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Assessment and recommendations

1. Rebalancing the economy after the crisis

The recovery from the worst peacetime recession is underway

The economic recovery in the United States from arguably the most significant recession since the Great Depression of the 1930s is underway amid substantial economic stimulus (Table 1). Real output has grown at a notable pace since the third quarter of 2009 and net job gains, which typically lag output, turned positive at the start of 2010.

Table 1. **Demand and output**

	2008	2009	2010	2011	Fourth quarter 2009	Fourth quarter 2010	Fourth quarter 2011
	Current prices $ billion	Percentage changes from previous year, volume (2005 prices)					
Private consumption	10 104	–1.2	1.5	2.3	0.2	1.9	2.5
Government consumption	2 383	1.9	1.0	0.9	1.0	1.2	0.7
Gross fixed investment	2 633	–14.8	3.9	9.6	–10.3	7.8	10.3
Public	496	0.2	0.7	1.4	–0.2	1.6	0.6
Residential	472	–22.9	–1.5	3.8	–13.4	–2.2	8.7
Non-residential	1 665	–17.1	6.6	13.9	–12.7	12.8	14.0
Final domestic demand	15 121	–3.1	1.8	3.1	–1.4	2.7	3.4
Stockbuilding[1]	–41	–0.6	1.3	–0.1	0.5	0.6	0.0
Total domestic demand	15 080	–3.6	3.1	3.0	–0.9	3.2	3.4
Exports of goods and services	1 843	–9.5	12.1	8.2	–0.1	9.6	8.0
Imports of goods and services	2 554	–13.8	13.2	10.0	–7.2	15.5	8.0
Net exports[1]	–710	1.2	–0.5	–0.6	1.2	–1.2	–0.3
GDP at market prices	14 369	–2.6	2.6	2.6	0.2	2.1	3.2
***Memorandum items*:**							
Unemployment rate[2]		9.3	9.7	9.0	10.0	9.7	8.5
Household saving ratio[2, 3]		5.9	5.8	6.0	5.5	5.9	6.2
General government net lending[4]		–11.3	–10.5	–8.7	–	–	–
Federal government net lending[4]		–10.5	–9.2	–8.2	–	–	–
Current account balance[4]		–2.7	–3.4	–3.7	–	–	–
Consumer price index inflation		–0.3	1.5	1.1	1.5	0.8	1.1

Note: National accounts are based on official chain-linked data. This introduces a discrepancy in the identity between real demand components and GDP. For further details see *OECD Economic Outlook* Sources and Methods (*www.oecd.org/eco/sources-and-methods*).

1. Contributions to changes in real GDP (percentage of real GDP in previous year), actual amount in the first column.
2. Year average in first three columns. Fourth quarter value in final three columns.
3. As a percentage of disposable income.
4. Calendar year average as a percentage of GDP.

Source: OECD, Preliminary revision to May 2010 *Economic Outlook* projections based on incoming data and indicator-model update for the second half of 2010.

Nevertheless the pace of growth is expected to be more moderate than most expansions, as recovery from severe financial crises is often slow and protracted (Reinhart and Rogoff, 2009). The recent financial crisis and recession inflicted considerable damage on the economy – most notably a significant tightening of credit and the loss of one-quarter of household net worth between the middle of 2007 and early 2009. Since then, though, between ⅓ and ½ that loss has been made up. Rebuilding the remaining lost net worth and reducing debt burdens will restrain domestic demand over the next couple of years. It is also likely that the financial crisis and response have raised the cost of capital for the foreseeable future and thus lowered potential output relative to its pre-crisis path. The high level of long-term unemployment could push down labour force participation for the next few years. Previous US recessions have exhibited no long-term damage to the economy or long-term increase in unemployment, but it is possible this recession will trigger these effects.

Unemployment will remain high for some time

With sluggish demand growth, the US labour market will take a significant amount of time to recover fully. Previous downturns throughout the OECD suggest that unemployment climbs more rapidly in recessions than it falls during recoveries. The normalisation of labour-market conditions is often a long healing process following severe recessions. After the US recessions of the early 1980s and 1990s, the return to pre-recession unemployment levels took about one-third longer than the preceding unemployment increase, and after the 2000 recession it took about 60% longer. During the 2007-09 recession, unemployment rose for 2½ years before peaking in the fourth quarter of 2009 at 10% of the labour force, suggesting that it could be early 2013, at best, before the rate returns to its pre-recession level.

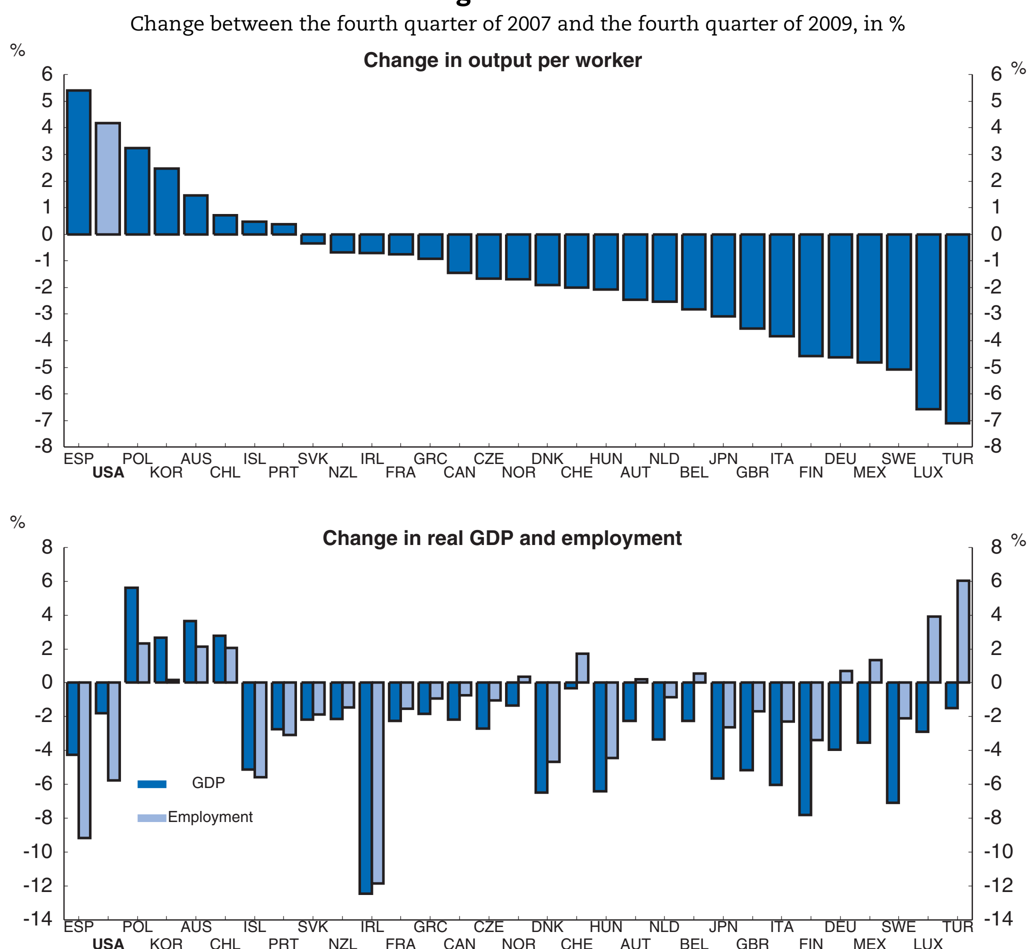
During the recession, net job losses have been large in the United States by OECD standards, while the fall in output has been relatively moderate, increasing productivity (Figure 1). Relatively flexible employment protection laws in the United States have enabled firms to shed workers. In most other OECD countries productivity fell during the recession, and in some employment fell surprisingly little. This pattern should reverse itself during the recovery, as employment in the United States grows faster than the OECD average while productivity grows less.

Combating long-term unemployment will be a challenge

Given that unemployment – particularly long spells of inactivity – can have long-lasting negative effects on earnings potential (Ellwood, 1982; Layard, 1986; Machin and Manning, 1999), the current high level of long-term unemployment – 4¼ per cent of the labour force has been unemployed more than half a year – is a particular concern. The risk is that part of this upsurge may not be fully absorbed during the ensuing recovery, resulting in a permanently higher level of unemployment, a pattern known as "hysteresis" (Ball, 2009). While there has been little observed hysteresis in the United States in the past, the level of long-term unemployment in this recession is far higher than its previous record of 2½ per cent in the early 1980s, increasing hysteresis risks.

Figure 1. **Productivity has increased strongly in the United States during the recession**

Change between the fourth quarter of 2007 and the fourth quarter of 2009, in %



Source: OECD (May 2010), *OECD Economic Outlook 87 Database*.

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The lack of hysteresis in the United States may be partially a result of the benefits for people out of work being returned to a relatively short duration after recessions. By temporarily extending the duration of unemployment benefits from its pre-recession maximum of 26 weeks up to 99 weeks, in some cases, the United States has expanded income support for the unemployed at a time of acute need. While there is little evidence that extended benefit duration is reducing job-search incentives, it could become a drag on the return to employment later in the recovery. *Thus, as the unemployment rate comes down, the maximum duration of unemployment benefits should return to its pre-crisis level, as has occurred in past recessions.*

In the nearer term, however, some support for the labour market may be warranted. The US fiscal stimulus has raised aggregate demand and supported employment. Administration estimates suggest that the primary fiscal stimulus package passed in early 2009 has held employment some 2½ to 3½ million jobs above what it would have been without the fiscal stimulus (Council of Economic Advisers, 2010a). In circumstances of collapsing aggregate demand, the extensions of unemployment insurance likely provided the largest increase in employment for dollar of government revenue spent

during the current period of economic slack and low interest rates, because unemployed individuals save very little (Congressional Budget Office, 2010a). Phasing out these extensions as the labour market improves will continue to support output and employment for some time while gradually pushing more individuals toward employment.

Tax reductions to reduce unit labour costs can also support employment. They encourage private sector hiring, but are somewhat less effective per dollar of government spending. (Congressional Budget Office, 2010a). Nonetheless, various approaches to reducing unit labour costs through tax cuts have been used in many other OECD countries: reductions in employer social security contributions (Germany, Japan, Portugal, and Hungary), targeted labour tax cuts for new hires (France, Spain, Ireland, and Portugal), and expanded hiring subsidies targeted at specific groups such as the long-term unemployed (Austria, Korea, Portugal, and Sweden). Cuts to employer social security contributions for hiring workers unemployed more than 60 days, with additional incentives if those workers remain employed a year later, as passed in the United States in March 2010, should also reduce unit labour costs and help boost hiring.

During the downturn the skills of the unemployed may have become degraded or may no longer match the skills demanded by employers. Job training during long periods of unemployment may mitigate these problems, particularly for younger and less-educated job seekers. While job training in the United States has had mixed results, training programmes are likely to be more effective during significant recessions by keeping unemployed workers attached to the labour force and helping jobseekers shift from declining to growing sectors. Support for job training and post-secondary education, particularly community colleges, provided under the stimulus programme has been an important step in maintaining the level of funding for these resources at a time of tight state budgets, but funding may nonetheless not be able to keep pace with demand. Lack of available training and education may slow the process of restructuring and adapting the labour force to the post-recession employment structure. Thus, to the extent that programmes can be expanded and budget conditions allow, *further support for job training and enhanced education should be provided to reintegrate workers whose skills have become degraded from long periods of unemployment or that do not match the needs of employers.*

The federal government deficit should come down and, eventually, monetary policy needs to be normalized

The substantial fiscal and monetary stimulus successfully turned the economy around, despite much of the fiscal stimulus having been offset by consolidation measures at state and local level (Aizenman and Pasricha, 2010). However, it has also increased the national debt and limited the ability of the government to respond to potential risks in the future. As discussed in the next section, with the recovery in progress, the Administration has proposed to reduce the budget deficit from its historically high level in order to slow the rapid pace of debt accumulation

With substantial slack in the economy, and low levels of inflation, the current accommodative stance of monetary policy remains appropriate. However, over the longer term the exceptional level of bank excess reserves could lead to an excessive expansion of credit and inflation as the economy rebounds and lenders begin to feel comfortable taking

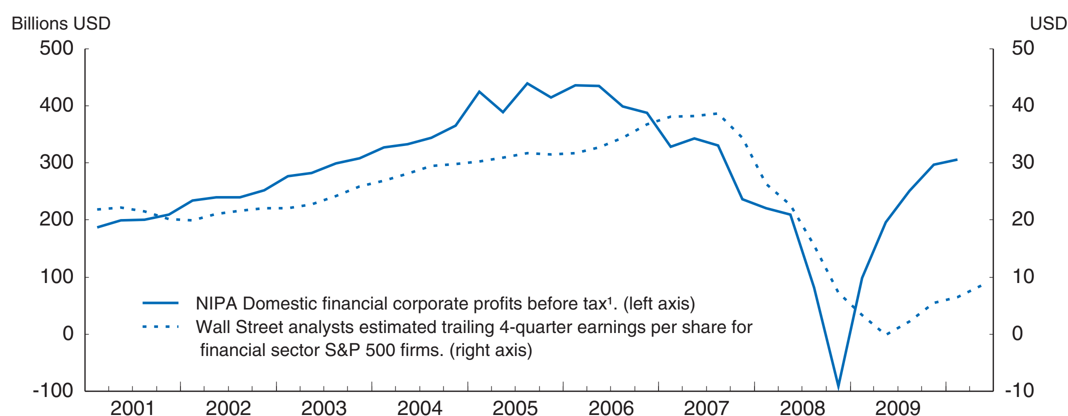
on additional risk. *Hence, laying the groundwork for withdrawing the very accommodative stance of monetary policy has begun and should be continued*. These steps include the Federal Reserve's exit from most of its short-term liquidity programmes, which has proceeded without incident, halting purchases of longer-term assets and raising the discount rate used to lend to distressed banks. Since the movement of interest rates from extremely expansionary levels to neutral levels and the gradual shrinkage of the Federal Reserve's balance sheet will take some time, initial increases need to begin well before the economy once again approaches full capacity.

Financial markets are recovering strongly

The massive, rapid and co-ordinated policy interventions introduced by the United States and other governments saved the financial markets from becoming almost completely illiquid. Such an outcome would have dried up nearly all sources of credit and forced a massive, sharp cutback in expenditures as consumers and businesses would have been forced to pay down existing credit without having access to new sources to soften the transition. As it was, credit conditions tightened significantly and consumer and business expenditures fell 6% between the second quarter of 2008 and the second quarter of 2009.

Financial markets are now on their way to recovery, but it will take some time before they return to full health. Higher interest margins and improving market conditions during 2009 boosted overall financial industry compensation and current period profits before write-offs of non-performing loans and elevated loan-loss provisioning. However, non-performing loans and loan loss provisioning continue to be a substantial drain on income, though progress is being made (Figure 2). Nonetheless, bank lending activity is still very weak and small businesses continue to report that it is becoming more difficult to obtain credit (Figure 3).

Figure 2. **Financial industry profits are improving, but remain held down by write-downs and provisioning**



1. Excludes provisioning and write-offs. Excludes Federal Reserve banks. Includes inventory valuation adjustment. Seasonally adjusted at annual rates.

Source: United States Department of Commerce NIPA Table 6.16D line 12, Thomson.

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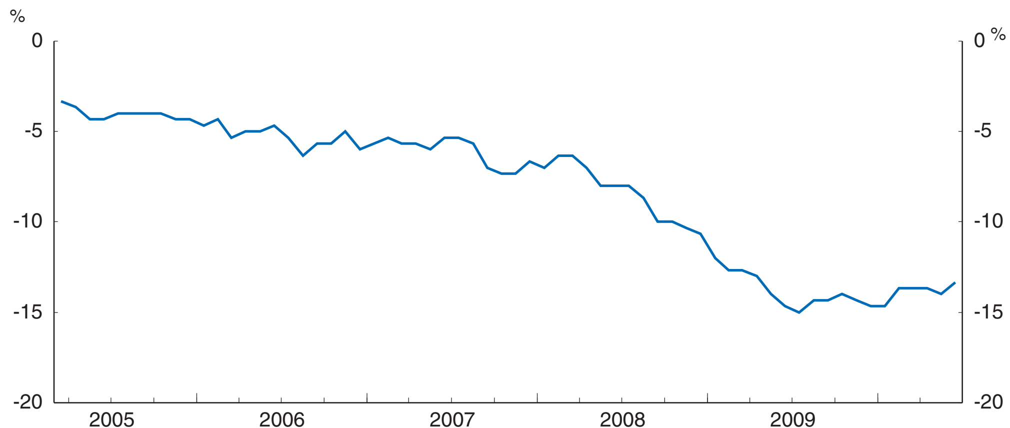
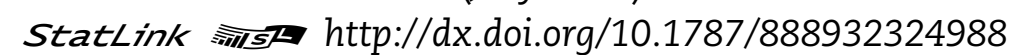
Figure 3. **Small business credit conditions remain tight**[1]



1. Three-month moving average of share of regularly borrowing small businesses reporting that loans are easier to obtain now than they were three months ago minus share reporting that loans are more difficult to obtain now than they were three months ago.

Source: National Federation of Independent Businesses, *Small Business Economic Trends* (July 2010).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The housing market still has a long way to go to recover

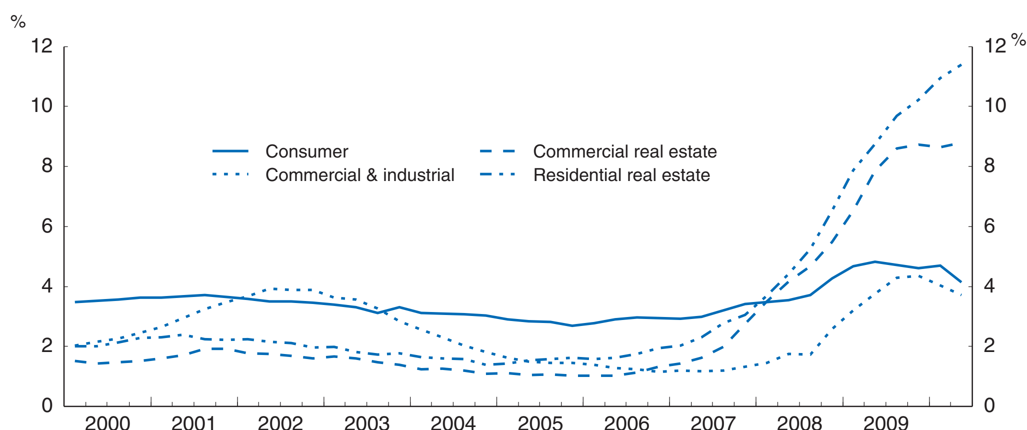
The housing market faces a long process of returning to normal. Despite the support provided by low interest rates and government housing programmes, mortgage loan delinquencies are still elevated by historical standards (Figure 4). The large fall of home prices from their peak has left about 11.2 million homeowners (24% of mortgaged homeowners) with negative equity in their home in the first quarter of 2010, *i.e.* they owed more on their home than it was worth. Increases in mortgage defaults could put additional downward pressure on house prices, which would drive even more households into negative equity. The large share of households in trouble will continue to weigh on residential construction, housing prices and financial industry balance sheets. As such, growth in residential investment is likely to be weak for some time by the standards of past recoveries.

Government policies to facilitate loan restructuring and modification can play an important role in easing the potential barrier of negative housing equity to labour reallocation across the United States (Ferreira, Gyourko, and Tracy, 2008). So far, measures to help mortgage borrowers in difficulty appear to have had mixed results. As of April 2010, 1.2 million trial modifications had been started, but there were only about 300 000 permanent modifications under the government's main programme, which has provided USD 3.1 billion in monthly mortgage payments relief to homeowners. Recently enacted policies that give financial encouragement to loan holders to write down principal amounts may increase the pace of restructuring and principal reduction, and therefore help the broader economy.

While delinquencies in commercial real estate have also been considerable (see Figure 4), this market is only one-fourth the size of the residential real estate market, which suggests that problems should be significantly less severe for the broader economy. Nonetheless, continued trouble in this market is causing problems for many small and medium-sized banks.

Figure 4. **US loan delinquency rates are high**

Per cent of loans delinquent



Source: United States Federal Reserve Board.

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Imbalances have been reduced but may widen again

A number of economic imbalances have been reduced in recent years, and some of this progress may be structural. The household saving rate increased from 2% of disposable income in 2007 to 6% in 2009 as tax cuts increased disposable income and consumption growth turned negative. High frequency saving data are volatile, but the preliminary evidence suggests a shift to a higher steady state savings rate than prior to the recession, one more in line with historical norms. Likewise, the US current account deficit fell from 6% of GDP in 2006 to 2.7% in 2009, but increases in the government deficit, and rising consumption and investment growth have started to slightly widen the current account deficit again.

The Administration has noted the need to move the economy from one based on consumption and housing to one where non-residential investment and exports make up a larger share of the economy. The Administration has suggested proposals to help accomplish this goal, including: increasing private saving by expanding automatic enrolment in 401(k) and other retirement savings accounts; increasing public saving by reducing the federal government budget deficit; increasing non-residential investment and reducing oil imports by promoting energy efficiency and renewable power sources; and increasing exports by reducing barriers to trade, increasing export credit, providing technical assistance to first-time exporters and other proposals in the National Export Initiative. Additional policies, such as shifting the tax burden towards consumption, could also help achieve a goal of higher saving. Forcefully implementing these proposals to raise saving and exports would reduce the risk that large current account imbalances re-emerge and would support complementary efforts recommended for surplus countries. Such moves would be in line with the conclusions of the G20 Toronto meeting in June 2010.

The bursting of asset-price bubbles is very costly

The experience of this crisis suggests that unchecked credit-induced booms can result in costly cleaning-up efforts (White, 2009). Financial innovation, lax underwriting standards, insufficient supervisory and regulatory policies, low interest rates and improved macroeconomic stability, along with significant capital inflows, may have helped feed the asset price bubble. While it may be difficult to determine in real time if a credit-induced boom in asset prices is sustainable, *prudential regulation and supervision policies should counter the accumulation of risks to financial system stability.* If these policies prove insufficient, then monetary policymakers may need to consider raising interest rates. Wielding a broad tool like monetary policy to affect sectoral bubbles may create undesirable effects on the wider economy, pointing to the need for more research on how best to calibrate monetary policy in such situations.

Setting policy in a financial crisis necessarily involves difficult judgments about striking the appropriate balance between minimizing risks to economic and financial stability and limiting a heightening of moral hazard. The Troubled Asset Relief Program (TARP), the American Reinvestment and Recovery Act of 2009 (ARRA), the Federal Reserve's enhanced liquidity facilities, large scale asset purchases, as well as the normal automatic fiscal stabilizers and monetary policy illustrate this tradeoff. This support, while necessary at the time to help stabilize the economy and financial markets, may have provided market participants with the rational belief that the federal government will step in during times of market or industry stress. Such a belief will lead participants to under-price risk (so-called moral hazard). Macro-prudential regulation will need to be strengthened considerably to counteract this higher level of moral hazard, with attention given to winding down large institutions. Many pieces of the recent financial reform legislation seek to address these issues.

Housing finance needs to be reformed

Although not unique, the US housing bubble had a more devastating effect than those in many other OECD countries. The deterioration of underwriting standards through the greater use of risky no documentation, low or no down-payment, subprime and alt-A loans, combined with the securitization model, and the non-recourse nature of most US home loans has meant that US delinquency and foreclosure rates have been far above rates in most other OECD countries. *These high-risk loans, which were overused but have currently all but disappeared from the market, should be better priced and better regulated to prevent abuse. Higher down payments and lower loan-to-value ratios would also be a step towards reducing the foreclosure rate during the next downturn.*

Though international evidence suggests homeownership impedes labour mobility, it is seen as having positive externalities. Therefore, many OECD governments provide support to home buyers, through lower taxation or subsidised credit. However, the US level of support to homeownership is particularly large and poorly directed if the goal is to increase affordability and the share of the population owning a home. Prior to the downturn, support to the housing market came from the implicit government guarantee given to the securities issued by Fannie Mae and Freddie Mac, the mortgage interest income tax deduction in the absence of taxation of imputed rentals on owner-occupied housing, as

well as Federal Housing Administration (FHA) and Veterans' Affairs (VA) home loans, and additional programmes at the state level. This high level of subsidisation contributed to over-investment in housing. Moreover the tax treatment of owner-occupied housing encouraged increased household leverage, making households more vulnerable to a downturn in house prices. Since the downturn, several new programmes have increased this subsidisation significantly. *Over the medium term, when the housing market has returned to normal and house prices are increasing, the baseline level of housing subsidies should be cut to significantly below the levels prior to the crisis.*

The private ownership structure of Fannie Mae and Freddie Mac (known as Government-Sponsored Enterprises, GSEs) encouraged them to maximise the value of their implicit government guarantee for the benefit of management and shareholders by aggressively expanding their balance sheets. The GSEs became the biggest players in the mortgage market, though their role in the market shrunk as the bubble reached its peak when private market securitization was at its highest level. Despite the considerable subsidy from implicit government backing, there is little evidence they had much impact on home mortgage loan interest rate spreads (Lehnert, Passmore, and Sherlund, 2008). Following substantial losses, the GSEs were rescued by the government, resulting in majority government ownership. *As the recovery continues, the GSEs should either be retained in government ownership and have their portfolios reduced over time or be returned to the market with no government guarantee.*

The mortgage interest deduction should be reduced or eliminated as it encourages large home mortgages. There is little evidence that it leads to more people owning homes (Glaeser and Shapiro, 2003), though it does create an incentive for buying more housing. Also, the mortgage interest deduction, though capped, gives a significantly larger benefit to richer households. While cutting the mortgage interest deduction would be difficult, one approach would be to phase it out, as was done in the United Kingdom in the 12 years ending in 2000.

Down payments and closing costs are considered by most households to be the greatest barrier to homeownership (National Association of Realtors, 2009). The first-time homebuyer's tax credit seeks to encourage home ownership by helping with the down payment, thus making homeownership more affordable while providing equity to the new homeowner. Estimates suggest that extending the first-time homebuyer tax credit would cost around one-sixth of the budget cost of the mortgage-interest deduction. The credit, however, may discourage the accumulation of private savings for a down payment. *An alternative way to lessen the down-payment problem that should be implemented is to encourage savings more broadly, through accounts giving either tax deductions or government-matching contributions for savings.* Such accounts could be used to accumulate a down payment.

Financial reform needs to be implemented effectively

In reforming financial markets to address failures exposed by the recession and to reduce the risk of future financial crises, international co-ordination will be vital to avoid jurisdictional arbitrage. International co-ordination is also necessary to deal with differences in accounting standards and the potential bankruptcy of a large multi-national financial institution – areas where little consensus currently exists. The G20, the Basel

Committee on Banking Supervision and the Financial Stability Board provide forums for addressing these issues at an international level. Although the full set of standards and recommendations from these bodies has not yet been released, some general principles of financial reform have been agreed upon, and the work of turning them into practical regulation should continue.

The recent financial reform legislation goes some way towards laying out basic changes. Nonetheless, much of the reform will be left up to the regulators. This flexibility should allow regulators to incorporate continued suggestions by international and domestic bodies (like the Financial Crisis Inquiry Commission (FCIC), the President's Economic Recovery Advisory Board (PERAB), the Treasury's Special Investigator General and the Congressional Oversight Panel for TARP).

First and foremost among the generally-agreed principles is the need for higher capital and liquidity ratios across all financial institutions to provide a larger cushion in the event of trouble. *These ratios should be higher for larger, systemically important institutions to offset the moral hazard of their being too-big-to-fail (or too-interconnected-to-fail) and to reduce the costs of cleanup in the case that one of these firms does fail. It may also be useful to make these ratios time-varying so that capital buffers are built up during periods of strong growth, rather than attempting to raise them during time of stress.*

Another problem that became evident in the recent crisis is that risky assets were given too little weight when determining risk-adjusted capital ratios. Work remains to determine proper risk weightings, however, *ratios need to be higher for more risky transactions*. Some degree of risk is inherent in all assets that financial institutions hold. It may well be infeasible to determine the distribution risk for certain assets. Therefore it may be necessary to force those assets out of commercial banks and re-establish the sharp division between commercial and investment banking. However, even if this division is reinstated, the recent crisis shows that it is not a viable strategy to let investment banks take on enormous risk under the guise that they will be allowed to fail. Supervision and regulation of risk will need to be significantly more vigilant across the financial market than prior to the crisis.

In times of stress, what had appeared to be adequate capital may quickly disappear as assets become downgraded. Therefore, a *mechanism is also needed to preserve the capital ratio in times of stress*. Contingent convertible (Coco) bonds, which is debt that turns into equity when certain triggers occur, is one possible idea to preserve the capital ratio. However, it is unclear how useful they might be in practice. Determining the price at which such bonds should be converted to equity and the triggers which should cause such a conversion is unclear. Getting either of these two features wrong could inappropriately cause a severe drop in value for either the shareholders or bondholders. Alternatively, "stress tests", where regulators put firms' balance sheets through a couple adverse scenarios, in the context of government readiness to support undercapitalized banks if they could not raise capital on their own, helped re-open equity markets to some financial institutions and allowed them to raise capital through equity issuance. Such tests could be a useful tool in future crises.

The multitude of financial industry regulators is commonly noted in the US system, and the recently passed financial reform legislation moves somewhat in the direction of consolidation. Formally creating a council of regulators with the mandate to oversee systemic risk is a step in the right direction. Similarly, investing a regulator, in this

case the Federal Reserve, with the authority to force corrective action or take over and wind down any troubled financial institution that poses a risk to the financial sector is also useful and should help with the problem of institutions previously considered too-big-to-fail. Similarly merging the Office of the Comptroller of the Currency and the Office of Thrift Supervision consolidates one regulator at the national level, although there will still be a multitude of financial industry regulators at both the federal and, especially, the state levels. While the recent financial reform makes progress towards reducing regulatory fragmentation, further efforts should be made to reduce remaining fragmentation.

Additional welcome areas of reform include aligning compensation structures for both individuals and businesses to reduce the incentive for short-term gains irrespective of long-term risks, moving most CDS transactions to clearinghouses, having financial firms create living wills as an exercise of what might happen in the case of bankruptcy and creating a consumer protection agency for financial services.

Box 1. **Summary of recommendations for rebalancing the economy after the crisis**

- Monetary policy should remain accommodative to support the economy as fiscal policy tightens, but laying the groundwork for the eventual normalization of policy should continue.
- Ensure that fiscal policy is set appropriately so as to reduce the budget deficit over time and reverse the rise in the public debt-to-GDP ratio in due course (see next section).
- As the labour market continues to improve, the duration of unemployment benefits should return to its pre-recession level.
- Additional support for job training and enhanced education may be required to reintegrate unemployed workers who skills have deteriorated.
- Improve consumer protection against predatory mortgage lending.
- Public support to homeownership should be reduced over the medium term as the housing market recovers and house prices begin rising. Reform the GSEs, and replace mortgage interest tax deductions by narrower support to overcome down payment constraints of liquidity-constrained first-time homebuyers.
- Further strengthen financial regulation and supervision and international co-ordination, as is being currently pursued, which is likely to entail higher capital and liquidity ratios for larger, systemically important financial institutions and higher risk weightings for risky transactions.

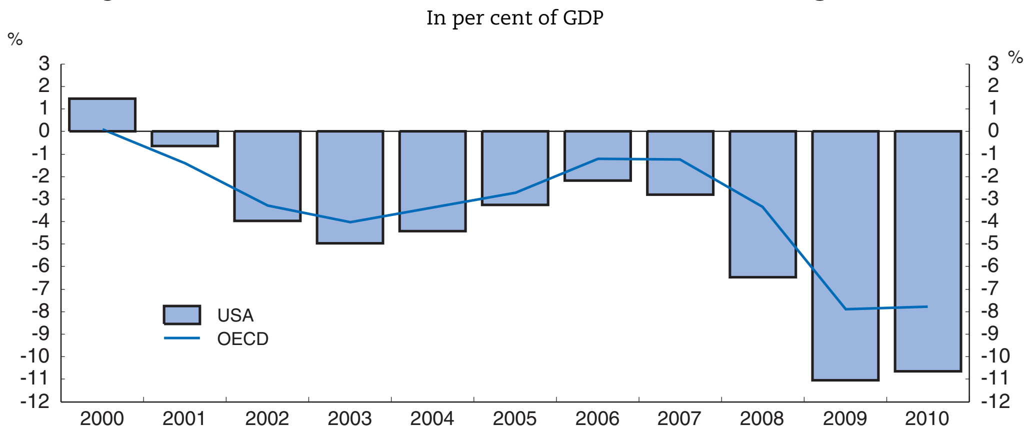
2. Putting public finances on a sustainable path

The budget position could have been stronger when the crisis struck

The United States entered the financial crisis and the subsequent economic recession with public finances already weakened by past policies. Tax cuts under the Economic Growth and Tax Relief Reconciliation Act of 2001 (EGTRRA) and the Jobs and Growth Tax Relief Reconciliation Act of 2003 (JGTRRA) decreased government revenues below the levels prevailing in the second half of the 1990s. Meanwhile, public spending rose throughout the first half of the decade, reflecting increased appropriations for defence and homeland security and the introduction of the Medicare Part D prescription drug programme for the elderly. The abandonment in 2002 of the pay-as-you-go (PAYGO) budgeting rule, which required deficit-neutrality for any new tax or spending initiative contributed to the weakening of the fiscal position. As a result of these policy choices, at the peak of the cycle the United States was still running a general government budget deficit of about 2½ per cent of GDP (Figure 5), even as budgets in several other OECD countries were either in surplus (*e.g.*, Australia, Canada, Denmark, Finland, Iceland, Ireland, Korea, Luxembourg, Netherlands, New Zealand, Norway, Slovak Republic, Spain, Sweden, Switzerland), in balance (Belgium, Germany) or improving significantly (Italy and Japan).

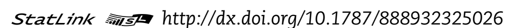
Figure 5. **The United States entered the crisis with a budget deficit**[1]

In per cent of GDP



1. In this figure, the budget deficit is measured as the net lending position of the general government (federal, states and local governments) recorded by the national accounts, following OECD practice. This differs from the federal deficit, often quoted in the US policy debate, which only covers the federal government and measures the budget deficit as the saving balance, excluding government capital formation, net capital transfers and non-current receipts. Reconciliation between these two concepts is provided by BEA (2009, 2010), CBO (2009a) and OMB (2010a).

Source: OECD (May 2010), *OECD Economic Outlook 87 Database.*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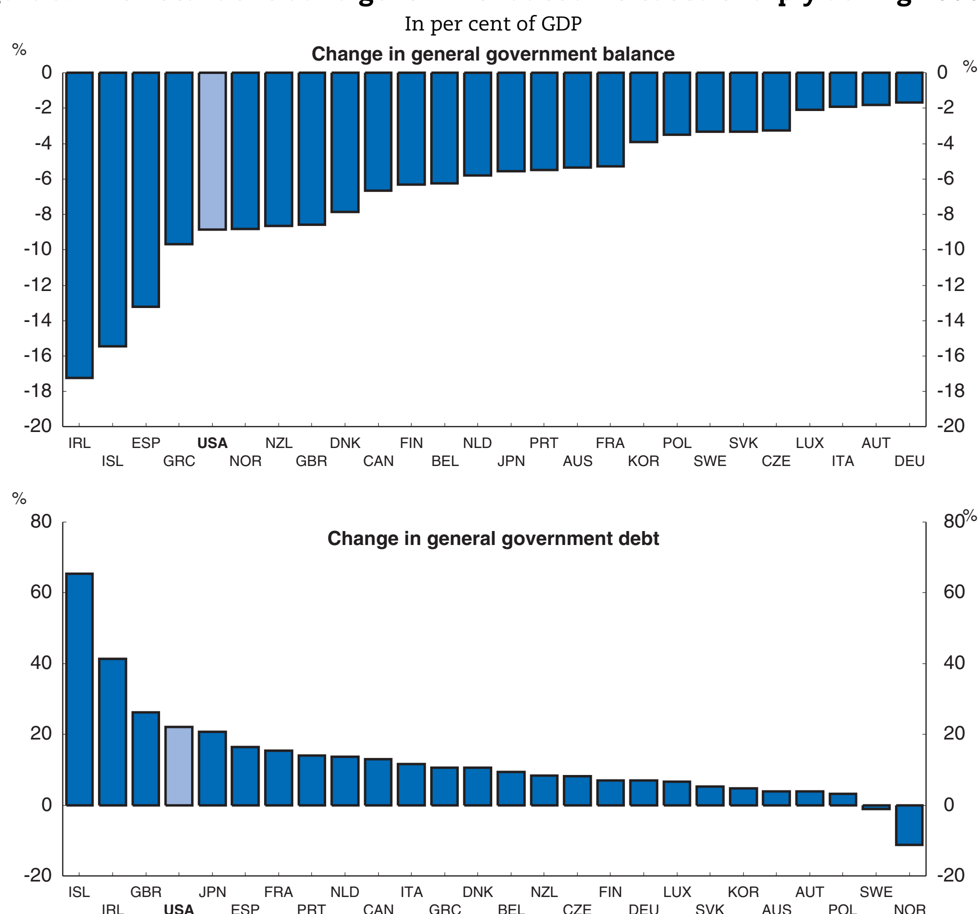
The budget deficit widened considerably during the recession

The government responded to the crisis with extraordinary fiscal interventions. Large injections into the financial sector, mostly through the Troubled Asset Relief Program (TARP), helped to shore up confidence and supported distressed private financial firms. The government also provided support to two government-sponsored enterprises (GSEs), Fannie Mae and Freddie Mac, in the form of preferred stock purchase agreements and coverage of losses. The 2009 American Recovery and Reinvestment Act (ARRA) and its extensions provided a large countercyclical fiscal stimulus, consisting of tax cuts and spending increases. The

weakening of taxable incomes and the large revenue losses from asset markets also contributed to the sharp drop in tax receipts, while the recession triggered a significant increase in unemployment compensation. As a result, the US budget deficit widened by about 9% of GDP from 2006 to 2009, a large deterioration by international standards, although not surprising given that the US economy was at the centre of the crisis (Figure 6). The federal deficit is estimated to exceed 10% of GDP in both 2009 and 2010 (Table 2) and the federal debt held by the public will reach the highest level since the early 1950s.

Figure 6. **The fiscal deficit and government debt increased sharply during 2006-09**

In per cent of GDP



Source: OECD (May 2010), *OECD Economic Outlook 87 Database.*

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Table 2. **Public finances have deteriorated during the crisis**

(General government, percentage of GDP, calendar years)

	95-2000	2001-07	2008	2009	2010 (f)	2011 (f)
Total tax and non-tax receipts	34.6	32.9	32.3	30.5	30.9	32.0
Total outlays	35.3	36.0	38.8	41.5	41.6	40.9
Net lending	–0.7	–3.2	–6.5	–11.0	–10.7	–8.9
Memorandum items						
Underlying net lending	–0.9	–3.4	–5.9	–8.5	–8.9	–8.1
General government debt, gross	64.5	59.5	70.4	83.0	89.6	94.8
General government debt, net	45.8	40.1	47.0	58.2	66.6	72.6
Federal budget balance[1]	0.2	–1.9	–4.7	–10.3	–10.6	–8.3
Federal debt held by public[1]	36.6	36.5	44.1	54.8	63.6	68.6

1. Office of Management and Budget, fiscal years for 2010 and 2011.
Source: OECD (May 2010), *OECD Economic Outlook 87 Database.*

The Administration seeks to stabilize the debt-GDP ratio by the middle of the decade

Against this background, the Administration has proposed to balance the primary federal budget (*i.e.*, the budget excluding net interest payments on government debt) by 2015, enough to stabilize the debt-GDP ratio (Council of Economic Advisers, 2010b). This would imply reducing the federal deficit from 10.6% of GDP in fiscal year 2010 to 3% of GDP in fiscal year 2015. A large part of deficit reduction would come from the expiration of the fiscal stimulus, the unwinding of financial rescue measures and the positive impact of automatic stabilizers as the economy recovers (the CBO projects that the output gap will fall from 6½ per cent of potential GDP at the end of 2009 to zero per cent by the end of 2014, from which it can be inferred that high economic growth is projected on average over this period). In addition, the government has proposed fiscal tightening measures reducing the annual deficit by about 1% of GDP to be introduced in fiscal year 2011. Marginal income tax rates would return to the pre-2001 level for the top-income taxpayers and the tax rate on dividends and capital gains would be raised from 15% to 20%. In addition, the 2.9% Medicare tax is to be increased to 3.8% and the base to be broadened to capital income. The government has also suggested capping at 28% the rate at which individual taxpayers can itemize deductions. A financial crisis responsibility fee applied to large financial firms would raise additional revenues. On the spending side, the government has proposed to freeze non-defence discretionary outlays in real terms, but the impact would be rather small, reflecting the small proportion (under 15%) of such outlays in the federal budget. All of this is projected to leave a gap of about 1% of GDP (1½ per cent of GDP according to CBO estimates) to reach the target of balance in the primary budget. To find ways to close this gap, the President established a "National Commission on Fiscal Responsibility and Reform", with a mandate to identify the necessary measures.

Allowing deficits on the scale of those in 2009-10 to persist would result in rapid debt accumulation, which could not be sustained for long. On the other hand, the course of the recovery is still uncertain, arguing against a sharp and immediate deficit reduction. In view of these conflicting considerations, *the Administration's fiscal plan is ambitious, but appropriately gradual and should therefore be implemented in full*. In order to progress along this path, *measures in the fiscal stimulus programme should be allowed to expire, though* there is value to temporarily extending measures targeted to difficult areas, such as long-term unemployment.

The assessment of debt sustainability has several dimensions

The goal of the government is to stabilize the federal debt held by the public at around 73% of GDP by the middle of the decade (Council of Economic Advisors, 2010b). There is no rule to establish the sustainable level of public debt. This depends on the specific situation of each country, financial-market conditions and long-term fiscal prospects. Nonetheless, it should be noted that the government's plan would stabilize the debt-GDP ratio at nearly twice its pre-crisis level. This would leave little freedom for fiscal policy to act decisively in the face of large contingencies. In addition, this would further complicate the task of dealing with long-run challenges associated with the ageing of the population. It is worth noting that states and local governments also have substantial debts, although these liabilities are not federally guaranteed and were generally contracted to finance capital expenditure, sometimes earning revenues. All told, gross debt of the general government is projected to reach 95% of GDP in 2011 (Table 2), close to the average for the OECD.

In principle, it makes economic sense, when assessing the sustainability of debt, to subtract from the public debt any financial assets owned by the government. These financial assets yield a return, which accrue to the budget and lower the net debt-service burden. The Administration notes that, net of financial assets, debt held by the public would stabilize at 66% of GDP. However, this calculation slightly understates net government debt as some of the financial assets, which were acquired in the midst of the recession as part of the programmes to support the economy and the banking system, are worth less than face value. Estimates put the final cost of the Troubled Asset Relief Program (TARP), which was the largest such scheme, at between 0.8 and 1% of GDP (CBO, 2010b). In addition, the government provided substantial support to Fannie Mae and Freddie Mac to avoid their bankruptcy and keep credit flowing to the mortgage market. The CBO (2010c) evaluates the subsidy cost of this support at USD 389 billion during 2009-19 (2.7% of 2009 GDP).

The debt-GDP ratio should be brought down after 2015 at an appropriate pace

In view of these various considerations, the plan to stabilize the debt-GDP ratio in 2015 should be followed by a policy to put the debt ratio on a downtrend during the second half of the decade, although the actual pace of reduction should depend on economic circumstances. Not only would this re-create fiscal room of manoeuvre to respond to unexpected contingencies, it would also help to prepare for the long-run effects of the ageing of the population. For illustrative purposes, balancing the federal budget by 2020 is estimated to lower the federal debt held by the public to just below 70% of GDP. This would still be high by historical standards, but nevertheless a better outcome than projected under current policies (Figure 7).

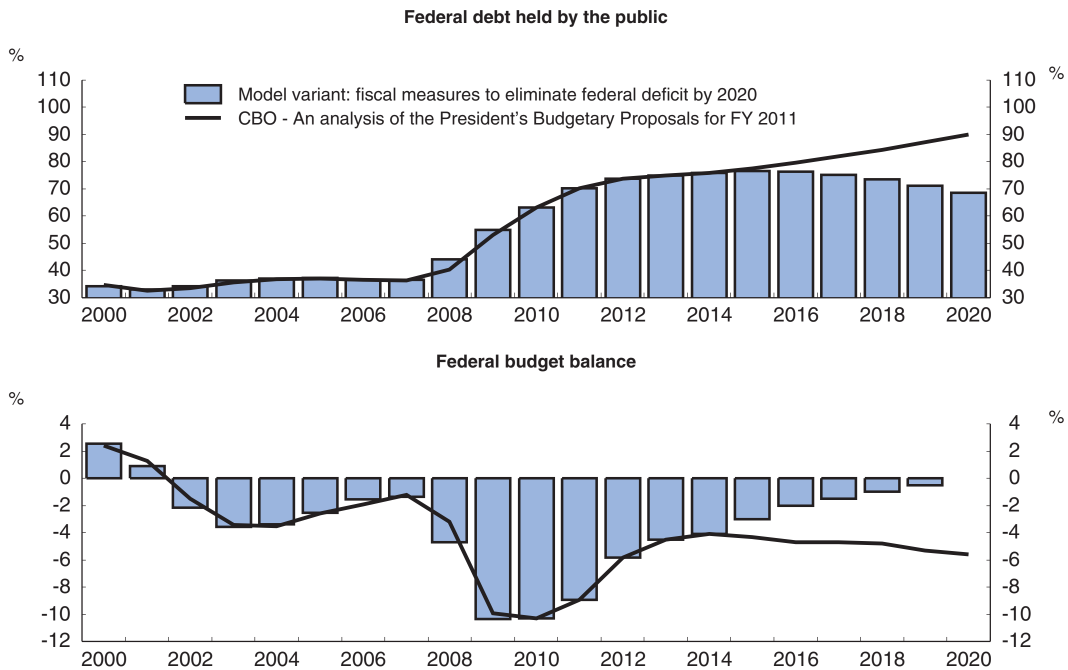
Adopting a strong fiscal framework

Stronger fiscal rules would help to sustain the large effort of budgetary tightening over many years that will be required. The current Administration took a step in this direction in February 2010 when it reinstated the PAYGO rule, which requires new spending programmes or tax cuts to be compensated by other spending cuts or tax increases. This served the United States well during the second half of the 1990s, although experience suggests that *it could be improved by reducing the number of exemptions allowed under current rules, such as for "emergency spending" or "current-policy adjustments"*.

In addition, experience in a number of OECD countries suggests that it may be important to go further by *adopting a public debt objective*. Such an objective, which should remain flexible in the face of evolving economic circumstances, makes clear the implications of short-term budget decisions for the sustainability of public finances. *To fix these targets and increase commitment to them, it would be helpful to have an agreed legislative framework that provides guidance on what constitutes prudent or responsible policy.* This was the approach adopted in Australia and New Zealand, which passed legislation in the 1990s requiring budgets to be formulated taking into account their long-term consequences and, when budgets departed from a prudent long-term path, requiring government to indicate how fiscal policy would be returned to such a path. The idea behind this legislation was that, while future governments could repeal these laws, doing so would be unattractive as it would entail a political cost to the government's reputation for sound economic management. These arrangements have helped both countries to achieve substantial reductions in public debt.

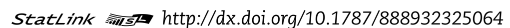
Figure 7. **United States – Eliminating the federal deficit by 2020 would bring down the debt ratio**[1]

In per cent of GDP



1. The model variant incorporates the reduction in the federal budget deficit by 1% of GDP through measures to be identified by the fiscal commission, bringing the deficit down to 3% of GDP by 2015, whereas the CBO analysis of the President's budgetary proposals does not.

Source: Congressional Budget Office (2010d) and OECD calculations.



Expenditure should be restrained

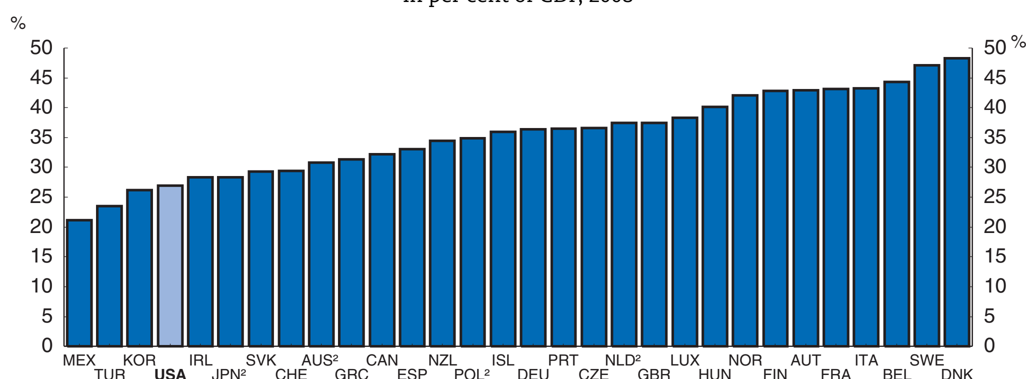
While exit from fiscal stimulus will help, it will not be sufficient to balance the primary deficit by the middle of the decade or bring down the debt-GDP ratio thereafter. Some experiences in other countries suggest that restraining spending best demonstrates the authorities' commitment to deficit reduction and therefore has a better chance of being sustained in the long term, compared to policies based solely on tax increases, though the substantial fiscal consolidation in the United States in the 1990s took place with both spending restraint and tax increases. In addition to proposing a freeze on non-defence discretionary spending, the Administration is taking steps to move towards best practices in the management of its public agencies, to achieve efficiency gains. In particular, the authorities have reviewed past policies that have increased the contracting out of public services to private-sector suppliers and, on this basis, decided to strengthen the management and oversight of these contracts, to get more value for money and reduce wasteful spending. New procurement guidelines also seek to move to fixed-price contracts rather than "cost-plus" contracts, which had led to slippages and cost overruns. As well, a new effort is underway to more rigorously evaluate the performance of public programmes, using evidence-based analysis regarding the attainment of final outcomes. In the longer run, given the large share of fast-rising mandatory spending, the effort should focus on reforming social benefit entitlements, including old-age pensions and health care, as was done recently in the context of health-care reform.

Tax revenue will likely have to increase

These measures to restrain spending are welcome, but large effects seem possible only in the long term. Barring cuts in entitlements and defence spending, which are currently not on the policy agenda, *taxes will likely have to increase to stabilise the debt-to-GDP ratio by the middle of the decade and put it on a downward path thereafter.* While raising taxes necessarily distorts activity and therefore imposes a cost, there would nevertheless appear to be more scope for tax increases – the United States tax-to-GDP ratio is among the lowest in the OECD area, even including taxes at the levels of state and municipalities (Figure 8). Thus, modest increases would still keep the overall tax burden at a relatively moderate level and not impose excessive costs. A variety of options is available to raise tax revenue, some of which are discussed below. Combined, they have the potential to raise considerably more revenue than is required to close the fiscal gap by 2015. Hence, any fiscal package would only need to include some of these options, not all of them. The advantage of relying on a package of measures is that the increase in taxation faced by individual groups is more limited than otherwise, reducing incentives to mobilise to oppose the tax increase, and may appear to be more equitable as other groups are also facing tax increases. A package of reforms could also enable the most vulnerable/lowest income groups to be compensated for any losses. In any case, taxes should be raised in ways that are least harmful to growth, notably by reforming aspects of the tax system that are particularly inefficient and cause large distortions.

Figure 8. **The US tax-GDP ratio is low by OECD standards**[1]

In per cent of GDP, 2008



1. The Revenue Statistics database contains data provided by the national tax authorities, which are generally based on standard national accounts definitions and methodologies. However, divergences with the national accounts exist in some areas. The differences are small for most countries and in most years, but are substantial in some cases. The most frequently used measure of the tax burden is shown in the figure (total taxes plus social security contributions as a percentage of GDP).
2. 2007 final data, provisional 2008 data not available.

Source: OECD, *Revenue Statistics Database*.

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The tax base should be broadened and a more balanced tax structure sought

The US tax code provides numerous tax expenditures (*i.e.*, exemptions, deductions, preferences or other exclusions under tax law resulting in losses of revenues) that distort behaviour and reduce tax receipts. Tax breaks have grown significantly since the major tax reform of 1986. These tax exemptions are more generous than in many other OECD countries (Table 3). *As argued in previous* OECD Economic Surveys, *widespread evidence suggests that the*

Table 3. **Tax expenditures in personal income tax: international comparisons**
(as a per cent of central government personal tax receipts)

	Canada (2004)	Germany (2006)	Korea (2006)	Netherlands (2006)	Spain (2008)	United Kingdom (2006)	United States (2008)
Total	32.97	2.91	10.09	2.74	3.86	13.47	29.36
of which							
Retirement	10.72	0.05	0.10	0.16	0.46	6.38	5.77
Health	1.70	0.00	1.67	0.00	0.00	0.00	5.38
Housing	1.29	2.01	0.29	0.12	1.12	3.30	5.90
Intergovernmental	9.94	0.30	0.00	0.00	0.00	0.00	3.54
Other	9.32	0.55	8.03	2.46	2.28	3.79	8.77

Source: OECD (2010a), Tables 29 and 30.

major tax expenditures – mortgage interest deductions on owner-occupied housing, the exclusion from personal income and payroll tax of employer-provided health insurance coverage, and the tax deductibility of state and local taxes – need to be reduced. There is also scope for reducing other tax expenditures, such as the exclusion of capital gains from estate taxation, that neither enhance economic performance nor social equity. The Administration has proposed to limit to 28% the rate at which itemized deduction can be subtracted from taxable income. *This goes in the right direction, but this limit could be reduced further.* For instance, estimates by the CBO (2009b) suggest that reducing the rate to 15%, which is closer to the marginal income tax rate on medium household income, would bring about USD 1.3 trillion of additional tax revenues over 2010-19.

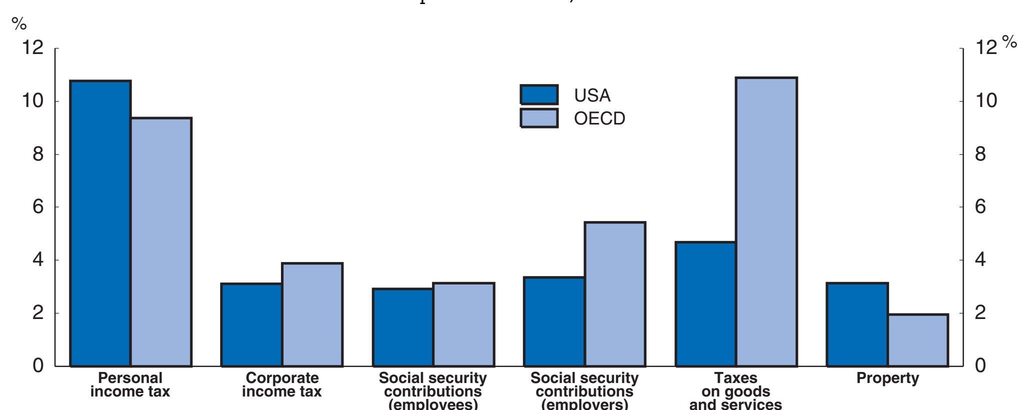
The tax code provides very favourable treatment to owner-occupied housing by allowing the deduction of mortgage interest and property taxes from adjusted gross income without taxing the rental income accruing to the owner-occupant. Not only is this system not based on a sound framework, but it also disproportionately favours high-income taxpayers and therefore makes the income tax system less progressive than otherwise. As noted above, this policy probably does not add to the overall proportion of households that are owner-occupiers, is likely to have encouraged over-borrowing during the housing boom, and thus to have contributed to the high share of homeowners with negative housing equity, which has adverse effects on labour mobility. As recommended above, *the mortgage interest income tax deduction should be replaced by a homebuyer savings account scheme where the government provides matching contributions to encourage access to homeownership. The policy could be phased in during 2013-18 to allow the housing market to stabilize.*

The tax system also excludes employer-provided health insurance premiums from taxable income, which fosters employer-provided health insurance but also encourages over-consumption of health-care resources. This amounts to an open-ended subsidy that encourages the purchase of insurance policies that have little cost sharing, accentuating problems of moral hazard. The recent health reform partly reduces the importance of this exclusion by introducing in 2018 an excise tax on so-called "Cadillac" plans, but the tax exclusion has been left largely intact. In view of its contribution to the excess cost growth of health care and of the substantial potential revenue gains, *the government should reduce further this tax expenditure.*

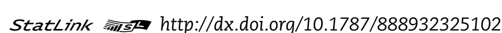
A distinctive feature of the US system is the small share of consumption taxes (Figure 9). Raising consumption taxes instead of personal income taxes would have the advantage of not reducing the after-tax return on saving, which could be beneficial in view of the need to narrow the structural savings – investment imbalance. *Raising consumption taxes, notably by introducing a federal value-added tax (VAT), could therefore be another approach to addressing*

Figure 9. **The United States relies less heavily on consumption taxes**

In per cent of GDP, 2007



Source: OECD, *Revenue Statistics Database*.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fiscal challenges. A national VAT would be easier to enforce than other taxes, as each firm in the production chain pays only a fraction of the tax and must report the sales of other firms. Because VAT applies to goods and services sold domestically, it does not increase the cost of exported products and therefore does not hamper international competitiveness. A VAT may be regressive, however, but this could be addressed by using part of the proceeds to finance the expansion of programmes like the earned income tax credit. This would also mitigate the adverse effect on work incentives that is likely to ensue from the higher tax burden, particular for workers in the low income deciles. US states could keep their existing sales taxes if they wanted, as provinces did when Canada introduced a national VAT. Alternatively, harmonizing state and federal consumption taxation would allow joint administration and collection, leading to substantial efficiency gains.

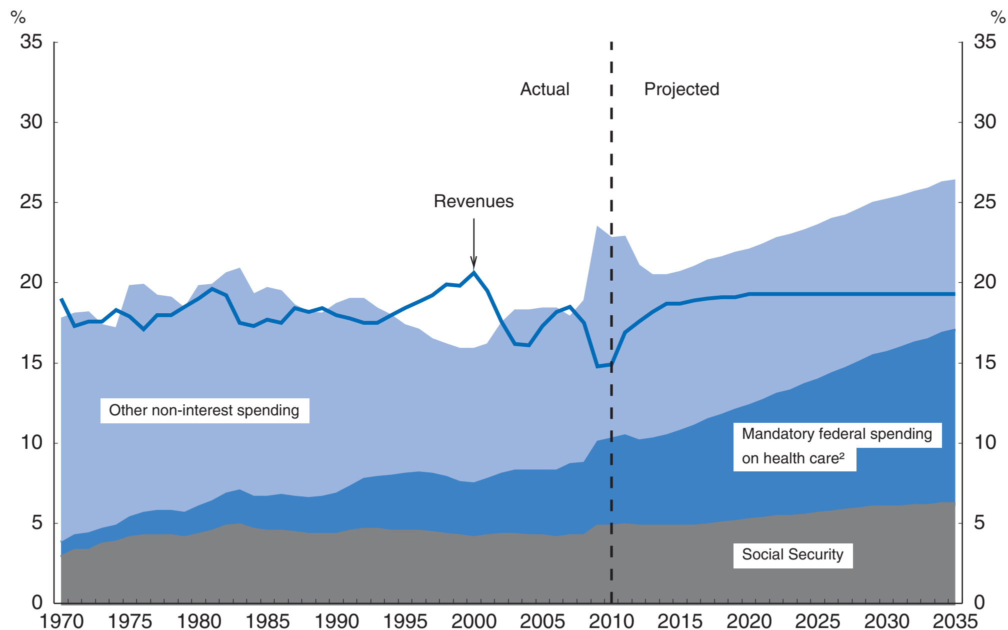
In the event that it proves not to be politically feasible to raise significant extra revenue from broadening the tax base, it will likely be necessary to increase taxation of personal incomes to achieve the requisite reduction in the federal budget deficit. Such increases should occur when the economy is back on its feet and should be done in such a way as not to unduly blunt incentives to work. In this regard, tax hikes on secondary earners should be avoided as their labour supply decisions are more responsive to changes in tax rates than are those of primary earners (CBO, 2007). Similarly, persons in the low-income deciles should be spared as their labour supply decisions are also more responsive to changes in after-tax income than are those of people in the top deciles.

The long-run fiscal outlook is challenging

Even if fiscal consolidation is sufficient to reverse the debt-GDP ratio trend during the second half of the decade, demographic pressures stemming from the ageing of the large cohorts of post-war baby boomers and the excess cost growth of public health insurance schemes will once again put the budget on a deteriorating trend thereafter. Population ageing will increase expenditures on old-age pension and Medicare benefits, while the population of workers making social security contributions will grow slowly (Figure 10). While the measures in the recent health reform legislation to expand health insurance coverage will increase mandatory federal health care spending, this effect is expected to be

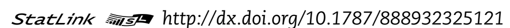
Figure 10. **Long-term fiscal trends are unsustainable**[1]

In per cent of GDP



1. The scenario depicted is the CBO's alternative fiscal scenario, which incorporates several changes to current law (shown in the extended baseline scenario) that are widely expected to occur or that would modify some provisions that might be difficult to sustain over a long period. (For details, see CBO (2010e), Table 1.1, p. 3.) As discussed in the text, the CBO heavily discounted many new health care cost containment and revenue provisions after 2020.
2. Mandatory federal spending on health care includes Medicare, Medicaid and CHIP and, for the projection period, Exchange Subsidies.

Source: Congressional Budget Office (2010e).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compensated by other measures in the legislation that reduce overpayments, waste, fraud, and abuse in Medicaid and Medicare. Indeed, mandatory federal health care spending could well turn out to be lower than shown in these projections because the CBO did not score various cost-saving measures in the reform owing to uncertainty about the scale of their effects and, in the alternative fiscal scenario (which reflects the CBO's assessment of current policy) shown below, assumes that other cost-saving measures in health reform are rolled back by Congress starting in 2020 (increasing health-care expenditures by 0.8% of GDP by 2035 compared with the extended baseline scenario, which reflects the implications of current law). Furthermore, revenues would be higher over the long-run than shown here if fiscal drag (the increase in tax revenues from leaving tax rates, brackets and other features of the tax system unchanged in the face of rising nominal incomes) were not to be offset after 2020. In the projection shown here, the CBO assumes that revenues remain constant near their historical average of 19% of GDP after 2020, whereas, without the enactment of new tax cuts, revenues would tend to naturally rise as real income growth produces higher average tax rates under the graduated income tax and as the tax base subject to the health reform's new excise tax on high-cost insurance expands (these factors increase revenue in the CBO's extended baseline by 2.6% of GDP by 2035).

Actions taken during the 1980s to reform social security, including increases in social security contribution rates and a phase-in of increases in the statutory retirement age from 65 to 67, postponed eventual programme deficits for several decades, but now the time has come to act again. Similar solutions can be used again to raise revenue needed to pay for

rising social security costs, or to contain spending. *Linking the age of eligibility for full social security benefits to active life expectancy so as to hold fixed the ratio of work life to active retirement would be one such solution. Now that the health reform has passed (see below), extending health insurance coverage to almost the entire legally-resident population, it would also be feasible to reduce Medicare outlays by making the age of eligibility the same as for full social security benefits.*

The recent health-care reform will help to reduce long-term growth in public health spending

The major long-term risk to fiscal sustainability, however, is public health care outlays. Spending on the federal government's two main health care programmes, Medicare and Medicaid, has grown markedly as a share of GDP in recent decades and, together with other federal health care programmes, is projected to continue doing so, rising from about 5% of GDP in 2009 to 11% by 2035 (see Figure 10) and 20% by 2084 in the CBO's alternative fiscal scenario, although such long-term projections are admittedly subject to considerable uncertainty. Most of this increase is attributable to "excess cost growth", which is the extent to which the growth in health-care expenditure per enrolee exceeds that in GDP per capita after adjusting for changes in the age structure of the population. Excess-cost growth appears to be driven mainly by technological progress making new, expensive treatments available. Population ageing is the other main factor explaining the projected rise in government health-care expenditures, accounting for 45% of the increase up to 2035, but only 30% of the long-term increase. Slowing growth in total health-care expenditures by increasing value for money is the most important health-policy challenge for the United States. The comprehensive reform legislation should contribute to the achievement of these goals by reducing the growth rate of public health care spending, but the CBO does not allow for these effects in the alternative scenario shown above.

The CBO assumes for these projections that the private sector will take steps to restrain excess-cost growth so that the annual increase in health-care expenditure converges to the total annual increase in consumption expenditure (*i.e.,* excess-cost growth converges to zero) by 2084. Such steps would probably entail households facing increased cost sharing, new technologies being introduced and diffused more slowly, and more treatments or interventions not covered by insurance. State governments, which pay half of Medicaid costs, could respond to growing costs by limiting the services they cover and by tightening eligibility criteria. Such a slowdown in excess-cost growth would affect Medicare, which is integrated with the rest of the health care system, through the spread of lower-cost "patterns of practice". The CBO assumes that Medicare's excess-cost growth will decline linearly from 1.7% in 2020 to 1.0% in 2084, one third of the reduction assumed for non-Medicare spending. The CBO also assumes for the "alternative scenario" shown in Figure 10 that Medicare payments to physicians grow with the Medicare economic index rather than at the lower rates of the "sustainable-growth-rate" (SGR) mechanism, which would entail an immediate 21% cut in payment rates if applied; it has not been possible to implement the SGR because it would result in an untenable increase in the discrepancy between provider fees for Medicare- and other patients.

The health care reform signed into law in March 2010 approaches universal health insurance coverage, which exists in almost all other OECD countries, but also raises taxes and cuts some spending items. In its official scoring of the bill, the CBO projects that the reform will barely reduce the budget deficit over the next decade (over USD 100 billion) but

will have a considerably larger effect in the following decade (savings of USD 1 trillion in the extended baseline), although again it should be recognized that such long-term projections are uncertain. The largest sources of financing for the expansion in health-insurance coverage are the above-mentioned 0.9 percentage point increase in the Medicare tax rate and 3.8 percentage point increase on unearned income for high-income households, a reduction in Medicare fee-for-service (FFS) market-based price updates for hospitals by 1% per year (reflecting economy-wide productivity growth) for the next decade, and a cut in overpayments to Medicare Advantage (private) plans, which cost more than the traditional FFS-Medicare programme. For these budget savings to be realised, *Congress will need to refrain from subsequently overriding the relevant provisions of the legislation.* If Congress maintains the provisions in the bill as passed into law, and if these measures have the intended effects, the long-run budget outlook will be substantially improved relative to the CBO alternative scenario shown in Figure 10.

The legislation also includes measures that could significantly reduce government health care outlays in the long term but for which the CBO was generally unable to estimate budget effects owing to uncertainty regarding their effectiveness or how they could be scaled up. The effectiveness of these provisions may be a critical part of containing long-run health costs. A potentially important measure in this regard is the creation of a Centre for Medicare and Medicaid Innovation within the Centres for Medicare and Medicaid Services to test provider-payment reforms that move away from the current FFS model. These reforms have considerable potential to slow growth in health-care outlays by better aligning health providers' incentives and patients' interests. This is particularly important for episodes of treatment that include hospital treatment and ambulatory care, which is the fastest growing component of US health-care expenditure. It has been estimated that bundling payments for chronic diseases and elective surgeries into a single treatment episode could reduce medical spending by 5.4% through 2019 (Hussey *et al.*, 2009). *If these reforms are found to be effective in reducing costs without compromising quality of care, they should be rolled out widely, as planned.*

In another provision, the newly created Independent Payment Advisory Board (IPAB) would be required to make recommendations to reduce growth in Medicare spending if projected growth per beneficiary exceeded certain indexed limits. This is potentially a very powerful tool because the recommendations would go into effect automatically unless blocked by subsequent legislation. There is also a variety of other cost-saving proposals in the legislation, including: value-based benefit design; funding for comparative effectiveness research, which analyses the effectiveness of treatments (and could be important for deciding prices to pay for new drugs); and incentives for hospitals to reduce hospital-acquired infections. The legislation is also funding demonstration projects to reduce the practice of defensive medicine, thought to be caused by medical malpractice lawsuits, by finding other routes to dispute resolution. Despite the potential importance of the IPAB and other deficit-reduction measures, the CBO assumes in the alternative scenario shown above that they are curtailed by Congress after 2020, whereas if implemented as enacted, the long-term fiscal outlook would be significantly improved.

State and local governments also face long-term fiscal challenges

Many state and local governments also face a challenging long-run fiscal outlook. The Government Accountability Office (2010) estimates that, on unchanged policies, the 50-year fiscal gap facing states and local governments could be as high as 12% of GDP. The principal drivers of the widening operating budget gap are pension and health care costs for public employees. Pew Center on the States (2010) puts the scale of the unfunded pension liability at end-June 2008 (the end of most sub-national governments' fiscal year) at around USD 1.1 trillion. A much larger estimate of the unfunded liability of state pension schemes is obtained when pension obligations are discounted not by the expected rate of return on assets – as is required by state government accounting standards – but by a lower discount rate that reflects the low risk profile of pension liabilities (Novy-Marx and Rauh, 2009). Either method of discounting future liabilities suggest unfunded pension debt exceeds the states' publicly traded debt of USD 0.94 trillion.

Box 2. **Summary of recommendations for restoring fiscal sustainability**

- Allow measures in the fiscal stimulus package to expire.
- Implement the proposed plan to stabilize the debt-GDP ratio by the middle of the decade.
- Bring the debt-GDP ratio down during the second half of the decade to create fiscal room and to prepare for demographic ageing.
- Strengthen the budget process and restrain spending, including by expanding the coverage of PAYGO.
- Increase tax revenue, mainly by broadening the tax base.
- Stabilise the ratio of work life to active retirement by linking the age of social security eligibility to active life expectancy.
- Do not override expenditure restraints contained in the March 2010 health care reform.
- Roll out Medicare provider-payment reforms that prove to be successful in pilot tests across the programme, as planned.

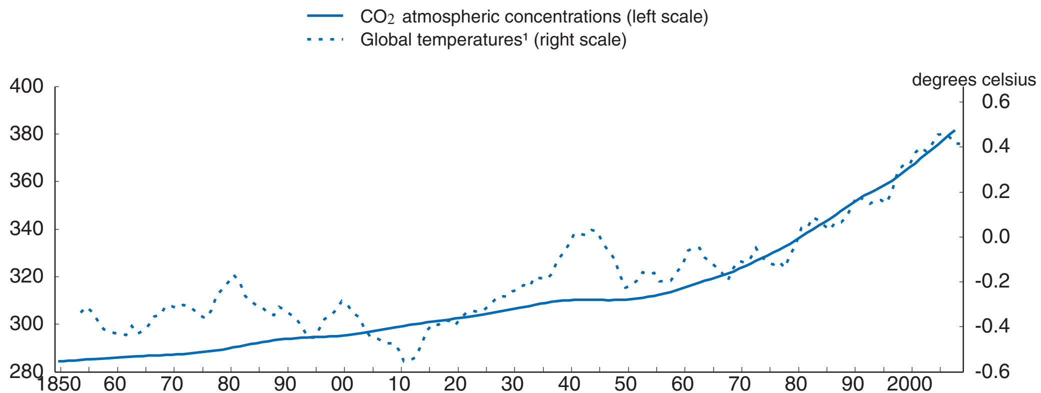
3. Implementing cost-effective climate change-mitigation policies

It would be prudent to reduce Greenhouse Gas (GHG) emissions to limit climate change

The consensus view of scientists is that GHG emissions from human activities are causing global warming. There have been large increases in atmospheric concentrations of GHG since the beginning of the industrial era (about 1750) and global temperatures have increased by about 0.7 °C over this period (Figure 11). The pattern of climate change – warming in the lower atmosphere and cooling in the stratosphere – is consistent with greenhouse gases being the main cause. Large increases in atmospheric-GHG concentrations are in prospect in the absence of further policy action to curb emissions or of major technological breakthroughs (*i.e.*, on a business-as-usual (BAU) basis), which will lead to further significant global warming.

Figure 11. **CO_2 atmospheric concentrations and global temperatures are rising**

Five year average



1. Deviation from average 1961-90.

Source: World Meteorological Organisation.

StatLink http://dx.doi.org/10.1787/888932325140

There is much uncertainty about the likely increase in temperatures caused by rising GHG concentrations and an even greater level of uncertainty around the damages associated with such temperature increases. Studies suggest that the costs of inaction are likely to be significant, but if climate sensitivity is very low, the damages could be lower. For example, based on Intergovernmental Panel on Climate change (IPCC, 2007) climate-sensitivity-parameter estimates (the impact on temperature of a doubling of the atmospheric concentration of GHG) and a projected increase in the atmospheric concentration of GHG on a BAU basis that falls roughly in the mid-range of previous studies quoted in IPCC (2007), OECD (2009) projects an increase in the global mean temperature of about 4 °C by 2100, but with a one-in-six chance of the increase being more than 5.8 °C and a one-in-six chance of it being less than 2.2 °C. Climate modelling suggests that damages rise much more than in proportion to the rise in global mean temperatures beyond 2.0 to 2.5 °C (Nordhaus, 2007). Damage estimates associated with a given increase in global temperatures are also subject to considerable uncertainty – damages could be somewhat lower or significantly higher (the probability distribution of most damage estimates is skewed to the right). In view of

this uncertainty, mitigation action should be seen as reducing the probability of severe climate-change costs occurring.

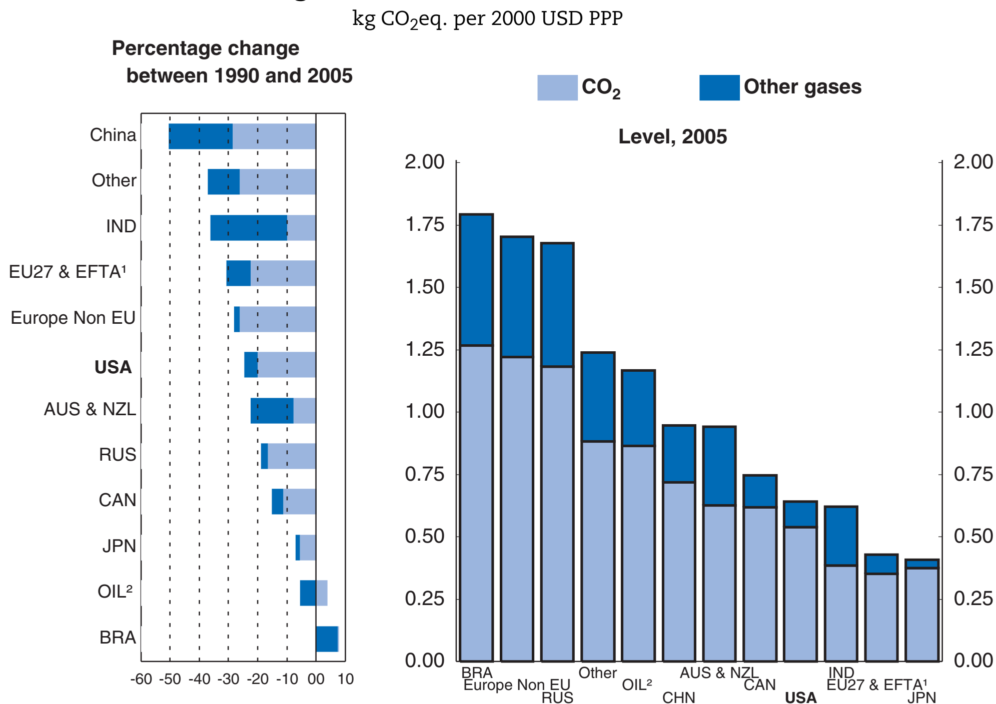
The United States is a major emitter of GHG

While growth in US GHG emissions has slowed substantially in recent years, emissions were nevertheless some 17% higher in 2005 than in 1990. This increase compares with a decline of 6% on average in the EU27 + EFTA countries, partly reflecting the collapse of heavy industry in Eastern Europe. This factor clearly contributed to the 18% decline in emissions in Germany over this period. However, emissions also fell steeply in the United Kingdom (10%) and only rose modestly (4%) in France. The US share of current global emissions has declined in recent years to 15% in 2005 as its emissions growth has slowed and emerging countries have developed. The US share is the second largest of any country or region, after China. The OECD (2009) projects that US GHG emissions will increase by 28% by 2050 on a BAU basis, which, together with rapid growth in developing countries'emissions will result in the US share of global emissions falling somewhat to 13% by 2050.

Growth in GHG emissions has been slower than economic growth both in the United States and most other countries. The GHG emissions intensity of the US economy (GHG emissions per unit of GDP in 2005 prices) fell by one quarter between 1990 and 2005 (Figure 12). This

Figure 12. **GHG emission intensity of output is declining in the United States but is higher than in most OECD countries**

kg CO_2eq. per 2000 USD PPP



1. EU27, Iceland, Norway and Switzerland.
2. Indonesia, Venezuela, Middle East, North Africa, and Nigeria.

Source: IEA (2009a).

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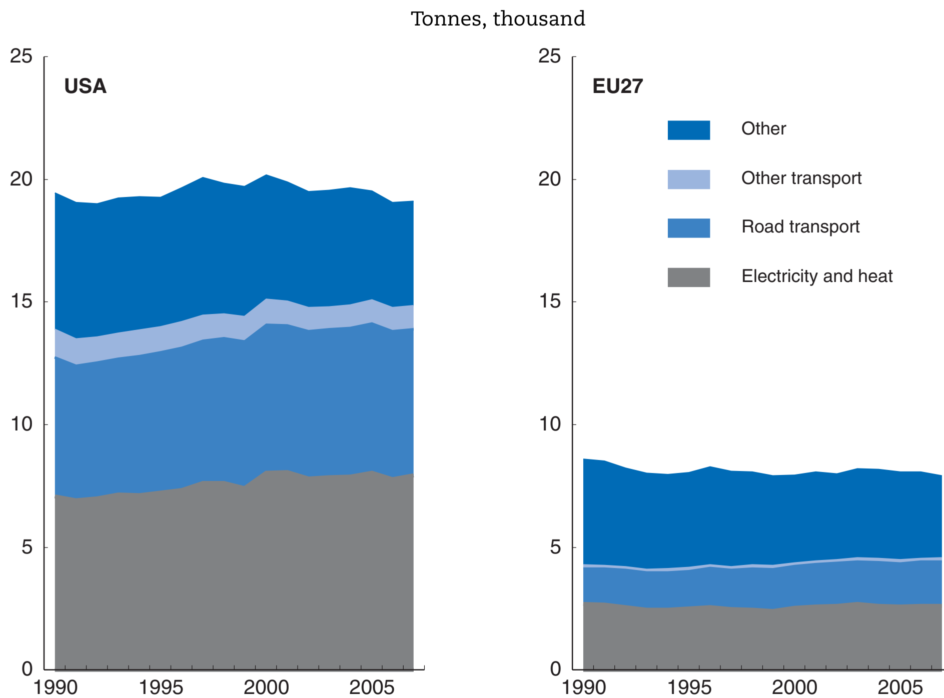
reduction in GHG intensity was less than achieved in EU27 + EFTA countries on average, but more than in the remaining OECD countries (GDP is converted to USD at 2005 PPP exchange rates). The GHG emissions intensity of GDP is higher in the United States than in the EU27 + EFTA countries and Japan but lower than in Canada, and the Australia and New Zealand region.

Emissions per capita in the United States in 2005 were approximately double the levels in the EU27 + EFTA and Japan, though they were lower than in the Australia and New Zealand region. The large difference between US- and EU27 + EFTA emissions is mainly attributable to much higher CO_2 emissions from electricity and heat production and from transportation (Figure 13). Emissions from electricity production in the United States are relatively high owing to heavy reliance on traditional coal-fired power stations, which supply almost one half of US electricity. This technology choice reflects the low cost of coal relative to natural gas in parts of the country, fuel prices that are distorted by subsidies and the absence of strong financial incentives to encourage more efficient use of fossil-fuel plants or to use cleaner fuels for power generation (IEA, 2008). Even though public-mass-transit investment and usage have been increasing in the United States, development is still limited compared to European countries, contributing to transport emissions. Other factors that contribute to relatively high transport emissions are the low population density and consequent long distances travelled per capita and the low mileage performance of the vehicle fleet, although US fuel-economy standards are being raised (see below). Low fuel taxes relative to EU27 + EFTA countries may contribute to higher annual vehicle miles travelled and preferences for vehicles with low fuel economy (Figure 14).

Figure 13. **CO_2 emissions per capita are much higher in the United States than in the EU27**

Tonnes, thousand



Source: IEA (2009a).

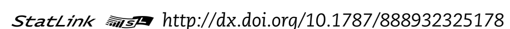

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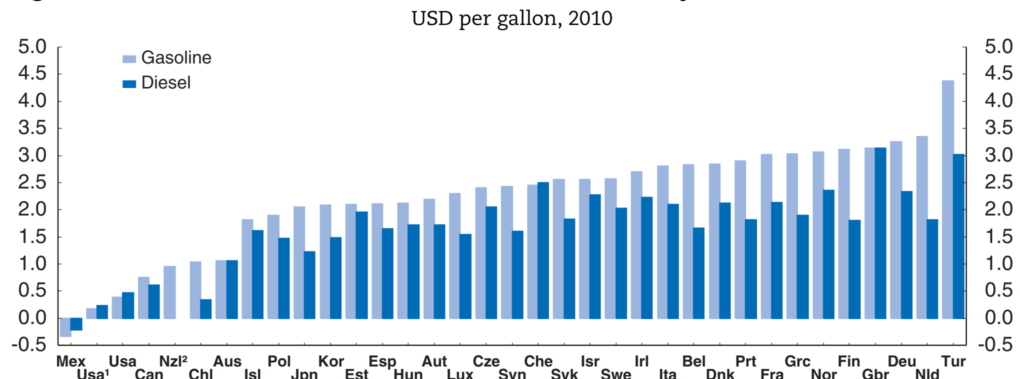
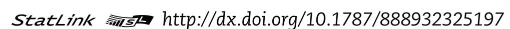
Figure 14. **Gasoline and diesel tax rates are relatively low in the United States**

USD per gallon, 2010



1. Federal.
2. New Zealand levies road-user charges on diesel vehicles.

Source: OECD, *EEA Database*.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Participation of the United States and other large emitters is pivotal to reaching an international agreement to reduce GHG emissions

Stabilising the CO_2-equivalent concentration of long-lived GHG in the atmosphere at around 550 ppm would offer about a 50% chance of limiting the long-term increase in global mean temperature to about 3 °C above pre-industrial levels (IPCC, 2007). However, it would be difficult for a global coalition of countries and/or regions to achieve this goal by 2050 without the participation of the United States and any other large emitter as this would entail very high global mitigation costs and would be impossible if neither the United States nor China participated. OECD (2009) analysis using the World Induced Technological Change Hybrid (WITCH) model (Bosetti *et al.*, 2009; and Bosetti, Massetti and Tavoni, 2007) provides theoretical support for these conclusions. Moreover, it would be difficult to assemble a coalition of countries to take action that did not include the United States as other countries, especially developing countries, are unlikely to consider it equitable that they bear abatement burdens while the United States, which is one of the richest countries and largest emitters in the world, does not. This makes US leadership vital. Indeed, some countries have made the adoption of mitigation policies dependent on US action, with this link being explicit in the case of Canada. The current Administration has clearly signalled its desire for the United States to assume its leadership responsibilities by adopting a comprehensive package of policies to substantially reduce GHG emissions, subject to Congress passing the associated legislation (see below).

The United States agreed to the Copenhagen Accord (noted by the United Nations Framework Convention on Climate Change, Conference of the Parties 15th session (COP15)) negotiated in December 2009. It committed to a national target for reducing GHG emissions from the 2005 level by around 17% by 2020 (equivalent to a reduction of about 3% from the 1990 level) subject to passing the requisite energy and climate legislation. The EU27 + EFTA group of countries committed to a 30% reduction from the 1990 level (equivalent to a reduction of about 25% from the 2005 level) provided that other industrialised countries make comparable commitments and that developing countries make adequate commitments, falling to a 20% reduction otherwise. OECD

(2010b) estimates that the EU27 + EFTA maximum commitment and the US commitment entail comparable efforts in terms of loss of real income (around 0.7% of BAU income by 2020 below). Based on the maximum commitments made by other OECD countries, OECD (2010b) estimates that the countries with high emissions intensity (Canada, Australia and New Zealand) would incur somewhat larger income losses while Japan would incur a smaller income loss. According to OECD (2010b), the US target, taken together with the declared targets of other industrialised countries, would lead to a 12-18% reduction in GHG emissions in 2020 compared with 1990 levels. While this is significant, further reductions from industrialised countries and the more advanced developing countries would be required to achieve the reductions judged by the IPCC to be necessary by 2050 to have a 50% probability of limiting warming to 2 °C (this scenario entails stabilising the atmospheric concentration of long-lived GHG at 450 ppm CO_2-equivalent). To reach a final agreement, it will be necessary to agree a fair distribution of abatement burdens.

In addition to reducing the exposure of Americans to the risk of high-cost-climate-change events, US participation in global mitigation efforts would generate co-benefits from reduced local air pollution. Bollen *et al.* (2008; 2009) estimate that health co-benefits from reduced local air pollution in the United States could cover a sizeable part of mitigation costs. By reducing the fossil-fuel intensity of both the US and other economies, policies to reduce GHG emissions could also enhance energy and national security.

The most cost-effective way to reduce GHG emissions is to price them and support emission-reducing innovation

Private production and consumption decisions do not fully take into account the social costs of GHG emissions. Consequently, the level of GHG-intensive production and consumption activity is higher than is socially optimal. The most cost-effective means of ensuring that these external costs are taken into account is to price emissions, either through an emission tax or a cap-and-trade scheme. This would encourage producers and consumers to exploit abatement opportunities. Because they have an incentive to exploit the cheapest abatement opportunities first, abatement costs would be minimised. This applies all the more at the international level, where there are large differences in marginal abatement costs across countries. The power of pricing to minimise abatement costs has been amply demonstrated in the United States through experience with the cap-and-trade scheme to reduce sulphur dioxide (SO_2) emissions in the electric-power sector, introduced in 1995. It has resulted in almost a halving of these emissions and compliance costs are estimated to have been 30-40% lower than would have been incurred had the command-and-control regulatory approaches considered by the Congress instead been adopted (Stavins, 2005 and 1998; Carlson *et al.*, 2000). Railroad deregulation increased the cost savings from the cap-and-trade scheme by enabling Mid-western electric utilities to reduce their SO_2 emissions by increasing their use of low-sulphur coal from Wyoming.

While pricing of GHG emissions would also increase incentives to invest in RD&D (R&D and Demonstration), this alone would not bring such investment up to the socially optimal level owing to a number of market failures. First, firms making such investments are typically unable to appropriate all or most of the returns they generate owing to the public-good nature of knowledge (Griliches, 1992). Second, political uncertainty surrounding climate-change policy reduces the incentive to bear the costs of innovation (OECD, 2009).

Third, firms will focus RD&D investments on existing polluting technologies rather than low-emissions technologies owing to market-size effects (Acemoglu *et al.*, 2009). Fourth, a lack of appropriate infrastructure may be a barrier to the adoption of some new technologies, such as electric cars or renewable energy (de Serres, Murtin, and Nicoletti, 2010). And finally, learning-by-doing effects reduce the costs of existing technologies as firms and consumers learn better how to use them, resulting in slower than socially optimal diffusion of new technologies because neither firms nor consumers take these spillovers into account when making production and consumption decisions (Arrow, 1962).

Very large increases in global RD&D are likely to be required to enable backstop technologies to emerge that would substantially reduce abatement costs. OECD (2009) estimates that a six-fold increase in such investments would be needed, assuming a world carbon price scenario that targets stabilisation of the atmospheric concentration of GHG at a 550 ppm CO_2-equivalent. In an alternative approach that identifies spending gaps in the main technologies concerned, the IEA (2009b) estimates that an increase of three to six times the current level of RD&D spending is needed. It has been estimated that the emergence of plausible technology backstops could reduce abatement costs by 50% or more, which represents savings in the tens of trillions of dollars over the next hundred years (Edmonds *et al.*, 2007; Manne and Richels, 1992; and Clarke *et al.,* 2006).

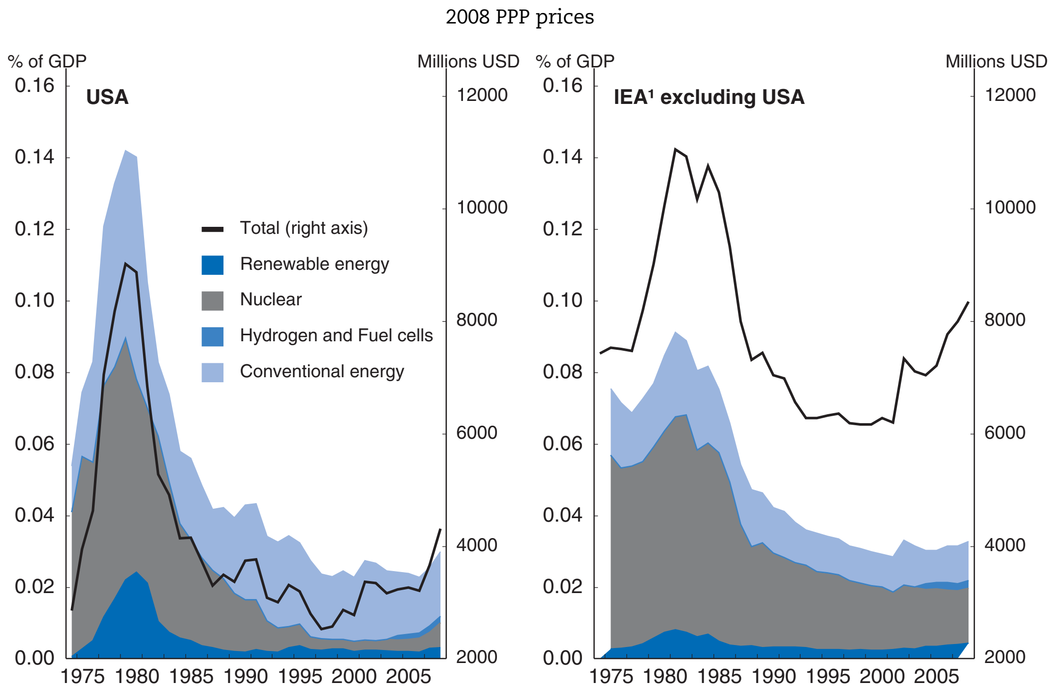
Government policies implemented thus far to reduce GHG emissions have been neither ambitious nor cost effective

Prior to the recent non-binding Copenhagen Accord, the only international agreement to reduce GHG emissions that the US government had ratified was the United Nations Framework Convention on Climate Change (UNFCCC), under which the United States and other industrial countries made a non-binding commitment to return GHG emissions to their 1990 level by 2000 and to stabilise them at this level. The United States, like most non-European OECD countries, has not met this target while the EU27 + EFTA countries have, on average (see above). The United States did not ratify the Kyoto Protocol through which other industrialised countries committed to reduce GHG emissions to 5.2% below the 1990 level by 2012. Domestically, the previous Administration unilaterally adopted the non-binding target of reducing the GHG emissions intensity of the economy by 18% over 2002-12, four percentage points more than projected on a BAU basis (minus 14%) at the time (2002) (IEA, 2008). The United States appears to be on track to meeting this target.

Rather than price GHG emissions – the cornerstone of a cost-effective approach to reducing GHG emissions – the previous Administration focused on voluntary agreements with industry, which accounted for around one half of the estimated mitigation impact of measures reported in the fourth US Climate Action Report (United States Department of State, 2007), and on supporting the development and dissemination of technologies to reduce GHG emissions, notably through measures in the Energy Policy Act of 2005. Public spending on energy-related RD&D has increased in recent years, but both the increase and the level attained have been modest, especially compared with the period following the first two oil-price shocks (Figure 15). This increase and the level attained are comparable to those in other IEA member countries. While no comprehensive data exist on private sector RD&D, available evidence suggests that its share in overall private RD&D spending is low

Figure 15. **Public spending on energy-related RD&D has increased in recent years but remains low**

2008 PPP prices



1. Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom.

Source: International Energy Agency, RD&D Budget – Edition 2009; OECD (May 2010), *OECD Economic Outlook 87 Database*.

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compared with other sectors and has been decreasing over the past two decades (OECD, 2009).

None of these policy instruments is cost effective as a substitute for emissions pricing. They do not internalise the costs that GHG emissions impose on others and, accordingly, there is no reason for abatement to be the least costly. Moreover, the absence of pricing weakens incentives for induced technical change to reduce emissions. Rather, such policies have the potential to work best as complements to emissions pricing. For example, support for RD&D to reduce emissions complements emissions pricing by addressing market failures (those listed above) other than the pollution externality.

The Energy Policy Act of 2005 also mandated an increase in the bio-fuel content of gasoline sold in the United States. This programme has been a particularly costly way of reducing GHG emissions. Abstracting from indirect land use effects (ILUE, which refer to the extra carbon emissions from land-use changes (such as conversion of forests into farmland) induced by the expansion of croplands for ethanol or biodiesel production) and assuming that corn-based ethanol reduces GHG emissions by 10-20% compared with fossil-fuel-based gasoline, the OECD (2008) estimates abatement costs of at least USD 1 000 per tonne of CO_2. This programme has also taken land out of production of food for (direct or indirect) human consumption, pushing up food prices. It has also increased the cyclical volatility of global food prices because subsidies for corn-based bio-fuels are positively related to oil prices, which are positively correlated with the global business cycle.

The Renewable Fuels Standard (RFS) was substantially revised in The Energy Independence and Security Act of 2007 (EISA) to give increased weight to bio-fuels that are more effective in reducing GHG emissions, allowing for direct emissions and significant indirect emissions (such as from indirect land use changes). EISA established new renewable fuel categories, setting mandatory life-cycle-GHG-emissions thresholds for them in relation to average petroleum fuels used in 2005. It requires a gradual increase in the use of bio-fuels by American fuel producers from 9 billion gallons in 2008 to 36 billion by 2022 and requires them to use an increasing proportion of advanced bio-fuels (21 billion gallons by 2022). The Act also created a USD 1.04 per gallon subsidy for cellulosic bio-fuel and reduced the ethanol subsidy from USD 0.51 to USD 0.45 per gallon. *The requirement in EISA to take account of ILUE when setting the revised renewable fuel standard (RFS2) is a major improvement on the original RFS that should not be sacrificed, as would occur were the provision in theAmerican Clean Energy and Security Act of 2009 (ACES, see below) prohibiting the EPA from taking this factor into account to be retained in final climate-change legislation.* This provision was not included in the American Power Act (Kerry-Lieberman), which was submitted to the Senate earlier this year but has not been passed owing to insufficient support in the Senate.

To implement RFS2, the EPA has had to estimate the life-cycle GHG emissions effects of bio-fuels, allowing for significant ILUE. The EPA's analysis supports earlier evidence that sugarcane-based ethanol has much lower GHG emissions abatement costs than corn-based ethanol, even when the latter is produced under conditions that minimise GHG emissions (using natural gas instead of coal to power dry mill plants) (US Environmental Protection Agency, 2010a). However, agriculture and trade policies discourage the use of sugarcane-based ethanol, which would be imported from Brazil, by setting high import tariffs on sugarcane-based ethanol. *Abatement costs could be reduced by eliminating subsidies for bio-fuels with lower life-cycle GHG emissions reductions than sugarcane-based ethanol* – i.e., *corn-based ethanol and biobutonal, including from plants currently grandfathered – and by abolishing the import tariffs on sugarcane-based ethanol.* These measures could also be used to help to negotiate lower barriers imposed by Brazil on imports of technologies to reduce GHG emissions. Removing the barriers to sugarcane-based ethanol could also make it easier to meet the advanced bio-fuels requirements in EISA, as there are still considerable technical barriers to overcome before commercialisation of other such fuels. Abatement costs could be further reduced by replacing the bio-fuels mandate with appropriate pricing of GHG emissions.

Local and state land-use regulations often do not integrate housing development and transport infrastructure decisions. The result is that the United States has many urban areas that are not adapted for public transport. *For this to change in the long term, land-use regulations should integrate housing development and public transport availability.* This could result, for example, in more redevelopment of brown-field sites to attract new housing to already built-up areas, which are better suited to public transport than the alternative green-field sites. In making this change, policymakers could learn from the experiences of Germany and the Netherlands, which have successfully implemented such policies.

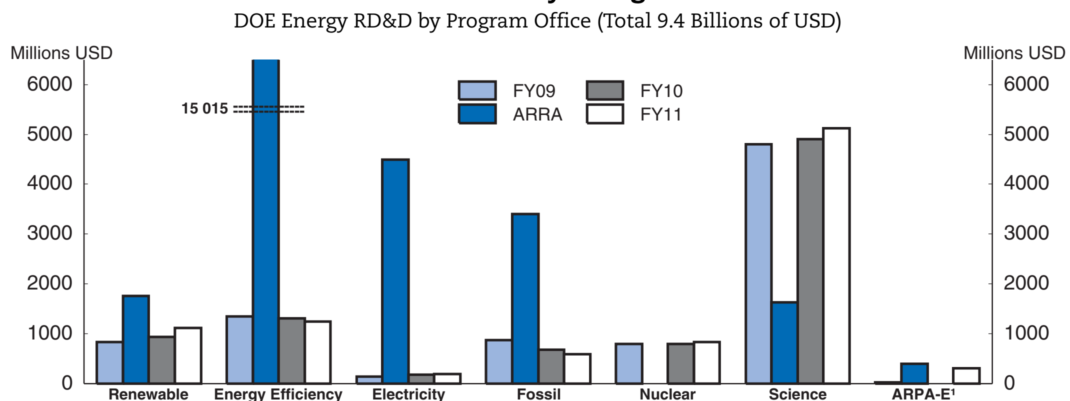
The current Administration's preferred climate-change policy would yield large cost-effective reductions in emissions if implemented

The current Administration is endeavouring to establish a comprehensive climate-change policy, the main planks of which are pricing GHG emissions and supporting the development of innovative technologies to reduce GHG emissions. As discussed above and emphasized in the OECD (2009), this is the right approach to deliver cost-effective abatement. The Administration has proposed pricing GHG emissions through a cap-and-trade scheme that would reduce emissions broadly in line with the conditional commitments made at Copenhagen. To prepare the ground for such a scheme (or regulation of GHG emissions if a cap-and-trade scheme is not implemented – see below), the United States will begin collecting data in 2010 on greenhouse gases from large emitters, eventually covering 82.5% of US emissions.

The Administration gave a substantial boost to public funding for Research, Development and Deployment (RD&D, which includes expenditure to speed the spread of a given technology (deployment), in additional to traditional R&D, which is focused on creating new technologies) to reduce GHG emissions through the American Reinvestment and Recovery Act of 2009 (ARRA), which raised such funding by about USD 26.7 billion according to US Department of Energy estimates (Marlay, 2010) (Figure 16). ARRA also included a loan guarantee programme for innovative technologies amounting to USD 6 billion. The US Department of Energy's (DOE's) innovation budget ("Science" in Figure 16) has increased steadily in recent years, to USD 5.1 billion in the FY 2011 budget request, and the government plans to double this budget over the next five years. To further deployment, the DOE has requested funding authority to support loan guarantees of USD 36 billion for new nuclear power plants and of USD 4.4 billion for renewable energy and electricity transmission. While the increased commitment goes in the right direction, *the authorities should increase public support for energy RD&D further to increase the probability of developing breakthrough technologies that would greatly reduce abatement costs as argued by Acemoglu* et al. *(2009)*. A constraint to expanding rapidly both public- and private-energy R&D, however, could be the availability of an adequate supply of scientists; there is evidence that R&D subsidies can drive up wages of

Figure 16. **The Department of Energy's (DOE's) innovation budget ("science") is steadily rising**

DOE Energy RD&D by Program Office (Total 9.4 Billions of USD)



1. Advanced Research Projects Agency-Energy.

Source: Marlay (2010).

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scientists enough to prevent significant increases in R&D (Goolsbee, 1998). *This makes it important to increase investment in training scientists, as planned*. The Administration has also proposed in the FY 2011 Budget to eliminate most fossil-fuel subsidies by ending tax credits worth USD 39 billion over the next decade.

Regulation can be a cost-effective approach to reducing emissions where information and other barriers prevent market-based instruments from working efficiently. For example, the Administration has been proactive in establishing minimum energy efficiency standards for motor vehicles and a wide variety of consumer products and commercial equipment. In the case of motor vehicles, the EPA and the Department of Transportation (DOT) recently issued new joint regulations to reduce GHG emissions and increase fuel economy of new passenger cars and light trucks sold in model years 2012 through 2016. The EPA projects that CO_2 emissions per mile of the average new light-duty vehicle will be 23% lower by 2016 than in 2011 and that the fuel savings associated with the more efficient GHG technologies will far outweigh the higher initial vehicle costs (Table 4). These estimates do not, however, allow for the loss of consumer welfare from requiring consumers to purchase more fuel economy than they would absent the regulation. President Obama also issued an Executive Order in 2009 requiring federal agencies to set and meet strict GHG reduction targets by 2020. He also called for more aggressive efficiency standards for common household appliances and put in motion a programme to open the outer continental shelf to renewable energy production.

Table 4. **Fuel savings from vehicles complying with motor vehicle CO_2 regulations will outweigh higher initial vehicle costs**

Annual cost per metric ton of CO_2e abatement from motor vehicle CO_2 emission regulations, USD 2007

	Vehicle compliance cost[1] (USD millions)	Fuel savings[2] (USD Millions)	CO_2-equivalent reduction (million metric tons)	Cost per ton-vehicle program only
2020	15 600	–35 700	160	100
2030	15 800	–79 800	310	50
2040	17 400	–119 300	400	40
2050	19 000	–171 200	510	40

1. Costs here include vehicle compliance costs and do not include any fuel savings.
2. Fuel savings calculated using pre-tax fuel prices.

Source: US Environmental Protection Agency (2010b).

The House of Representatives has passed legislation (The American Clean Energy and Security Act of 2009, ACES) containing a cap-and-trade programme covering 85% of US emissions by 2016 that would deliver the GHG-emission reductions signalled in Copenhagen (17% below the 2005 level by 2020 and 83% below by 2050), and the Senate introduced a new climate bill (The American Power Act, sponsored by Senators Kerry and Lieberman) in May 2010 that is broadly similar, although it has not been passed owing to insufficient support in the Senate. Extensive analyses of ACES highlight a number of lessons that can inform legislators as they decide whether or not to support future climate-change legislation. First, the economic costs of reducing GHG emissions are modest when a comprehensive approach is adopted, the centrepiece of which is the pricing of GHG emissions. The CBO (2009c) estimates that GDP would be 1.1% to 3.4% lower in 2050 than on a BAU basis were ACES to be passed, which corresponds to a tiny reduction in annual GDP growth. CBO (2009c) also concluded that annual workforce turnover caused by comprehensive climate-change legislation would be small compared with what normally

occurs, reflecting the facts that there are few workers in energy-intensive sectors and that change occurs over a long period. According to the Inter-Agency Report (2009), competiveness- and employment impacts in energy-intensive and/or trade-exposed sectors (which account for 10% of emissions and 0.5% of non-farm employment) are minimal, if they are given output-based allocations of emission permits. *Congress should pass comprehensive climate-change legislation that includes the pricing of GHG emissions as this would enable the United States to meet the targets to reduce GHG emissions communicated at Copenhagen in a cost effective way. The border-tax-adjustment (BTA, import fees levied by countries that price GHG emissions on goods manufactured in countries that do not) provisions in the ACES legislation passed by the House of Representatives should not, however, be included in the final law as they would be costly to the economy, administratively burdensome to implement, unlikely to be successful at protecting domestic industries from competiveness impacts, and may not be the most effective means of addressing leakage* (OECD 2009). The Senate bill has much more flexible language on this front, although, as noted above, there has not been enough support in the Senate to pass this bill.

One aspect of achieving modest abatement costs is the availability of a large supply of international offsets provided that they are subject to strict oversight and are verifiable, to ensure that they represent genuine reductions from business-as-usual (a concern with offsets is that they may be subject to fraud and double counting). For example, the US Environmental Protection Agency (2010c) estimates that emission-permit prices would be up to 150% higher by 2050 if ACES did not allow international offsets. If comprehensive climate-change legislation is passed, *the authorities should support multilateral efforts towards strengthened emissions monitoring in developing countries and develop sectoral or even country-based approaches to ensure that a large supply of genuine offsets is available. The authorities should also work with their foreign counterparts to harmonise national cap-and-trade programmes so that they can eventually be linked*. All of these measures would help to ensure that abatement occurs where it is cheapest rather than where it is being paid for. In the presence of an adequate supply of international offsets, the bringing on-stream of Carbon Capture and Storage (CCS) electricity generation capacity and/or of more nuclear power is not a critical factor in containing abatement costs. However, in the absence of international offsets, these technologies make a large difference to abatement costs. Regardless of whether or not there are international offsets, ACES would be a relatively low-cost approach to reducing emissions.

Another issue for legislators to consider if they adopt a cap-and-trade scheme is the extent to which permits will be issued free of charge. The more permits that are given away, the less scope there is to offset the increase in effective taxation associated with pricing GHG emissions or, if the budget deficit is to be reduced, the higher that other taxes need to be or lower that government expenditures need to be (OECD, 2010). *In view of the need to put public finances on a sustainable path, legislators should aim to keep the free allocation of permits to a minimum so that funds raised from permit auctions can be devoted to deficit reduction, once low-income households have been compensated and more funds made available for energy RD&D.* Insofar as this reduces the need for other tax increases, this use of the funds raised reduces the excess burden of taxation (*i.e.,* the costs to economic efficiency of taxation) compared with what it otherwise would have been.

If climate change legislation is not passed, the EPA will progressively extend regulation to reduce emissions from motor vehicles to all other sectors. This would not be as cost-effective an approach to abatement and would be unlikely to be sufficient to enable the United States to achieve the emission reduction targets communicated at Copenhagen. *In this scenario, such regulation should be complemented by increases in gasoline and other fossil-fuel taxes.*

Box 3. **Summary of recommendations for achieving cost-effective abatement of GHG emissions**

- Implement comprehensive pricing of GHG emissions, as in ACES or the American Power Act.
- Support multilateral actions to strengthen emissions monitoring in developing countries and work with other countries to ensure that a large supply of genuine offsets is available, *e.g.* through sectoral or even country-based approaches. Work with other countries to harmonise national cap-and-trade programmes so that they can eventually be linked.
- Limit the free allocation of emission permits as much as possible so that revenue can be applied to budget deficit reduction once low-income households have been compensated and more funds have been made available to energy RD&D. Increase the energy RD&D budget to increase the probability of developing breakthrough technologies that substantially reduce abatement costs and take steps to increase the supply of scientists working in the field.
- Remove import barriers against sugarcane-based ethanol and eliminate subsidies for domestic producers of corn-based ethanol.
- In the event that it is not possible to pass legislation pricing GHG emissions, reduce emissions using the next most cost-effective instruments available, such as energy taxes and regulation.

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ANNEX A.1

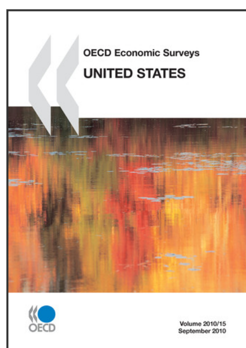
Progress in structural reform

This annex summarises recommendations made in previous *Surveys* and action taken since the last *Survey* was finalised in November 2008.

Recommendations	Action taken since the previous *Survey* (December 2008)
A. Labour markets	
The Earned Income Tax Credit (EITC) should be increased.	The American Recovery and Reinvestment Act of 2009 (ARRA) increased the EITC in 2009 and 2010 for families with three or more children and for married couples. There was also a modest temporary expansion of EITC for childless workers, who alone pay federal income taxes on incomes below the poverty line. These arrangements will expire at the end of 2010 unless Congress approves the extension requested by the Administration in the FY 2011 budget.
Implement strategies to increase employment of the disabled.	No action.
Monitor whether guidelines for labour market programmes are being followed	No action.
Avoid increasing the federal minimum wage.	The federal minimum hourly wage was increased from USD 6.55 in 2008 to USD 7.25 in 2009.
Expand trade adjustment assistance.	The Trade Globalization Adjustment Assistance Act of 2009 made assistance more widely available.
B. Education	
The No Child Left behind (NCLB) framework of standards, assessment and accountability should be extended through upper secondary education.	The Administration is helping states to strengthen their school assessment and accountability systems so that they provide information about the progress of individual students. ARRA provided funding to support these objectives and to establish the Race to the Top Fund. It provides competitive grants to reward and encourage states that have taken strong measures to improve teacher quality, develop meaningful incentives, incorporate data into decision-making, and raise student achievement in low-achievement schools.
Greatly raise limits on Stafford loans, especially for unsubsidised direct loans, so that they cover the full cost of study. The interest rate on these loans should vary with the long-term bond rate. The default repayment plan should be income-contingent.	The limits have not been increased since July 2008. Interest rates on subsidised loans (for undergraduate students) have been reduced from 6.0% in 2008/09 to 4.5% in 2010/11 but remain unchanged at 6.8% on unsubsidised loans. Repayments are not income-contingent.
Simplify or abolish tax preferences for higher education expenses.	No action.
C. Health care	
Reform the individual and small-group market to facilitate greater risk pooling. To this end, require community-rated and guaranteed issue policies and make health insurance compulsory. Introduce means-tested subsidies to help low-income persons afford health insurance.	These were key features of the 2010 health reform.

Recommendations	Action taken since the previous *Survey* (December 2008)
Replace the health tax exclusion (*i.e.,* the exclusion from taxable personal income and payroll tax of compensation paid in the form of health insurance cover) with more efficient subsidies that are independent of the health plan (subject to minimum standards of coverage being satisfied).	The 2010 health reform includes an excise tax that will be levied on high cost plans from 2018. It would have been preferable, however, for the limit for this tax to be adjusted for regional and individual factors that affect plan costs.
Enhance the dissemination of information on the effectiveness and cost of treatments and procedures.	The 2010 health reform includes funding for comparative effectiveness research.
Gradually lower Medicare Advantage payments to the level of traditional fee-for-service Medicare plans.	The 2010 health reform lowers excess payments for Medicare advantage plans.
Decrease the generosity of supplemental Medicare insurance designs for beneficiaries without chronic conditions to reduce moral hazard risks.	No action.
Ensure that prescription drug benefits do not jeopardise Medicare's long-run solvency.	The comparative effectiveness pilot study provided for in the 2010 health reform could reduce pharmaceutical costs if successful and rolled out nationally by helping to determine the prices to pay for new drugs. However, the 2010 reform added to Medicare prescription drug benefit costs by providing USD 250 rebates to beneficiaries who reach the coverage gap (also known as the donut hole) between the basic coverage limit and catastrophic coverage.
Do not delay further the use competitive tenders for Medicare purchases of medical equipment and supplies.	No action.
D. Ageing	
Speed up the phased increase in the official retirement age (at which full social security benefits are paid) from 65 to 67. Link the retirement age to active life expectancy thereafter such that the ratio of the expected duration of active retirement to working life remains constant.	No action.
Reduce the replacement rate for higher earners and raise the Social Security tax cap.	No action.
E. Product markets	
Improve energy infrastructure, in particular electricity transmission.	ARRA provided funding for improving the electricity network, in particular to facilitate the use of renewable electricity.
Roll back extra support given to farmers in recent years.	Apart from a small reduction in the subsidy for corn-based bio-fuel, no action has been taken.
F. Financial markets	
Improve and streamline the regulatory framework to make it more unified and comprehensive.	Financial reform legislation passed in the summer of 2010 makes the Federal Reserve responsible for regulating all systemically important financial institutions. The Office of Thrift Savings is merged with the Office of the Currency Controller. The bills also create a Financial Services Oversight Council to oversee policy on systemic stability.
Subject systematically important financial institutions to strict and conservative prudential standards. These institutions should hold capital against off-balance sheet risks and be subject to counter-cyclical capital requirements.	Capital adequacy ratios are being revised in co-ordination with the Basel Committee on Banking Supervision. These ratios are likely to be increased, account for off-balance sheet exposures, and to include counter-cylical adjustments.
Reform corporate governance laws to give shareholders more influence over management.	The financial reform legislation gives shareholders a non-binding vote on executive pay, gives the SEC authority to grant shareholders proxy access to nominate directors, and requires directors to win by a majority vote in uncontested elections. Compensation committees will only be allowed to include independent directors and will have authority to hire compensation consultants.
Leave the securitisation of mortgages to the private sector. This would entail privatising the Government Sponsored Enterprises, cutting off their access to preferential lending facilities with the federal government, subjecting them to the same regulation and supervision as other issuers of mortgage-backed securities, and dividing these entities into smaller companies that are not too big to fail.	The federal government has had to support Fannie Mae and Freddie Mac to stave off bankruptcy. The Administration has announced that it would work toward a comprehensive housing finance reform proposal for delivery to Congress by January 2011.

Recommendations	Action taken since the previous *Survey* *(December 2008)*
Strengthen underwriting standards for non-prime mortgages. Help the private sector to solve the agency problems that have afflicted mortgage securitisation.	The Federal Reserve has implemented new guidelines for high-cost mortgages to improve underwriting standards. The financial reform bills require companies that sell products like mortgage-backed securities to retain at least 5% of the credit risk, unless the underlying loans meet standards that reduce riskiness. The bills also call for better disclosure on the underlying assets and their quality. The bills also impose new requirements on credit rating agencies and enhance oversight of them, including by prohibiting compliance officers from working on ratings, methodologies, or sales and requiring agencies to disclose their methodologies, their use of third parties for due diligence, and their ratings track record.
Reduce legal impediments to voluntary mortgage restructuring.	The various programmes to encourage mortgage restructuring that have been initiated have had little success. The legal impediments to mortgage restructuring remain.
G. Taxation	
Reduce deductions for mortgage interest and state and local income tax.	The Administration has proposed in the FY 2011 budget to reduce the rate at which high-income owner-occupiers (married couples with incomes of over USD 250 000 per year and singles with incomes exceeding USD 200 000 per year) can deduct mortgage interest expenses to 28%.
Increase reliance on consumption taxation and consider the introduction of a value added tax.	No action.
H. Environment	
Consider introducing a domestic cap and trade system for CO_2 emissions or a carbon tax on all carbon-based energy products.	The Administration is endeavouring to implement a comprehensive climate change policy that includes a cap-and-trade system for domestic greenhouse gas emissions. The House of Representatives passed a bill in 2009 that includes such a system but the Senate has not passed comparable legislation.



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