Over this historical period, increases in taxable earnings were higher for workers with taxable earnings above the median than for workers with taxable earnings below the median.
- The current valuation includes an improvement in the method for calculating future benefit levels for those who are awarded benefits more than two years after their date of initial benefit entitlement. This improvement mainly affects DI benefit levels.
- The current valuation updated two sets of benefit adjustment factors based on new programmatic data: the post-entitlement adjustment factors and the WEP factors.

Lowering the ultimate disability incidence rate and inclusion of recent disability data, reflecting earnings dispersion, and the change to benefit levels for those awarded more than two years after entitlement increased the present value of estimated future net cash flows. Updating the post-entitlement and WEP data decreased the present value of estimated cash flows. Overall, changes to these assumptions caused the present value of the estimated future net cash flows to increase by \$0.5 trillion.

### From the period beginning on January 1, 2017 to the period beginning on January 1, 2018

Several methodological improvements and updates of program-specific data are included in the current valuation (beginning on January 1, 2018). The most significant are identified below.

- The prior valuation assumed 99 percent of fully insured women (excluding those who are receiving a disability or widow benefit) were in receipt of a retired-worker benefit at age 70. The current valuation increases this percentage to 99.5 which is equivalent to the assumption for men.
- For the current valuation, a 10 percent sample of newly-entitled worker beneficiaries in 2015 was used to project average benefit levels of retired-worker and disabled-worker beneficiaries. This sample was updated from the 2013 sample used for the prior valuation. In addition, the method used to estimate earnings histories for retired-worker beneficiaries becoming newly entitled in each year after 2017 has been expanded to better match targeted average taxable earnings levels for each of nine birth cohorts (those becoming entitled at ages 62 through 70 in a year).

- Recent data and estimates provided by the OTA at the Treasury were incorporated, which indicate higher ultimate levels of revenue from taxation of OASDI benefits than assumed in the prior valuation. These higher levels are primarily due to changes OTA made in their modeling, resulting in a larger share of benefits being subject to income tax.
- The current valuation incorporates both a better data source for determining the total number of months of retroactive benefits for newly awarded disabled-worker beneficiaries and a new adjustment factor which better aligns projected months of disabled-worker retroactive benefit entitlement with observed historical experience.

Increasing the percentage of fully insured women who are in receipt of a retired-worker benefit at age 70 decreased the present value of estimated cash flows. Updating the sample year for average benefit level calculations, increasing the ultimate taxation of benefits ratios, and the changes to estimates of retroactive benefit payments increased the present value of estimated future net cash flows. Overall, changes to these assumptions caused the present value of the estimated future net cash flows to increase by \$0.2 trillion.

## Medicare

The SCSIA shows two reconciliations for Medicare: (1) changes from the period beginning on January 1, 2018, to the period beginning on January 1, 2019, and (2) changes from the period beginning on January 1, 2017, to the period beginning on January 1, 2018. All estimates relating to the Medicare program in the SCSIA represent values that are incremental to the prior change. As an example, the present values shown for demographic data, assumptions, and methods represent the additional effect that these assumptions have, once the effects from the change in the valuation period and projection base have been considered. In general, an increase in the present value of net cash flows represents a positive change, while a decrease in the present value of net cash flows represents a negative change.

## Assumptions Used for the Components of the Changes for the Medicare Program

The present values included in the SCSIA are for the current and prior years and are based on various economic and demographic assumptions used for the intermediate assumptions in the Medicare Trustees' Reports for these years. The Medicare – Demographic and Economic Assumptions table summarizes these assumptions for the current year.

### From the period beginning on January 1, 2018 to the period beginning on January 1, 2019

Present values as of January 1, 2018 are calculated using interest rates from the intermediate assumptions of the 2018 Trustees' Report. All other present values in this part of the SCSIA are calculated as a present value as of January 1, 2019. Estimates of the present value of changes in social insurance amounts due to changing the valuation period, projection base, demographic assumptions, and law are presented using the interest rates under the intermediate assumptions of the 2018 Trustees' Report. Since interest rates are an economic estimate and all estimates in the table are incremental to the prior change, the estimates of the present values of changes in economic and health care assumptions are calculated using the interest rates under the intermediate assumptions of the 2019 Trustees' Report.

### From the period beginning on January 1, 2017 to the period beginning on January 1, 2018

Present values as of January 1, 2017 are calculated using interest rates from the intermediate assumptions of the 2017 Trustees' Report. All other present values in this part of the SCSIA are calculated as a present value as of January 1, 2018. Estimates of the present value of changes in social insurance amounts due to changing the valuation period, projection base, demographic assumptions, and law are presented using the interest rates under the intermediate assumptions of the 2017 Medicare Trustees' Report. Since interest rates are an economic estimate and all estimates in the table are incremental to the prior change, the estimates of the present values of changes in economic and health care assumptions are calculated using the interest rates under the intermediate assumptions of the 2018 Trustees' Report.

## Changes in Valuation Period

### From the period beginning on January 1, 2018 to the period beginning on January 1, 2019

The effect on the 75-year present values of changing the valuation period from the prior valuation period (2018-2092) to the current valuation period (2019-2093) is measured by using the assumptions for the prior valuation period and extending them, in the absence of any other changes, to cover the current valuation period. Changing the valuation period removes a small negative net cash flow for 2018, replaces it with a much larger negative net cash flow for 2093, and measures the present values as of January 1, 2019, one year later. Thus, the present value of estimated future net cash flow (including or excluding the combined Medicare Trust Fund assets at the start of the period) decreased (made more negative) when the 75-year valuation period changed from the prior valuation period (2018-2092) to the current valuation period (2019-2093). In addition, the effect on the level of assets in the combined Medicare Trust Funds of changing the valuation period is measured by assuming all values projected in the prior valuation for the year 2018 are realized. The change in valuation period resulted

in a slight increase in the starting level of assets in the combined Medicare Trust Funds. As a result, the present value of the estimated future net cash flows decreased by \$1.4 trillion.

### **From the period beginning on January 1, 2017 to the period beginning on January 1, 2018**

The effect on the 75-year present values of changing the valuation period from the prior valuation period (2017-2091) to the current valuation period (2018-2092) is measured by using the assumptions for the prior valuation period and extending them, in the absence of any other changes, to cover the current valuation period. Changing the valuation period removes a small negative net cash flow for 2017, replaces it with a much larger negative net cash flow for 2092, and measures the present values as of January 1, 2018, one year later. Thus, the present value of estimated future net cash flow (including or excluding the combined Medicare Trust Fund assets at the start of the period) decreased (became more negative) when the 75-year valuation period changed from 2017-2091 to 2018-2092. In addition, the effect on the level of assets in the combined Medicare Trust Funds of changing the valuation period is measured by assuming all values projected in the prior valuation for the year 2017 are realized. The change in valuation period resulted in a very slight increase in the starting level of assets in the combined Medicare Trust Funds. As a result, the present value of the estimated future net cash flows decreased by \$1.4 trillion.

## **Changes in the Demographic Data, Assumptions, and Methods**

### **From the period beginning on January 1, 2018 to the period beginning on January 1, 2019**

The demographic assumptions used in the Medicare projections are the same as those used for the OASDI and are prepared by the Office of the Chief Actuary at the SSA.

The ultimate demographic assumptions for the current valuation (beginning on January 1, 2019) are the same as those for the prior valuation. However, the starting demographic values and the way these values transition to the ultimate assumptions were changed. The numbers of new LPRs for calendar years 2018 and 2019 were assumed to be slightly lower than projected in the prior valuation period, due to recent lower annual refugee ceilings set by the Administration.

- The current valuation incorporated a gradual rise in 2017 and 2018 of other-than-LPR immigrants, reaching the ultimate assumed level in 2019. In contrast, the prior valuation incorporated a surge in the number of other-than-LPR immigrants for years 2016 through 2021.
- Final birth rate data for 2017 indicated slightly lower birth rates than were assumed in the prior valuation.
- Incorporating 2016 mortality data obtained from the NCHS for ages under 65 and 2016 and preliminary 2017 mortality data from Medicare experience for ages 65 and older resulted in higher death rates for all future years than were projected in the prior valuation.

There were two notable changes in demographic methodology:

- Improved the method for projecting fertility rates by better incorporating detailed provisional birth rate data available from NCHS.
- Incorporated more comprehensive Medicare mortality data from CMS.

These changes lowered overall Medicare enrollment for the current valuation period and resulted in a slight increase in the estimated future net cash flow. The present value of estimated income and expenditures are lower for Parts A, Part B, and Part D. Overall, changes to these assumptions caused the present value of the estimated future net cash flows to increase by \$0.4 trillion.

### **From the period beginning on January 1, 2017 to the period beginning on January 1, 2018**

The demographic assumptions used in the Medicare projections are the same as those used for OASDI and are prepared by the Office of the Chief Actuary at SSA.

The ultimate demographic assumptions for the current valuation (beginning on January 1, 2018), with the exception of a small decrease of 10,000 LPR immigrants per annum in the future, are the same as those for the prior valuation. However, the starting demographic values and the way these values transition to the ultimate assumptions were changed.

- Final birth rate data for 2016 indicated slightly lower birth rates than were assumed in the prior valuation.
- Recent fertility data suggests that the short-term increase in the total fertility rate used in the prior valuation to account for an assumed deferral in childbearing (resulting from the recent economic downturn) was no longer warranted. The observed persistent drop in the total fertility rate in recent years is now assumed to be a loss of potential births rather than just a deferral for this period.
- Incorporating 2015 mortality data obtained from the NCHS at ages under 65 and preliminary 2015 mortality data from Medicare experience at ages 65 and older resulted in higher death rates for all future years than were projected in the prior valuation.
- More recent LPR and other-than-LPR immigration data and historical population data were included.

There was one notable change in demographic methodology:

- Improved the method for projecting mortality rates by marital status by utilizing recent data from NCHS and the American Community Survey.

These changes lowered overall Medicare enrollment for the current valuation period and resulted in an increase in the estimated future net cash flow. The present value of estimated income and expenditures are both lower for Part A and Part B but higher for Part D. Overall, changes to these assumptions caused the present value of the estimated future net cash flows to increase by \$0.6 trillion.

## Changes in Economic and Other Health Care Assumptions

### From the period beginning on January 1, 2018 to the period beginning on January 1, 2019

The economic assumptions used in the Medicare projections are the same as those used for OASDI and are prepared by the Office of the Chief Actuary at SSA.

For the current valuation (beginning on January 1, 2019), there were four changes to the ultimate economic assumptions.

- The ultimate annual rate of change in total-economy labor productivity was lowered from 1.70 percent in the prior valuation to 1.60 percent in the current valuation, reflecting an expected slower rate of productivity growth in the long term.
- The difference between the ultimate growth rates for the CPI-W and the GDP implicit price deflator (the "price differential"), was decreased from 0.40 percentage point in the prior valuation to 0.35 percentage point in the current valuation.
- The ultimate average real-wage differential was increased from 1.20 percentage points in the prior valuation to 1.21 percentage points in the current valuation.
- The ultimate real interest rate was lowered by 0.20 percentage point, from 2.70 percent in the prior valuation to 2.50 percent in the current valuation.

In addition to these changes in ultimate assumptions, the starting economic values and the way these values transition to the ultimate assumptions were changed. The most notable change was to include the July 2018 revisions in historical GDP estimated by BEA of DOC. This and other smaller changes in starting values and near-term growth assumptions combined to increase the present value of estimated future net cash flows.

There was one notable change in economic methodology:

- Incorporated more recent projections of disability prevalence in the labor force participation model.

The health care assumptions are specific to the Medicare projections. The following health care assumptions were changed in the current valuation:

- Lower assumed growth in economy-wide productivity, which results in higher payment updates for certain providers.
- Faster projected spending growth for physician-administered drugs under Part B.
- Higher projected drug manufacturer rebates and slower overall drug price increases assumed in the short-range period.

The net impact of these changes resulted in a decrease in the estimated future net cash flow for total Medicare. For Part A and Part B, these changes increased the present value of estimated future income and expenditures. For Part D, these changes resulted in a decrease in the present value of estimated expenditures (and also income). Overall, the net impact of these changes caused the present value of estimated future net cash flows to decrease by \$3.0 trillion.

### From the period beginning on January 1, 2017 to the period beginning on January 1, 2018

The economic assumptions used in the Medicare projections are the same as those used for the OASDI and are prepared by the Office of the Chief Actuary at SSA.

The ultimate economic assumptions for the current valuation (beginning on January 1, 2018) are the same as those for the prior valuation. However, the starting economic values and the way these values transition to the ultimate assumptions were changed.

- The estimated level of potential GDP was reduced by about 1 percent in 2017 and throughout the projection period, primarily due to the slow growth in labor productivity for 2010 through 2017 and low unemployment rates in 2017. This lower estimated level of potential GDP means that cumulative growth in actual GDP is 1 percent less over the remainder of the projected recovery than was assumed in the prior valuation.
- Near-term interest rates were decreased, reflecting a more gradual path for the rise to the ultimate real interest rate than was assumed in the prior valuation.
- New data from the BEA indicated lower-than-expected ratios of labor compensation to GDP for 2016 and 2017, while new data from the IRS indicated lower-than-expected ratios of taxable payroll to GDP for 2016 and 2017.
- This new data led to assumed extended recoveries in these ratios to the unchanged ultimate ratios.

There was one notable change in economic methodology:

- Improved the method for projecting educational attainment among women in age groups 45-49 and 50-54 in the labor force participation model.

The health care assumptions are specific to the Medicare projections. The following health care assumptions were changed in the current valuation.

- Utilization rate assumptions for inpatient hospital services were decreased.
- Utilization rate and case mix for skilled nursing facilities services were decreased. Payment rates to private health plans are higher than projected in last year's report primarily due to higher risk scores and increased coding by plans.
- Higher projected drug manufacturer rebates.

The net impact of these changes resulted in a decrease in the estimated future net cash flow for total Medicare. For Part A, these changes resulted in an overall decrease in the estimated future net cash flow. For Part B, these changes increased the present value of estimated future expenditures (and also income). For Part D, these changes decreased the present value of estimated expenditures (and also income). Overall, the net impact of these changes caused the present value of estimated future net cash flows to decrease by \$1.5 trillion.

## Changes in Law

### From the period beginning on January 1, 2018 to the period beginning on January 1, 2019

The provisions enacted as part of Medicare legislation since the prior valuation date had no measurable impact on program expenditures. For more information on the legislation please see section V.A of the 2019 Medicare Trustees' Report.

### From the period beginning on January 1, 2017 to the period beginning on January 1, 2018

Most of the provisions enacted as part of Medicare legislation since the prior valuation date had little or no impact on the program. The following provisions did have a financial impact on the present value of the 75-year estimated future income, expenditures, and net cash flow.

- The *Disaster Tax Relief and Airport and Airway Extension Act of 2017* (P.L. 115-63, enacted on September 29, 2017) included one provision that affects the HI and SMI Part B programs.
- *An Act to Provide for Reconciliation Pursuant to Titles II and V of the Concurrent Resolution on the Budget for Fiscal Year 2018* (P.L. 115-97, enacted on December 22, 2017, and also referred to as the TCJA of 2017) included three provisions that affect the HI program.
- *An Act Making Further Continuing Appropriations for the Fiscal Year Ending September 30, 2018, and for Other Purposes* (P.L. 115-120, enacted on January 22, 2018) included one provision that affects the HI and SMI programs.
- The *BBA of 2018* (P.L. 115-123, enacted on February 9, 2018) included provisions that affect the HI and SMI programs.

Overall, these provisions resulted in a decrease in the estimated future net cash flow for total Medicare. For Part A, these changes resulted in an increase to the present value of estimated future expenditures and a slight decrease to the present value of estimated future income, with an overall net decrease in the estimated future net cash flow. For Part B and Part D, these changes increased the present value of estimated future expenditures (and also income). Overall, these changes to these assumptions caused the present value of the estimated future net cash flows to decrease by \$1.0 trillion.

## Change in Projection Base

### From the period beginning on January 1, 2018 to the period beginning on January 1, 2019

Actual income and expenditures in 2018 were different than what was anticipated when the 2018 Trustees' Report projections were prepared. Part A income in 2018 was lower and expenditures were higher than anticipated based on actual experience. For both Part B and Part D, total income and expenditures were higher than estimated based on actual experience. The net impact of the Part A, B, and D projection base changes is a decrease in the estimated future net cash flow. Actual experience of the Medicare Trust Funds between January 1, 2018 and January 1, 2019 is incorporated in the current valuation and is more than projected in the prior valuation. Overall, the net impact of the Part A, B, and D projection base changes is a decrease in the estimated future net cash flows by \$0.5 trillion.

### From the period beginning on January 1, 2017 to the period beginning on January 1, 2018

Actual income and expenditures in 2017 were different than what was anticipated when the 2017 Medicare Trustees' Report projections were prepared. Part A payroll tax income in 2017 was lower attributable to lowered wages and expenditures were higher than anticipated based on actual experience. Part B total income and expenditures were higher than estimated based on actual experience. For Part D, actual income and expenditures were both lower than prior estimates. The

net impact of the Part A, B, and D projection base changes is a decrease in the estimated future net cash flow. Actual experience of the Medicare Trust Funds between January 1, 2017 and January 1, 2018 is incorporated in the current valuation and is less than projected in the prior valuation. Overall, the net impact of the Part A, B, and D projection base changes is a decrease in the estimated future net cash flows by \$0.9 trillion.

### **Other**

The present values included in the SCSIA for the RRP are for the current and prior valuation and are based on various employment, demographic, and economic assumptions that reflect the RRB's reasonable estimate of expected future financial and actuarial status of the trust funds. For a more detailed description of the primary reasons for the changes in the 2019 and 2018 SCSIA, refer to RRB's financial statements.

The significant assumptions used in the projections of the Black Lung social insurance program, referenced earlier in this note, affect the amounts reported on the SCSIA, which presents the net change in the open group measure of the BLDTF for the years ended September 30, 2019 and 2018, and provide information about the change. For a more detailed description of the primary reasons for the changes in the 2019 and 2018 SCSIA, refer to DOL's financial statements.